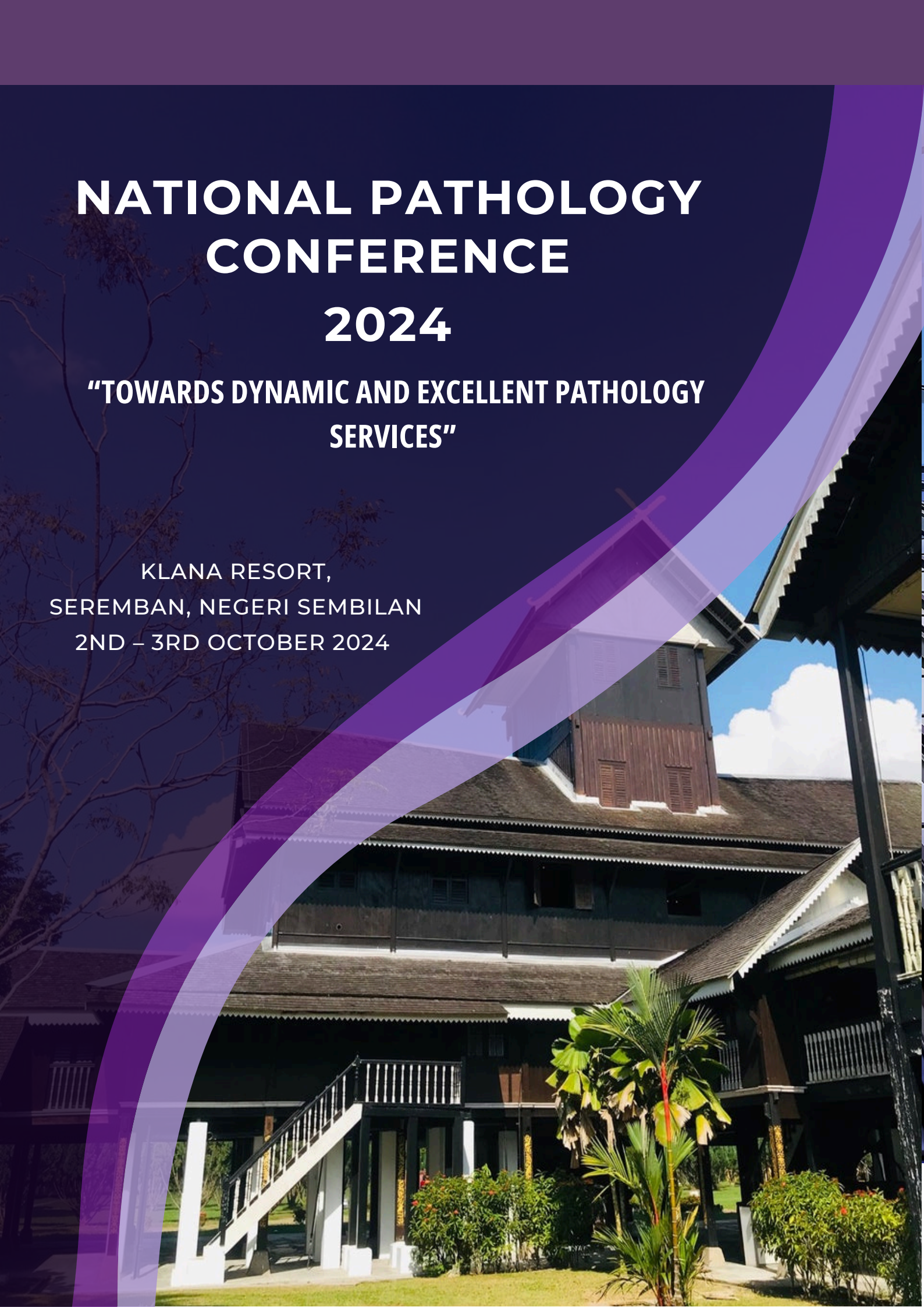


NATIONAL PATHOLOGY CONFERENCE 2024

**“TOWARDS DYNAMIC AND EXCELLENT PATHOLOGY
SERVICES”**

KLANA RESORT,
SEREMBAN, NEGERI SEMBILAN
2ND – 3RD OCTOBER 2024



ORGANISING COMMITTEE

ADVISOR	:	Dr. Suryani bt Mohd Yusoff	
CHAIRMAN	:	Dr. Noor Hasni bt Shamsudin	
VICE CHAIRMAN	:	Dr. Junalina bt Jaafar	
SECRETARY	:	Dr. Nur Aliaa bt Anuar	
VICE SECRETARY	:	Dr. Siti Farah Sophia bt Mohd Nasir	
TREASURER	:	Dr. Junalina bt Jaafar	
VICE TREASURER	:	Pn. Teh Lay Kuan	
EDITORIAL COMMITTEE	:	Dr. Marliza bt Hadzar Dr. Nadhirah bt Abdul Kadir Pn. Ierdawateey bt Ibrahim	Dr. Nurhidayu bt Mohd Shariff Dr. Nur Fazira bt Mohamad Aminordin Pn. Norazah bt Md Yusoff
REGISTRATION & CERTIFICATE	:	Dr. Lizawati bt Rasul Hamidi Dr. Nabilah Huda bt Kamaluzaman Pn. Sharmila a/p Veerasamy Pn. Fadzlin bt Mustapha Pn. Nurul Aqthirah bt Mohamad Ali Pn. Nurul Asyqin bt Yusral Fuadi	Dr. Gunasundari a/p Sibalinggam Dr. Norhanisah bt Hassan Pn. Siti Nor Afizah bt Mohd Noor Pn. Michelle anak Lukas Pn. Timah anak Mujah Pn. Norhasliyana bt Mat Naffi
PARTNERSHIP & BOOTH EXHIBITION	:	Dr. Nurul Hafizah bt Mohd Yusoff Pn. Norlin bt Abdul Latif Pn. Ierdawateey bt Ibrahim Pn. Teh Lay Kuan	Dr. Nur Juliana bt Idris Pn. Yugarani a/p Sanniasy Pn. Norazah bt Md Yusoff Pn. Thilageswary a/p Murgaya
FOOD & LOGISTIC	:	Dr. Nazlinda bt Sulaiman Dr. Nurul Izzati bt Azmi Dr. Thiviya Ruba a/p Gopalan	Dr. Hanizah Salwa bt Amran Dr. Vinodhini a/p Subramaniam Dr. Noor Aqilah bt Abdul Latif
TRANSPORTATION & SOUVENIR	:	Dr. Nor Zanariah bt Zainol Abidin Dr. Nik Farah Hani bt Mohd Zawawi Dr. Lee Keng Fui Pn. Siti Nurzalikha Nabilah bt Redzuan Pn. Siti Syahirah bt Abdullah Azmil	Dr. Marlindawati bt Mohd Ali Dr. Irda Yuhanis bt Ahmad Zaidi Pn. Rohaina bt Abd Razak Pn. Nurul Hidayah bt Mohd Lod
POSTER EXHIBITION	:	Dr. Nor Akmar bt Tak Dr. Loh Hean Sheng Pn. Nor Hidayah bt Mohd Yusof Pn. Nor Shalina bt Ahmad Tajuddin	Dr. Taye Zhi Ling Dr. Nur Anis bt Mohd Anuar Pn. Nur Amalia bt Azemi En. Mohd Firdaus bin Abu Bakar
MULTIMEDIA & PUBLICITY	:	Dr. Manisah bt Mohd Dzin Dr. Mohamad Faiz bin Mohd Noor En. Mohd Syukri bin Mohd Thahir En. Mohd Saifullah bin Zainura	Dr. Syazana bt Mohd Kuzi Pn. Nurul Ain bt Ruslan En. Ahmad Afif bin Ishak En. Mohammad Nazren bin Osman

ORGANISING COMMITTEE

PROTOCOL & PHOTOGRAPHY

: Dr. Nurul Azlin bt Ibrahim
Dr. Jeffrey Elvin a/l Edward
Dr. Pavitra a/p Munikanoo
Pn. Azlaila bt Zahari
Pn. Siti Raihan bt Zarudin
Pn. Nik Norazlinda bt Rameli
Pn. Noor Haslinda bt Mohd Amin
Pn. Nurul Fatin Atiqah bt Md Nor
Azman

Dr. Noor Amalia bt Bakri
Dr. Rahimah bt Bahiki
Dr. Muhammad Akmal bin Karim
Pn. Hazwani bt Salleh
Pn. Noorme Zaihane bt Nordin
Pn. Hemaletchumy a/p Silvarajo
Pn. Fadhilah bt Abdullah
Pn. Nor Syafiqah Amira bt Mohd Raymee

SCIENTIFIC COMMITTEE HISTOPATHOLOGY

: Dr. Noor Hasni bt Shamsudin
Dr. Nurul Izzati bt Azmi
Pn. Ratna Suraya bt Junaidi

Dr. Siti Farah Sophia bt Mohd Nasir
Pn. Ierdawateey bt Ibrahim

SCIENTIFIC COMMITTEE CYTOLOGY

: Dr. Suryani bt Mohd Yusoff
Dr. Marliza bt Hadzar
Pn. Kartini bt Mohd Rais
Pn. Nur Athirah Fatihaf bt Saidi

Dr. Junalina bt Jaafar
Dr. Wan Mahirah bt Wan Abdul Rahman
En. Mohamad Riduwan bin Mahamad

SCIENTIFIC COMMITTEE HAEMATOLOGY

: Dr. Nik Hafidzah bt Nik Mustapha
Dr. Hanizah Salwa bt Amran
Dr. Vinodhini a/p Subramaniam
En. Devan Kumar a/l Marimuthu

Dr. Syirah Nazirah bt Mohd Tajuddin
Dr. Ho Sook Fong
Dr. Nurul Fathia bt Mahmood

SCIENTIFIC COMMITTEE CHEMICAL PATHOLOGY

: Dr. Azariah bt Adnan
Pn. Sharmila a/p Veerasamy
Pn. Nor Aini bt Ismail

Dr. Nurhidayu bt Mohd Shariff
Pn. Nur Hazwani bt Harman Shah

SCIENTIFIC COMMITTEE MICROBIOLOGY

: Dr. Suhaila bt Baharuddin
Pn. Kiu Siik Hung
Pn. Murniza bt Ahmad Najimudin

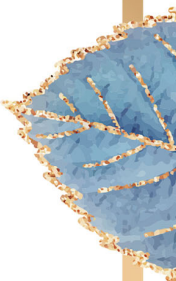
Dr. Siti Nazihah bt Ab Karim
Pn. Aishah bt Saleh
Pn. Nur Afzan bt Ramli



TABLE OF CONTENTS



	Page
Welcome Note by Negeri Sembilan State Health Director	2
Welcome Note by Head of National Specialty for Pathology	3
Welcome Note by Chairman of National Pathology Conference 2024	4
Speakers Profile	5
Scientific Programme	13
Abstract	16
Partnership	60
Acknowledgement	61
Advertisement	62



KATA-KATA ALUAN PENGARAH KESIHATAN NEGERI SEMBILAN



Salam Malaysia Madani.

Terlebih dahulu saya ingin mengucapkan sekalung tahniah kepada Perkhidmatan Patologi Negeri Sembilan selaku penganjur buat julung kalinya di atas usaha gigih dalam menjayakan *NATIONAL PATHOLOGY CONFERENCE (NPC) 2024* dan dapat melaksanakan mandat yang diberikan oleh Ketua Kepekaran Patologi Kementerian Kesihatan Malaysia (KKM). Melalui persidangan ini, sekali gus dapat memberi peluang untuk mengumpulkan semua warga kerja Patologi dari pelbagai kategori dan disiplin yang terdiri daripada Pakar Patologi, Pegawai Perubatan, Pegawai Sains dan Juruteknologi Makmal Perubatan dari seluruh negara bagi memberi pendedahan dan maklumat yang terkini berkaitan bidang perkhidmatan Patologi.

Seiring dengan tema bagi persidangan NPC 2024 "***Towards Dynamic and Effective Pathology Services***" di mana ia bermatlamat dalam mewujudkan Perkhidmatan Patologi yang dinamik dan berkesan yang bukan sahaja responsif kepada keperluan semasa pesakit tetapi juga boleh disesuaikan dengan kemajuan teknologi masa hadapan. Ini memerlukan komitmen untuk pembelajaran yang berterusan, pelaburan dalam infrastruktur terkini, dan memupuk budaya inovasi dan kecemerlangan. Seperti mana yang kita ketahui, Perkhidmatan Patologi adalah salah satu bidang pengkhususan yang amat penting dalam memberi diagnosis dan perawatan pesakit.

Justeru itu, adalah diharapkan persidangan kali ini dapat menjadi platform bagi meningkatkan kualiti perkhidmatan ke arah yang lebih baik. Diharap *NATIONAL PATHOLOGY CONFERENCE 2024* pada kali ini dapat memberi manfaat yang besar kepada semua peserta. Semoga usaha murni ini akan terus berjaya pada masa hadapan.

Sekian, terima kasih.

Dato' Dr. Harlina bt Abdul Rashid
Pengarah Kesihatan Negeri
Negeri Sembilan Darul Khusus

KATA-KATA ALUAN KETUA KEPAKARAN PATOLOGI KEBANGSAAN



Salam Malaysia Madani.

Syukur ke hadrat Illahi kerana dengan izin-Nya *National Pathology Conference (NPC)* yang merupakan persidangan tahunan dapat diadakan pada tahun ini. Saya mengalu-alukan kedatangan semua peserta daripada Perkhidmatan Patologi termasuk Pakar Patologi, Pegawai Perubatan, Pegawai Sains dan Juruteknologi Makmal Perubatan ke NPC 2024 yang diadakan julung-julung kalinya di Seremban, Negeri Sembilan.

Seperti yang kita ketahui, bidang Patologi memainkan peranan yang sangat penting dalam membantu pihak klinikal untuk membuat diagnosis yang tepat dalam proses perawatan dan pengurusan pesakit yang berkesan. Sekarang kita berada di puncak revolusi dalam Perkhidmatan Patologi. Integrasi teknologi canggih seperti Patologi Digital, Kecerdasan Buatan (AI) dan Diagnostik Molekul mengubah cara kita mendekati diagnostik penyakit. Inovasi ini bukan sahaja meningkatkan ketepatan dan kecekapan Perkhidmatan Patologi tetapi juga dapat menjadi rawatan individualistik berdasarkan profil genetik pesakit. Seiring dengan tema NPC 2024, "**Towards Dynamic and Effective Pathology Services**" di mana kita harus bersedia menerima teknologi termaju dan metodologi inovatif bagi meningkatkan keupayaan diagnostik kita. Dengan kekal di barisan hadapan kemajuan teknologi, kita dapat memastikan Perkhidmatan Patologi kekal relevan dan memberi kesan dalam landskap diagnostik yang sentiasa berubah.

Saya berharap agar para peserta dapat menggunakan peluang ini untuk memantapkan ilmu dan mengikuti hasil penyelidikan terkini dari semua disiplin Patologi di samping dapat mengeratkan hubungan silaturahim antara warga kerja Patologi. Semoga persidangan kali ini dapat memberi impak positif dan manfaat yang besar kepada para peserta dalam meningkatkan kualiti perkhidmatan pada masa yang akan datang.

Saya juga mengucapkan setinggi-tinggi penghargaan serta tahniah kepada Pengerusi dan semua Ahli Jawatankuasa Penganjur NPC 2024 di atas kejayaan menganjurkan persidangan pada tahun ini.

Sekian, terima kasih dan selamat maju jaya.

Dr. Tengku Norita bt Tengku Yazid
Ketua Kepakaran Patologi Kebangsaan
Kementerian Kesihatan Malaysia

KATA-KATA ALUAN PENERUS NATIONAL PATHOLOGY CONFERENCE 2024



Salam Malaysia Madani.

Syukur ke hadrat Illahi kerana dengan limpah dan rahmat-Nya *National Pathology Conference (NPC) 2024* dapat diadakan pada tahun ini.

Bagi pihak Jawatankuasa Penganjur NPC 2024, saya mengalu-alukan kedatangan semua tetamu dan peserta yang terdiri daripada kalangan Pakar Patologi, Pegawai Perubatan, Pegawai Sains dan Juruteknologi Makmal Perubatan dari semua disiplin yang merangkumi Patologi Anatomik, Hematologi, Patologi Kimia, Mikrobiologi dan lain-lain ke *National Pathology Conference 2024* yang berlangsung buat pertama kalinya di Seremban, Negeri Sembilan.

Persidangan yang akan berlangsung selama dua hari bermula dari 2 hingga 3 Oktober 2024 bertujuan untuk mengumpul anggota profesional Perkhidmatan Patologi dari pelbagai institusi termasuk hospital-hospital KKM, universiti-universiti tempatan serta pelbagai makmal perubatan swasta di Malaysia untuk bersama-sama mendapatkan informasi terkini dalam perkembangan Perkhidmatan Patologi secara keseluruhannya. Melalui NPC juga, saya berharap semua peserta dapat berkongsi pengetahuan, kepakaran dan pengalaman, seterusnya mewujudkan *working network* di samping menjalin persahabatan baru.

Di kesempatan ini juga, saya ingin merakamkan setinggi-tinggi penghargaan dan ribuan terima kasih kepada para penceramah jemputan yang sudi menyumbang masa dan tenaga serta berkongsi ilmu untuk menjayakan persidangan ini.

Jutaan terima kasih saya ucapkan kepada Ahli Jawatankuasa Penganjur NPC 2024 yang telah menggembeleng tenaga, masa, usaha serta idea untuk menjayakan persidangan ini. Tidak lupa juga ucapan terima kasih kepada syarikat-syarikat yang telah mengambil bahagian dalam *booth exhibition* dan sesi *lunch symposium* sepanjang persidangan berlangsung.

Selaras dengan tema persidangan NPC 2024 "***Towards Dynamic and Excellent Pathology Service***", para penceramah akan berkongsi pengalaman, informasi terkini serta membincangkan beberapa *area of emerging importance* dengan harapan ianya dapat membantu diagnosis pesakit yang lebih tepat dan selamat di dalam amalan harian profesional.

Sekian, terima kasih.

Dr. Noor Hasni bt Shamsudin

Pengerusi

National Pathology Conference 2024

SPEAKERS' PROFILES



YM DR. TENGGU NORITA BT TENGGU YAZID is a Consultant Chemical Pathologist. She obtained her medical degree from Universiti Malaya in 1992 and Master of Pathology (Chemical Pathology) from Universiti Kebangsaan Malaysia in 1999. Currently, she is the Head of Pathology Department of Hospital Selayang. She is also the Head of Service for the Ministry of Health (MOH) Pathology Service, the chairperson for the Jawatankuasa Semakan Semula Garis Panduan National Guideline For Method Verification of Quantitative and Qualitative Measurement In Medical Laboratories, committee member for Jawatankuasa Penggubalan Peraturan-Peraturan Makmal Patologi bagi Akta Patologi 2007, committee member for Jawatankuasa Kecil Penilaian Kepakaran Perubatan(JKKPKP) Bagi Bidang Chemical Pathology Majlis Perubatan Malaysia (MPM), committee member for Jawatankuasa Kecil Penilaian Kepakaran Perubatan (JKKPKP) Bagi Bidang General Pathology Majlis Perubatan Malaysia (MPM) and MOH National QA Steering Committee-MOH Pathology Services Representative. She was also involved in many journals, reports and guidelines publication related to Chemical Pathology and Quality Policy.



DR. NADA SYAZANA BT ZULKUFLI is a Chemical Pathologist in Beacon Precision Diagnostics. She completed her medical degree in Monash University in 2010 and Master of Pathology in University Malaya in 2019. She also obtained her MRCPI from Royal College of Physicians Ireland. She is the secretary of the Chapter of Chemical Pathology and Metabolic Medicine in the Academy of Medicine Malaysia and education committee of Asia Pacific Federation for Clinical Biochemistry and Laboratory Medicine (APFCB). She also obtained an online course certificate for principles, statistical and computational tools for reproducible data sciences from Harvard University. She is actively involved in training, publications of journals and articles.



DR. SITI HAWA BT HAMZAH is a Medical Microbiologist in the Microbiology Unit, Hospital Seberang Jaya, Pulau Pinang. She started her career in 1994 as Medical Laboratory Technologist at USM. Due to her strong interest in the field of microbiology, she pursued her medical degree (USM) in 2001. Subsequently, she completed her Master of Pathology (Medical Microbiology) from USM in 2010. Dr Siti Hawa had special interest in Medical Mycology. Her administrative roles include being Head of Microbiology Unit in Hospital Pulau Pinang (2010-2014), Head of Microbiology Unit in Hospital Seberang Jaya (2014-2019), currently she is State Microbiologist of Penang State (2010-present). Besides clinical diagnostic work, Dr Siti Hawa is actively involved in multiple publications of book, article and abstract in journals.



DR. MAALINI A/P KRISHNASAMY is Anatomic Pathologist in Thompson Hospital, Kota Damansara. She obtained her medical degree from Aimst University in 2008 and subsequently her post graduate qualification in Anatomic Pathologist from University Putra Malaysia in 2013. She had subspecialty in Gastrointestinal and Hepatobiliary pathology and underwent her fellowship training at Medical University of Graz, Austria from 2021-2022. Her professional affiliations include membership of European Society of Pathology (ESP), Member of ECCO (EUROPEAN CROHN'S AND COLITIS ORGANIZATION) and life member for International Academy of Pathology (IAP). Besides clinical diagnostic work, she also contributed to research in the Clinicopathological Study of Sebaceous gland Carcinoma of Eyelid in Hospital Serdang from 2006 to 2015.

SPEAKERS' PROFILES



DR. ASMAWIZA BT AWANG is a medical graduate from Royal College of Surgeons in Ireland (RCSI)-Penang Medical College in 2008 and completed her postgraduate training in Master of Pathology (Anatomic Pathology) in Universiti Kebangsaan Malaysia in 2017. She completed her subspeciality in Haematopathology at The Royal Marsden NHS Trust, London, United Kingdom from 2022-2023. At present, she is an Anatomic Pathologist in the Pathology Department of Hospital Kuala Lumpur. She is a member of European Association for Haematopathology, Member of International Academy of Pathology- Malaysian Division and Member of Malaysia Lymphoma-Leukaemia Working Group 2021 until now. She was awarded as Grand prize winner for poster presentation at International Academy of Pathology Malaysian Division (IAPMD) Annual Scientific Meeting 2016.



DR. MUKARRAMAH BT CHE AYUB obtained her Medical Degree in 1986 and Masters in Pathology (Anatomic Pathology) in 1993 from Universiti Kebangsaan Malaysia. She then was trained in Cytopathology areas of interest from Universiti Kebangsaan Malaysia, Universiti Malaya and Royal Women and Children Hospital Brisbane in 2004. She served as Anatomic Pathologist in Hospital Raja Perempuan Zainab II Kota Bharu, Kelantan from 1994 until retirement in 2021. She has a great contribution to KKM Pathology Service along her career path. She is a former Head of Pathology Department in Hospital Raja Perempuan Zainab II for 17 years and Discipline Head for Anatomic Pathology Service KKM for 6 years. She has also joined several committee members in many Cytology related activities such as Cervical Cancer Screening Program KKM besides developed curriculum for Post Basic Cytology and Master Program for Anatomic Pathology. She also has been involved in teaching Medical Lab Technology, Masters Student in Pathology and Pathologist mainly in Cytopathology and Quality. Despite that, she also got involved in Quality activity at local and national level i.e developing quality standards with Standard Malaysia SC 2 & STR2.1 and conducting Quality assessment ISO 15189 as Technical Assessor for Cytopathology with Standard Malaysia. She has also been invited to speak at a number of workshops and conferences both locally and internationally.



DR. ZALINI BT YUNUS is the former Deputy Director General of the Science and Technology Research Institute for Defence (STRIDE), Ministry of Defence Malaysia. Dr. Zalini has also served as the National Contact Point for the Biological and Toxin Weapons Convention (BTWC). She has continuously worked with national stakeholders in strengthening national measures to fulfill Malaysia's obligations to the BTWC especially in capacity building programs in biosecurity, biorisk management and inter-sectoral coordination in deliberate bio-incidents' response and joint investigations. In addition, she has served as a member of the World Health Organization's (WHO) Roster of Experts in Biosafety, Biosecurity and Biorisk Management. At the national level, she has served as the Chair of the Technical Committee for Drafting of Malaysia's Biological and Toxin Weapons Convention (BTWC) Bill and Regulations, Chair of the Policy Development Committee for the National Policy on BTWC Implementation and the lead editor for Malaysia's Biological Incident Emergency Response and investigation Guide. She also was the Chair of STRIDE's R&D Roadmap Development Committee and the Chair of STRIDE and Malaysian Armed Forces Engagement Program on Defence S&T Expertise and Capabilities. She graduated with a degree in Microbiology from National University of Malaysia, obtained her Master of Science in Immunology and Allergy from the University of Nottingham, United Kingdom, and received her PhD in Chemical Engineering from the University of Manchester, Institute of Science and Technology (UMIST), United Kingdom.

SPEAKERS' PROFILES



DR. PAVITRATHA A/P PUSPANATHAN is an Anatomic Pathologist currently working at Hospital Pulau Pinang, Malaysia. She completed her Masters in Pathology from UKM in 2012 and served as a pathologist in Hospital Pulau Pinang and Hospital Sultanah Bahiyah, Alor Setar. She then pursued and completed her fellowship training in Gastrointestinal and Hepatobiliary Pathology in 2021 from Royal Free Hospital London. Dr Pavitra is also a member of European Society of Pathology, a council member of IAP Malaysian Division, part of the organizing committee of Asia Pacific IAP 2023, SEA Pathology Steering Committee (IMAC IBD Pathology Masterclass). She is also involved in the National IBD Preceptorship Programme for Gastroenterology and Hepatology trainees. She has a keen interest in research and teaching and has published a number of articles on gastrointestinal and hepatobiliary pathology. She has also been invited to speak at a number of workshops and conferences both locally and internationally.



DR. NORREN HANEEZAH BT SAHAK is an Anatomic Pathologist currently working in Hospital Sultan Idris Shah, Serdang, Malaysia. She graduated from Universiti Kebangsaan Malaysia in 2003 and received her Anatomic Pathology speciality training from Universiti Putra Malaysia in 2016. After serving as an Anatomic Pathologist for 5 years, she started her fellowship in Gynaepathology in 2022. Her training included attachments in Histopathology Unit in Hospital Kuala Lumpur and Hospital Canselor Tuanku Muhriz UKM. Her overseas attachment was in The Royal Marsden Hospital, London, United Kingdom under the supervision of Dr Ayoma Attygalle and Dr Katherine Vroobel. She completed her training in 2023 and was awarded Fellowship in Gynaepathology. Dr Norren is also a member of International Society of Gynecological Pathologist and The British Association of Gynaecological Pathologist.



DR. AHMAD TOHA BIN SAMSUDIN is currently a consultant pathologist (Anatomic Pathology) at Premier Integrated Labs at Gleneagles Kota Kinabalu, Sabah. He graduated from Universiti Kebangsaan Malaysia in 1996. He has special interest in lymphoreticular pathology and had undergone training in this field in 2007-2008 from University of Oxford. He became Head of Department of Pathology in Queen Elizabeth Hospital, Kota Kinabalu from 2009 until 2020 and currently a sessional pathologist to Queen Elizabeth Hospital from 2022. He is actively involved as National Referee (for MOH) for Lymphoreticular Pathology Diagnostic Service from 2009 - 2020 and as Surveyor for MSQH (Malaysia Society in Quality of Health) from 2009 – 2020. He is also an active member of numerous organization e.g International Academic of Cytology, Malaysia Society of Cytology Ordinary, International Academy of Pathology (Malaysia), Quality Surveyor for Malaysia Society of Quality in Health and Technical Assessor for Medical Lab Accreditation MS ISO 15189.



DR. NOR HAYATI BT YUNUS is an Anatomic Pathologist at the Department of Pathology in Hospital Raja Perempuan Zainab. She obtained her medical degree in 2004 and her Master of Pathology in 2013 from Universiti Sains Malaysia. She has special interest in Cytopathology and underwent training in St Vincent Hospital Sydney, Australia. At present, she is an active member of IAP Malaysian Division, Malaysian Society of Cytology, Malaysian Medical Association and a fellow of Malaysian Medical Association since 2019.

SPEAKERS' PROFILES



EN. MOHD RAZALI BIN HASSAN SABERY obtained his Degree of Bachelor Science (Biomedical Sciences) from Universiti Putra Malaysia in 2001. He is a Senior Scientific Officer (Medical Microbiology) at Hospital Kuala Lumpur and has been with the Ministry of Health for 20 years. He is actively involved in training, technical and quality laboratory management, teaching and research and his area of expertise are mainly in Antibiotic resistance- lab detection method and Laboratory Developed Test (LDT). He is one of the writers involved in the publication of Surveillance of Catheter Related Bloodstream Infection (CRBSI) among Patients with Haemodialysis Central Venous Catheter (CVC) in Department of Urology and Nephrology, Kuala Lumpur Hospital. Being enthusiastic in the field, En Mohd Razali has been actively involved in research projects both locally and internationally and has been an invited

speaker at over 50 workshops.



DR. SITI ROHANI BT ABDUL HADI is a medical doctor with 11 years of experience as a Clinical Microbiologist. She graduated from Universiti Putra Malaysia in 2005 with a double degree [Bch Sc (Med Sc) & MD] and subsequently obtained her specialty in Medical Microbiology (Dr Path) from Universiti Kebangsaan Malaysia in 2013. She completed her training in Infection Prevention & Control at World Health Organization, Switzerland in 2022 and Geneva University Hospital, Switzerland recently. Dr Siti Rohani has vast laboratory experience in diagnosing various infectious diseases, tropical diseases, immunological disorders and Covid-19 disease using conventional methods and modern technologies. Besides laboratory work, her interests are in the areas of Infection Prevention & Control, Healthcare-Associated Infections and Antimicrobial Resistance. She provides consultation

regarding Multi-Drug Resistant Organisms, Antimicrobial Stewardship Programs and also vaccination. Throughout her career, she had served in various tertiary centers under the Ministry of Health and Ministry of Higher Education in Kuala Lumpur, Selangor, Perlis and Kedah. Dr Siti also actively published her writings since 2006. She participates in numerous researches and presents locally and internationally. Currently she is positioned as Head of Infection Control Unit in HSB.



DR. NUR IZATI BT MUSTAPA is currently serving as Medical Microbiologist in Pathology Department of Sungai Buloh Hospital. She graduated from University of Adelaide, Australia in 2002 and completed her Master of Pathology (Medical Microbiology) from University of Malaya, Malaysia in 2012 before continuing her area of interest (Molecular Virology) in Medical University of Vienna, Austria in 2023. Before joining Hospital Sungai Buloh, she previously served as Medical Microbiologist at Institute for Medical Research (IMR) from 2013 to 2014 and Sarawak General Hospital, Malaysia 2014 -2017. She previously was appointed as Head of Medical Microbiology Services of Sarawak State from November 2015 to June 2017. She became Head of Microbiology Unit of Pathology Department, Hospital Sungai Buloh Hospital from June 2020 to June 2021 despite being a Technical Manager for

Molecular, Virology and Serology Laboratory from July 2017 till now. She also took part in numerous committee e.g Malaysian Ministry of Health COVID-19 Special Task Group (Molecular Laboratory SOP Sub-Committee), Development Group for CPG Management of Dengue in Children (2nd edition), Malaysian Ministry of Health and Quality Assurance Committee of Pathology Department, Sungai Buloh Hospital. She is also a member of Malaysian Society for Infectious Diseases and Chemotherapy (MSIDC), Malaysian Medical Association (MMA), Malaysian Biosafety & Biosecurity Association (MBBA) and Malaysian Society of Parasitology and Tropical Medicine (MSPTM).

SPEAKERS' PROFILES



improvement and expansion of diagnostic haemostasis & thrombosis laboratory services, to ensure efficient service delivery and patient care.

DR. SUZANA BT ZAINOL is currently a Haematopathologist and Head of the Hematology Laboratory at the Pathology Department, Hospital Tunku Azizah (Women & Children Hospital Kuala Lumpur). She obtained her Doctor of Medicine Degree (MD) from Universiti Sains Malaysia and her Master in Pathology (Haematology) from Universiti Kebangsaan Malaysia. She has high interest in Haemostasis and Thrombosis and has pursued her subspecialty training in this field, at the Karolinska University Hospital, Stockholm, Sweden. She is leading the coagulation laboratory service at her current place of practice, which also serves as the national referral center for haemostasis & thrombosis laboratory. She is a member of International Society of Thrombosis & Haemostasis (ISTH) and Asian-Pacific Society on Thrombosis and Hemostasis (APSTH). She is committed to continuous quality



of several Pathology and Haematology Societies such as College of Pathologists, Academy of Medicine, Malaysian Laboratory Haematology Society, Malaysian Society of Haematology, Malaysian Society of Paediatric Haematology and Oncology and Malaysian Blood Transfusion Society. Dr. Siti Shahrum is a committee member for several projects which include the preparation of National Guideline – Management of Myeloproliferative Neoplasm 2nd edition (ongoing), National Strategic Plan for Cancer Control Plan (NSPCCP) for year 2016-2020 & 2021-2025, subject matter expert for the development of KKM HIS-LIS (since 2014) and involved as a committee member as well as a speaker in various seminars/scientific meetings.

DR. SITI SHAHRUM BT MUHAMED SAID is currently a Pathologist (Haematology) at Department of Pathology, Hospital Tunku Azizah. She graduated from University of Dundee, Scotland in 1997 and obtained her Master Degree in Pathology (Haematology) from Universiti Kebangsaan Malaysia in 2009. She has special interest in molecular haemato-oncology and had undergone training in this field in 2005-2016 at University of Turin, Italy. She was posted in HKL from 2009 till 2019 where she oversaw initially morphology and later molecular haemato-oncology service. In 2019, the molecular haemato-oncology service was moved to Hospital Tunku Azizah (WCHKL) as part of pathology lab service expansion. Her main diagnostic interest is molecular diagnosis of haemato-oncology diseases and has been actively involved in upgrading, conducting training and research in this area. She is a member



in CPG thalassemia second edition.

DR. HAFIZAH BT HASHIM is a Haematopathologist at Hospital Sultanah Bahiyah Alor Setar. Currently Head of Pathology Department HSB, Alor Setar Kedah since 2021. She had 14 years experience as a Haematopathologist. She obtained first Medical Degree (M.D) from Universiti Sains Malaysia in 2001, subsequently her post graduate qualification in Hematopathology M.Path (Hematology) from UKM in 2010. She went for subspecialty training (area of special interest) in molecular thalassemia in 2016 in IMR, HKL, IPPT Bertam USM and completed her training in Institute of molecular biosciences in Thalassemia Research Centre, Mahidol University Bangkok Thailand in Feb 2018. Her special interest in thalassemia and hemoglobinopathy and red cells membrane disorder; SAO. Actively involved in research particularly in thalassemia and hemoglobinopathies. She is also one of committee members

SPEAKERS' PROFILES



Munirah also actively participates in numerous research projects and clinical audits that are mostly related to thalassaemia disease.

DR. MUNIRAH BT ABDUL RAZAK is a Haematopathologist at the Pathology Department, Hospital Kuala Lumpur. She graduated with a Medical Degree from Universiti Sains Malaysia in 2002 and her Master in Pathology (Hematology) in 2010 from Universiti Kebangsaan Malaysia. Due to her high interest in Thalassaemia, she pursued her subspeciality training in Molecular Thalassaemia at Villa Sofia-Cervello Hospital, Italy in 2022. Her administrative roles include being Head of Haematology Unit in Hospital Tuanku Ja'afar Seremban (2011 - 2015) and currently as a Deputy Head of Haematology in Hospital Kuala Lumpur (2023 - present). Dr. Munirah is a life member of Malaysian Society of Haematology, Malaysian Society of Transfusion and Academy of Medicine Malaysia. She has been very passionate in poster presentation since 2008 and several publications of journals. Besides that, Dr.



for MPath Haematology (2016 - 2021). As a Key Technical Personnel for Thalassaemia in Molecular Haematology Lab HKL, her knowledge and expertise in technical aspects in thalassaemia area and medical laboratory quality is awe-inspiring. Numerous oral presentations, research & projects, lectures and poster presentations have contributed to her career pathway. Topics related to thalassaemia, laboratory quality management system, checking & calibration of measuring instruments and analyzer verifications are her field of interest.

PN. NOOR HIDAYAT BT HUSSAIN is a Senior Scientific Officer (Biochemistry) at Pathology Department, Hospital Serdang, Selangor. She has been with the Malaysian Ministry of Health for 21 years. She graduated with a Degree of Biochemistry from Universiti Malaya in 2002. She has received various training mainly in the thalassaemia field since 2008 locally and internationally. Pn. Hidayat is one of members in Malaysia Association of Clinical Biochemist (MACB), members of Association Scientific Officer of Health, Malaysia Blood Transfusion Society, European Federation of Laboratory Medicine Academy (EFML) and members of Persatuan Pegawai Sains Malaysia (PPSM). She is actively contribute to the improvement of medical laboratories quality as one of the Technical Working Group for the Hematology STR 2.4, Visiting Lecturer for Advance Diploma in ILKMM IMR (2012 - 2022) and Visiting Lecturer



the Laboratory Accreditation Evaluation in Chemical Pathology for DSM, a Professional Certified Trainer for the MACB, a member for the Jawatankuasa Penilaian Kelayakan Pengamal Ahli Sains Makmal Perubatan and a member in the Technical Working Group for the Chemical Pathology STR 2.3 in 20217 & 2022. Pn. Rozita actively participates in various training delivered in the workshops, conference and seminars for the government hospitals, university hospitals, private laboratories, private companies and for the Standard Malaysia. Training topics that she experts such as Quality Assurance in Clinical Biochemistry, Internal Quality Control Management in Clinical Biochemistry, Method Verification in Quantitative Test, Method Comparison, Measurement of Uncertainty, Analytical Quality Specifications, Risk Management, MS ISO 15189:2022 Requirements, Internal Audits and New Lot Verification.

PN. ROZITA BT ABDULLAH is a Senior Scientific Officer (Biochemistry) at Pathology Department, Hospital Sungai Buloh, Selangor. She has been with the Malaysian Ministry of Health for 26 years. She graduated in Degree of Biochemistry with Molecular Biology from Universiti Kebangsaan Malaysia in 1995 and in 2005, she pursued her study in Master in Clinical Biochemistry with Molecular Biology (Taught Course) at University of Surrey, Guildford, United Kingdom. She has received various professional training since 2008 from several standard and accredited organizations such as from Department of Standard Malaysia, Asia Pacific Accreditation Cooperation (APAC), and Emirates National Accreditation System (ENAS). Pn. Rozita has numerous contribution in the improvement of medical laboratories quality as one of the technical assessor for the DSM, an expert panel for

SPEAKERS' PROFILES



hospitals from all over Malaysia.

DR. SITI SHARINA BT ANAS obtained her medical degree from USM in 1996 and qualified as a Chemical Pathologist in 2005 from the same university. She was then posted to Hospital Kuala Lumpur, where she headed the Chemical Pathology Unit. She continued the work of pioneers in providing Urine Catecholamine testing for Government Hospitals from all over Malaysia. She had the opportunity to be attached to the Biochemistry Department in Royal Perth Hospital in 2009. The experience spent in Royal Perth Hospital had helped her provide better service for the Endocrine Laboratory services, particularly the Renin and Aldosterone testing. In 2010, she was transferred to Hospital Putrajaya, the centre for Breast and Endocrine Diseases till present time, and currently appointed as the Head of Department of Pathology, Hospital Putrajaya which provides specialized chemistry testing for government



PROF. DR. NOOR ALICEZAH BT MOHD KASIM is currently a Consultant Chemical Pathologist, Medical Lecturer and Head of the Chemical Pathology unit at Clinical Diagnostic Laboratories, Hospital Al-Sultan Abdullah, UiTM since 2022. She obtained her medical degree (MBBS) from IIUM in 2005 and her master in Pathology (Chemical Pathology) from UM in 2012. Currently, she is a member of European Federation of Laboratory Medicine, European Atherosclerosis Society, Asia Pacific Society of Atherosclerosis and Vascular Disease and Australian Association of Clinical Biochemistry. Besides, she is actively involved in the undergraduate and postgraduate teaching and also in the publication of books, research, articles and abstracts in journals.



is an Adjunct Lecturer for Perdana-RCSI University. Dr Noor Lita has a keen interest in research and has published a number of articles that cover clinical management, epidemiological and diagnostic aspects of endocrine disease.

DR. NOOR LITA BT ADAM is a Consultant Endocrinologist and General Physician in Hospital Tuanku Jaafar, Seremban Negeri Sembilan. She graduated from Royal College of Surgeons in Ireland (RCSI), with a Bachelor of Medicine, Bachelor of Surgery and Bachelor of Obstetrics (MB. BCH BAO) and completed internship, and then medical officer training in Hospital UKM. She received her Master in Internal Medicine in 2004 from National University of Malaysia, after which she underwent endocrinology training until November 2009. She is an active member of numerous organizations. She is the chairperson of Diabetes Resource Center Hospital Tuanku Ja'afar (2016 - present) and member of European Endocrine Society (2017-present). She is also a committee member of Diabetes in Pregnancy Clinical practice guideline (CPG) and member of Endocrine Society (2015-present). Besides clinical work, she



DR. NOR ADILAH BT ABDUL RAHMAN is a Chemical Pathologist in Hospital Sungai Buloh, Selangor. She completed her medical degree in May 2004 and Master of Pathology in May 2015 both at National University of Malaysia. Before joining Hospital Sungai Buloh, she previously served as Chemical Pathologist at Hospital Kuala Lumpur from July 2015 until December 2015, Hospital Umum Sarawak from January 2016 until February 2017 and Hospital Tengku Ampuan Rahimah, Klang from March 2017 until February 2021. She is also actively involved in Quality Assurance activities e.g Quality Manager, Risk Manager, Audit Manager, MSQH Coordinator and POCT Coordinator in Hospital Sungai Buloh. She is also a Technical Assessor under Skim Akreditasi Makmal Malaysia (SAMM) for Medical Testing since February 2023.

SPEAKERS' PROFILES



DR ROZAINANEE BT MOHD ZAIN is the Consultant Clinical Virologist and currently the Head of Virology Unit, Infectious Disease Research Centre, Institute for Medical Research. She supervises all specialized viral diagnostics testing or activities that are carried out in the Unit to support the laboratory testing for most government hospitals and primary health care facilities in the country. As a Clinical Virologist, she is actively involved with the national reference laboratories activities and the designated reference laboratories; National Poliovirus Laboratory, WHO National Influenza Centre, National Reference Laboratory for HIV/AIDS and National Laboratory for Viral Hepatitis. In line with the Ministry of Health's strategic priorities, she had taken up the challenge to lead an important project in developing and implementing HIV drug resistance genotyping assay for the country. She is also responsible for carrying out the National External Quality Assurance Scheme (NEQAS) to detect the presence of HIV antibodies and to assess other government and private laboratories in the country in performing the tests to detect the HIV antibodies. Furthermore, she is involved with all activities related to the Polio Eradication programme and Severe Acute Respiratory infection surveillance. Dr Rozainanee has been actively involved in conducting research in many medically important viruses such as HIV, hepatitis viruses, Middle East Respiratory Syndrome coronavirus (MERS-CoV), dengue, zika, rubella virus and SARS-CoV-2. Furthermore, she is actively involved in many the National Vaccine Development Roadmap activities in Malaysia. Besides her role as a principal investigator for the 'Development of inactivated COVID-19 vaccine', she is actively involved with the other vaccines' projects in Malaysia. She is also a biosafety officer for the institute and has responsibilities in ensuring all research with modern biotechnology are conducted according to the local law as well as conducting training in various fields related to biosafety and biosecurity.

SCIENTIFIC PROGRAMMES

DAY 1

2ND OCTOBER 2024, WEDNESDAY

TIME	PROGRAMMES			
08.00 - 08.45 AM	Registration			
08.45 - 09.45 AM	PLENARY 1 : EFFECTIVE LEADERSHIP FROM PATHOLOGY LABORATORY PERSPECTIVE SPEAKER : Dr. Tengku Norita bt Tengku Yazid			
09.45 - 10.15 AM	Welcome Note by Dr. Tengku Norita bt Tengku Yazid Opening Ceremony & Launching by Negeri Sembilan State Health Director			
10.15 - 10.45 AM	Teabreak			
10.45 - 11.45 PM	PLENARY 2 : NEW UPDATES OF RISK MANAGEMENT IN MS ISO 15189:2022 SPEAKER : Dr. Nor Adilah bt Abdul Rahman			
11.45 - 12.00 PM	Photography Session			
12.00 - 12.30 PM	Lunch Symposium			
12.30 - 01.00 PM	Lunch Symposium			
01.00 - 02.00 PM	Lunch Break			
02.00 - 03.00 PM	Oral Presentation			
BREAKOUT SESSIONS				
	HAEMATOLOGY <i>(BALLROOM 1 & 2)</i>	ANATOMIC PATHOLOGY <i>(BALLROOM 4)</i>	MICROBIOLOGY <i>(BALLROOM 3)</i>	CHEMICAL PATHOLOGY <i>(SRI MERBAU)</i>
03.15 - 04.15 PM	LECTURE 1: Diagnostic Approach on Red Blood Cell Membrane Disorder SPEAKER: Dr. Hafizah bt Hashim	LECTURE 1: Diagnostic approach to Non-Neoplastic Liver Biopsy SPEAKER: Dr. Maalini a/p Krishnasamy	LECTURE 1: Mycology: Learn, Unlearn and Relearn SPEAKER: Dr. Siti Hawa bt Hamzah	LECTURE 1: Updates in Medical Laboratory Accreditation: In a Nutshell SPEAKER: Dr. Nor Adilah bt Abdul Rahman
04.15 - 05.15 PM	LECTURE 2: Hemostasis and Thrombosis: APLS updates in Laboratory Testing and Diagnostic Strategy SPEAKER: Dr. Suzana bt Zainol	LECTURE 2: High Grade B-Cell Lymphoma SPEAKER: Dr. Asmawiza bt Awang	LECTURE 2: Year in Infection Control SPEAKER: Dr. Siti Rohani bt Abdul Hadi	LECTURE 2: External Quality Assessment: Meeting the Requirements of ISO 15189:2022 SPEAKER: Pn. Rozita bt Abdullah

SCIENTIFIC PROGRAMMES

DAY 2

3RD OCTOBER 2024, THURSDAY

TIME	PROGRAMMES			
08.00 - 08.30 AM	Registration			
BREAKOUT SESSIONS				
	HEMATOLOGY <i>(BALLROOM 1 & 2)</i>	ANATOMIC PATHOLOGY <i>(BALLROOM 4)</i>	MICROBIOLOGY <i>(BALLROOM 3)</i>	CHEMICAL PATHOLOGY <i>(SRI MERBAU)</i>
08.30 - 09.30 AM	<p>LECTURE 3: Trepine Biopsy: The Diagnosis of T-Cell Neoplasm and its Pitfall</p> <p>SPEAKER: Dr. Ahmad Toha bin Samsudin</p>	<p>LECTURE 3: Donor Liver Biopsies: An approach to Intraoperative Consultation</p> <p>SPEAKER: Dr. Pavitratha a/p Puspanathan</p>	<p>LECTURE 3: Pandemics: A Catalyst for Advancing Laboratory Services</p> <p>SPEAKER: Dr. Nur Izati bt Mustapa</p>	<p>LECTURE 3: How are Thyroid Antibodies Useful in Management of Thyroid Disorders?</p> <p>SPEAKER: Dr. Noor Lita bt Adam</p>
09.30 - 10.30 AM	<p>LECTURE 4: Borderline HbA2 Beta Thalassemia: Genotype and Clinical Correlation</p> <p>SPEAKER: Dr. Munirah bt Abdul Razak</p>	<p>LECTURE 4: Updates on Endometrial Carcinoma and Molecular Typing</p> <p>SPEAKER: Dr. Norren Haneezah bt Sahak</p>	<p>LECTURE 4: Biosecurity and Biological Threat Reduction</p> <p>SPEAKER : Dr. Zalini bt Yunus</p>	<p>LECTURE 4: Vit D: The Importance and When to Evaluate its Status</p> <p>SPEAKER: Dr. Siti Sharina bt Anas</p>
10.30 - 10.45 AM	Teabreak			
BREAKOUT SESSIONS				

TIME	PROGRAMMES			
	HEMATOLOGY <i>(BALLROOM 1 & 2)</i>	ANATOMIC PATHOLOGY <i>(BALLROOM 4)</i>	MICROBIOLOGY <i>(BALLROOM 3)</i>	CHEMICAL PATHOLOGY <i>(SRI MERBAU)</i>
10.45 - 11.45 AM	LECTURE 5: Method Validation and Verification in Qualitative Test in Hematology (G6PD, FBP, BMA) SPEAKER: Pn. Nor Hidayat bt Hussain	LECTURE 5: New challenges in gynae cytology in the era of HPV screening SPEAKER: Dr. Mukarramah bt Che Ayub	LECTURE 5: Let's Hunt for emceeR SPEAKER: En. Mohd Razali bin Hassan Sabery	LECTURE 5: Laboratory Evaluation on Lipid Disorders: A Deeper Dive SPEAKER: Prof. Dr. Noor Alicezah bt Mohd Kasim
11.45 - 12.45 PM	LECTURE 6: Molecular: Updates on BCR-ABL monitoring in Chronic Myeloid Leukemia SPEAKER: Dr. Siti Shahrum bt Muhamed Said	LECTURE 6: Diagnostic Approach and Pitfalls on Glandular Abnormalities in Cervical Pap Smear SPEAKER: Dr. Nor Hayati bt Yunus	LECTURE 6: Innovations in Infectious Disease Diagnostics: An Expansion beyond Core Laboratory SPEAKER: Dr. Rozainanee bt Mohd Zain	LECTURE 6: Clinical Value and Optimization of Serum Tumour Markers SPEAKER: Dr. Nada Syazana bt Zulkufli
12.45 - 1.00 PM	Booth & poster visit / tour			
01.00 - 02.00 PM	Lunch break			
02.00 - 02.30 PM	Scientific Symposium			
02.30 - 03.00 PM	Scientific Symposium			
03.00 - 04.00 PM	Closing ceremony and Award for Best Research			
04.00 PM	Adjourn			

ABSTRACTS

ORAL PRESENTATION

ORAL 01: Chemical Pathology

Cost-Effectiveness Strategies in Utilization of High-Sensitivity Cardiac Troponin I (hs-cTnI) at Hospital Raja Perempuan Zainab II (HRPZ II) in Kota Bharu, Kelantan.

Norashidah R^{1,2}, Adlin Zafrulan Z¹, Mohd Zakwan MM¹, Mahaya CM¹, Wan Nor Asyikin WA¹, Tuan Salwani TI²

¹Chemical Pathology Unit, Department of Pathology, Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan.

²Chemical Pathology Department, School of Medical Sciences, Universiti Sains Malaysia Health Campus, Kubang Kerian, Kelantan.

High-Sensitivity Cardiac Troponin I (hs-cTnI) assays play a crucial role in diagnosing Acute Myocardial Infarction (AMI) ¹, yet excessive and inappropriate hs-cTnI tests request present financial challenges. In our hospital, as for cost optimization, Creatinine Kinase-MB (CK-MB) is used as an initial test. This study aims to evaluate the appropriateness of hs-cTnI testing and its financial impact, thus enhancing the cost-effectiveness by correlating hs-cTnI with CK-MB results. Retrospective data from *Sistem Pengurusan Pesakit (SPP)* and Laboratory Information System (LIS) from 1st December 2023 to 29th February 2024 were analyzed. Financial implications were evaluated based on cost per test, with cost optimization strategies focusing on determining optimal CK-MB cut-off values through ROC curve analysis using MedCal 22 software. The audit findings highlighted a notable increase in hs-cTnI test requests, with the majority being related to cardiac reasons (63.6%). Inappropriate hs-cTnI test requests incurred RM11,543.10 in costs; while indicated requests amounted to RM 16,590.42 over the three months duration. These inappropriate hs-cTnI requests imposed a significant financial burden, prompting improvement strategies such as clinician education, collaborative Standard Operating Procedure guideline development, and CK-MB cut-off implementation. A CK-MB >91U/L demonstrated 99.26% specificity in distinguishing cardiac from non-cardiac conditions. The overutilization of inappropriate hs-cTnI testing led to unnecessary expenses. Implementing a CK-MB cut-off >91 U/L can enhance cost effectiveness of hs-cTnI, optimize hs-cTnI utilization and ultimately enhance patient care at Hospital Raja Perempuan Zainab II in Kota Bharu, Kelantan.

ORAL 02: Medical Microbiology

Evaluation Study of The Satellitism Test For The Laboratory Identification Of *Haemophilus influenzae* In Microbiology Unit Hospital Tuanku Fauziah Perlis

Anisah AZ¹, Halimaton H¹, Siti Noraihan K¹, Mohammad Faisol Hamdi O

¹ Microbiology Unit, Pathology Department, Hospital Tuanku Fauziah, Perlis

Satellitism test are the most common method used in clinical laboratories to identify *Haemophilus influenzae*, a pathogen that causes community and nosocomial pneumonia. The aim of this study is to evaluate the performance of satellitism test againsts Matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS). A total of 30 samples from March to May 2024 were isolated from respiratory samples cultured in Microbiology laboratory, Hospital Tuanku Fauziah, Perlis. First, a loopful of suspected *Haemophilus* colonies was streaked evenly onto blood agar and nutrient agar. Second, a pure culture of *Staphylococcus aureus* (ATCC 25923) was streaked across each of the inoculated plates. Third, the plates were placed in carbon dioxide incubator at 35-37°C for 18-24 hours and then examined for growth and satellite colonies. Satellite colonies were defined as small colonies growing in the vicinity of *S. aureus*, where the tested bacteria were inoculated. All of the isolated samples were undergone confirmation test by using rapid detection of mass of molecules, MALDI-TOF MS. The interpretative outcome of both test was evaluated for the degree of agreement using kappa coefficient. As a results, satellitism showed good percentage of agreement 86.67% (26/30) with moderate value of kappa coefficient (0.69) (95% CI: 70.32-94.69%). The sensitivity of the satellitism test for detecting *H. influenzae* was 100.00% and the specificity was 82.61%. Therefore, both the test methodologies can be reliably used in place of each other for identification of *H. influenzae* whereas satellitism are the most cost-effective test among other commercial test available.

ORAL PRESENTATION

ORAL 03: Haematology

The Effectiveness of FBC Slide Check Criteria Practice in Hospital Raja Perempuan Zainab II (HRPZII)

Nurul Wahida H, Norfadhilah S, Majdan R, Mimi Azreen A, Rusmawati I

Haematology Unit, Pathology Department, Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan

FBC slide check (FBCSC) is a procedure whereby microscopic examination of blood smear is performed when certain criteria are met. We have implemented the FBCSC procedure in June 2022 after endorsement of the criteria by the Malaysian national haematology standardisation committee. Objective of this study is to assess the effectiveness of FBCSC criteria in detecting the significant haematological condition. Data was collected from Haematology laboratory, Hospital Raja Perempuan Zainab II (HRPZII) from the period of January until December 2023. A total of 166,600 FBC samples were processed in 2023, 360 (0.216%) of them has met the FBCSC criteria. Out of those, 95.56% fulfilled the platelet criteria and platelet clumping was identified in 5.81% of them. Abnormal cells or blasts were identified in 5.83% of total FBCSC and were finally diagnosed as haematological malignancy. This FBCSC procedure is very helpful and the criteria used are effective for early detection of significant haematological condition. It can facilitate clinician in making prompt decision for immediate patient management.

ORAL 04: Anatomical Pathology

Unmasking the Enigma of Calciphylaxis Cutis: A case series.

Aliza A¹, Norakmar T²

¹ Department of Pathology, Faculty of Medicine and Health Sciences, USIM

² Department of Pathology, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

Calcific uremic arteriopathy also known as calciphylaxis is a rare but serious condition characterized by vascular calcification and skin necrosis. It primarily occurs in patients with end-stage renal disease (ESRD) but can also affect patients with normal parathyroid hormone (PTH) under certain contexts. This writing highlight three cases of calciphylaxis. Two of the patients have ESRF and one with normal parathyroid hormone. All of them presented with painful plaque which then become ulcerated and necrotic. Two of them succumbed due to the complication and one of them survive after treatment with sodium thiosulphate. Calciphylaxis is often mistaken for other dermatological conditions such as venous stasis dermatitis or infection. Factors contributing to its development include hyperparathyroidism, obesity, malnutrition, and certain medications (e.g., warfarin). Our writing highlights the importance of recognizing calciphylaxis in patients with established kidney disease. Prompt intervention not only can alleviate suffering but also may significantly affect morbidity and mortality. Further research into effective treatments and preventive strategies is essential.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP01

Integrated Molecular Genetics and Clinical History in Inherited Malignant Brain Tumour: A Case Report

Sugan Selvanathan¹, Teh Kok Hoi², Teh Chair Ying², Subasri Armon¹

¹Department of Pathology, Hospital Kuala Lumpur

²Department of Paediatrics-Haematology Oncology, Hospital Kuala Lumpur

Constitutional Mismatch Repair Deficiency (CMMRD) is an exceptional yet challenging rare autosomal recessive cancer predisposition syndrome with a high risk of developing a broad spectrum of malignancies, often at childhood, adolescence, and young adulthood. We present a compelling case of CMMRD in an 8-year-old of Indian descent, showcasing the complex interplay between genetic predisposition, tumour spectrum, and therapeutic challenges. He presented with neurological symptoms caused by an early onset medulloblastoma and associated skin changes resembling Neurofibromatosis type 1. Further history revealed parental consanguinity, a deceased sister with left heart hypoplasia, a deceased brother with mediastinal T-cell lymphoblastic lymphoma, and two siblings with partial eyelid ptosis. Clinical suspicion of CMMRD-related malignancy was confirmed through immunohistochemistry, which showed a loss of nuclear protein expression of MSH2 and MSH6 gene proteins, and sequencing revealed a biallelic mutation in the *MSH6* gene. Germline testing also unmasked the presence of heterozygous pathogenic *MSH6* variant in both parents and one living sister. Beyond a confirmed diagnosis, the genetic testing also yields revelations into the genetic basis of the disease, with potential implications for genetic counselling and future close surveillance for him and his family. This case highlights the clinical heterogeneity of CMMRD, emphasizes the importance of tailored surveillance and management strategies, and underscores the need for clinicians and pathologists to be vigilant in diagnosing potential CMMRD cases. It also provides the affected family with insight into their inherited genetic defect and closure regarding the death of their family members.

AP02

A Rare Case of Epithelial-Myoepithelial Carcinoma Ex Pleomorphic Adenoma of the Palate

Sobry H¹, Sakinah A¹

¹Department of Pathology, Hospital Tuanku Fauziah, Perlis

Epithelial-myoepithelial carcinoma (EMC) is a rare type of salivary gland cancer, making up only 1% of all cancers originating in salivary glands. This lesion can arise *de novo* or from an existing pleomorphic adenoma (PA). We present the case of a 76-year-old man who was diagnosed histologically with PA of the palate and underwent an excisional biopsy in 2017. He presented again in 2023 with a history of palatal swelling. He underwent a left partial maxillectomy and tumour debulking. A histopathological examination revealed a multilobated, unencapsulated cellular tumour with a focally infiltrative margin. The tumour cells are arranged in sheets, nests, clusters, strands, and tubules embedded within fibromyxoid, chondromyxoid, and fibrohyalinized stroma. The cells are predominantly made up of abluminal cells with minimal luminal epithelial cells. These tumours appear to be the dominant component, and the presence of chondromyxoid stroma in the background suggests a residual PA. Immunohistochemistry supports the histomorphology of EMC. EMC is a rare cancer type. Most of them originate in the parotid gland, while the rest affect the other major or minor salivary glands, sinonasal tract, and bronchus. This cancer has a favourable outlook. A high-grade transformation is clearly a poor prognosticator. Epithelial-Myoepithelial Carcinoma Ex Pleomorphic Adenoma is a rare condition that poses diagnostic difficulties. Therefore, it is crucial to recognise and identify this entity, since it holds substantial clinical and pathological significance.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP03

Hepatic Neuroendocrine Carcinoma with Unusual Thyroid Follicular-like Morphologic Characteristics

Siti Fatimah Shafee¹, Maalini Krishnasamy²

¹ Department of Pathology, Hospital Sultan Idris Shah Serdang, Selangor Darul Ehsan

Primary hepatic neuroendocrine tumour (PHNET) first described by Edmonson in 1958, is extremely rare, with fewer than 150 cases described in literature. A 18 years old, Malay, female presented with acute right hypochondriac pain, itchiness and jaundice. CT abdomen showed a large, lobulated enhancing mass in the right lobe of liver measuring 9.2x10.3x23.4cm. Patient underwent extended right hemihepatectomy and biliary reconstruction. The tumour characteristic and immunohistochemical profiles were consistent with the diagnosis of primary hepatic neuroendocrine carcinoma (PHNET) with unusual thyroid follicular-like morphologic characteristic. Microscopically, this rare variant of PHNET had thyroid-like morphologic characteristics in addition to the usual histology of high-grade neuroendocrine carcinoma. They were micro and macrofollicles containing colloid like secretions. These areas were negative for TTF-1 and Thyroglobulin, therefore excluding metastasis from thyroid gland and lung. The areas with high-grade neuroendocrine carcinoma were positive for Synaptophysin and Chromogranin. PHNETs are rare tumours and can present with varying histological finding including thyroid follicular-like morphological characteristic. The absence of primary thyroid tumour, knowledge of morphological features and the lack of thyroid markers in the liver tumour are useful in the diagnosis of these rare and new morphological variant of PHNET.

AP04

Uterine Leiomyoma with Amianthoid-like Fibers: A Rare Case Report

Muhammad HI¹, Siti ZO¹

¹ Department of Pathology, Hospital Sultanah Nur Zahirah, Kuala Terengganu, Terengganu

Uterine leiomyoma are common benign tumors originating from smooth muscle cells of the uterus. However, presence of amianthoid-like fibers in leiomyoma is extremely rare. We report a case of a 47-year-old female with underlying history of laparotomy oophorectomy for right mucinous adenocarcinoma of ovary, stage 2c in 2018. She completed 6 cycles of chemotherapy in March 2019 and was tumour free since then. Surveillance imaging studies revealed multiple intramural fibroids and subsequent Gynaecology follow up noted the fibroids are increasing size. The patient then underwent a total abdominal hysterectomy, and histopathological examination of the uterus revealed spindle cell population consistent with leiomyomata with presence numerous of amianthoid-like fibers. These fibers were identified as eosinophilic, acellular, and refractile material under light microscopy. The amianthoid-like fibers were highlighted by MT stain. The occurrence of amianthoid-like fibers in uterine leiomyoma is rare, with few cases reported in the literature. Their presence may complicate the diagnosis and necessitates thorough histopathological evaluation. Although the exact pathogenesis of these fibers is unclear, they are thought to result from degenerated smooth muscle cells. Recognizing this rare histological feature is crucial for accurate diagnosis and management. This case underscores the importance of considering atypical histological features such as amianthoid-like fibers in uterine leiomyoma. Further research is needed to understand the clinical implications and pathogenesis of these fibers.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP05

Growing Teratoma Syndrome with Coexistence Gliomatosis Peritonei in a 14-year-old Girl During Chemotherapy in an Ovarian Germ Cell Tumour- A Rare and Intriguing Phenomenon

Aniqah S Jaafar¹, Razmin G¹

¹*Histopathology, Department of pathology, Hospital Kuala Lumpur*

Growing teratoma syndrome (GTS) is a rare entity defined by the benign enlargement of a tumour mass detected during or after chemotherapy for a germ cell tumour despite normalization of tumour markers. Gliomatosis peritonei (GP) is an uncommon condition characterized by the presence of peritoneal implants consisting of nodules of mature glial tissue in patients with ovarian teratoma. Coexistent GTS and GP arising during chemotherapy for ovarian germ cell tumour is extremely rare and can be misdiagnosed as recurrent or progressive disease. We present a case of a 14-year-old girl diagnosed with GTS with synchronous GP during chemotherapy for an ovarian germ cell tumour. The alpha-fetoprotein concentration decreased from 357 ng/mL to 7.85 ng/mL (within normal range) after 2 cycles of chemotherapy. However, a repeat CT scan revealed an enlarging 19-cm abdominopelvic mass. During an exploratory laparotomy, a large right ovarian tumour with mixed cystic and solid components was discovered, along with multiple solid nodules on the peritoneal surfaces. The patient underwent right salpingo-oophorectomy, en bloc tumour resection involving the right diaphragm, appendicectomy, and peritonectomy. Histological examination of the ovarian tumour revealed mature teratomatous components with extensive haemorrhage and necrosis, devoid of immature elements or other germ cell tumour components, as well as diffuse GP seen in all the peritoneal nodules, thus confirming the coexistence of GTS and GP in this patient. Recognizing this syndrome is important to avoid misdiagnosis and unnecessary chemotherapy. The prognosis of these tumours is excellent after optimal surgical excision.

AP06

SARS-CoV-2 Placentitis Leading to Stillbirth

Nur Aini Abu Bakar¹, Dr Salmi Abdullah¹, Nur Syahrina Rahim^{1,2}

¹*Department of Pathology, Hospital Selayang, Selangor, Malaysia* ²*Faculty of Medicine & Health Science, Universiti Sains Islam Malaysia, Malaysia.*

During the pre-vaccination period, COVID-19 infection in pregnancy is associated with significant risk of maternal morbidity and mortality. Although there is low rate of positive SARS-CoV-2 tests in infants born to mothers with COVID-19, pathological changes of placentas from COVID positive mothers have been reported. We would like to share a documented case of SARS-CoV-2 placentitis resulting in stillbirth from histopathological perspective. A 27-year-old lady, G1P0 with COVID category 1, presented with pregnancy loss at 23 weeks gestation. The placenta received had weight of less than 10th centile for gestational age and showed significant yellowish-tan ill-defined plaques within parenchyma on cut surface. Histopathologically, the placenta showed extensive perivillous fibrin with trophoblasts necrosis. There was dense intervillous CD68- positive cells associated with intervillous thrombi. SARS-CoV-2 protein immunohistochemistry was detected on the villous surface trophoblasts. The histologic manifestation of COVID-19 in placenta is on-going research and studies showed associations between maternal SARS-CoV-2 infection and specific placental histopathology. The destructive features of marked increase perivillous fibrin, intervillous thrombosis and intervillitis amongst documented pathological changes compromising the placental function. Supportive SARS-CoV-2 immunohistochemistry is a useful diagnostic adjunct as evidence of intrauterine transplacental transmission. (This is part of a study funded by the USIM Research Grant Scheme (PPPI/FPSK/0122/USIM/13922)).

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP07

A Rare Case Of Cribriform Morular Thyroid Carcinoma

JN Hor¹, Noor Afidah MS¹, Nur Dini J², DI Hai³

¹Department Of Pathology, Hospital Selayang, Selangor.

²Department Of Pathology, Hospital Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.

³Department Of Surgery, Hospital Selayang, Selangor.

Cribriform morular thyroid carcinoma (CMTC) is a rare malignant thyroid tumour of variable growth pattern, driven by WNT/beta catenin pathway activation. It is known to occur almost exclusively in young females less than 40 years of age. We report a case of 21-year old female who has no underlying medical illness, experiences a progressive increase in size of right neck swelling over a period of one-year. Ultrasound of the neck shows enlarged right thyroid lobe (TIRADS 4) and her fine needle aspiration cytology is reported as suspicious of malignancy. Subsequently, right hemithyroidectomy is performed. Histology reveals a fairly circumscribed tumour giving rise to nodular appearance, with variable morphology of malignant cells which appear dilated and branching acinar, fused and cribriform architecture, papillary, trabeculae and sheets. There are no morules or nuclear features of papillary thyroid carcinoma. Immunohistochemistry shows strong nuclear and cytoplasmic staining for beta-catenin. CMTC is currently considered as a thyroid tumour of uncertain histogenesis. It is associated with familial adenomatous polyposis (FAP) or can occur sporadically. A close differential diagnosis for this case based on morphology is columnar cell subtype of papillary thyroid carcinoma. However, this entity is negative for beta-catenin. It is crucial to alert clinicians to screen for FAP as the management varies.

AP08

'Oh, Skin Lumps! Check Your Kidneys!'

A Case Report of Bilateral Multifocal Epithelioid Angiomyolipoma in Polycystic Kidneys

Woon Hui Goh¹, Azam Hilmi Bin Mohd Zain¹, Jenny Tung Hiong Lee¹.

¹Department of Pathology, Sarawak General Hospital, Malaysia

Angiomyolipomas (AMLs) are neoplasms of perivascular epithelioid cells (PEComas). Epithelioid AMLs (EAMLs) are a potentially-malignant variant and may be associated with tuberous sclerosis complex (TSC). Accurate diagnosis is crucial for patient management. A 51-year-old female with bilateral polycystic kidneys, facial sebaceous adenoma and café au lait over her back and thigh, underwent bilateral radical nephrectomies for enhancing kidney lesions. Gross examination showed multifocal, tan-coloured lesions. Histology revealed a mixture of epithelioid cells (over 50%), spindled cells, mature adipocytes, and poorly-organized vascular channels. Epithelioid cells were diffusely positive for HMB45 and SMA, focally for desmin, and negative for CK7 and PAX8. The diagnosis was bilateral multifocal EAML in polycystic kidneys, with a presumptive diagnosis of TSC. Skin punch biopsies from her nose and thigh confirmed benign angio-fibromatous and collagenous lesions, consistent with angiofibroma and connective tissue nevus, respectively. About 80% of TSC patients develop renal AMLs. Mutations of TSC1 or TSC2 genes confirms TSC. However, 10-25% of patients have no detectable mutations, necessitating clinical diagnosis. Distinguishing EAML from renal cell carcinoma (RCC) can be challenging. EAML typically expresses HMB45, Melan-A, SOX10, desmin, and SMA, with negative epithelial markers and S100. RCC is positive for epithelial markers and negative for melanocytic markers. Large tumours may bleed. Tumours under 40 mm are monitored annually. Symptomatic or larger tumours require surgical or radiological intervention. EAML is a rare, potentially-malignant AML variant linked with TSC. Accurate diagnosis and management require a multidisciplinary approach and careful histopathological evaluation.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP09

Neonatal Hemochromatosis: Deciphering the Role of Gestational Alloimmune Disease.

Ranjeeta K¹, Nadzrin MY¹, Pavitratha P²

¹Department of Pathology, Hospital Sultanah Bahiyah, Alor Setar, Malaysia

²Department of Pathology, Hospital Pulau Pinang, Malaysia

Gestational alloimmune liver disease (GALD), is a rare maternal-fetal alloimmune disorder causing fatal liver injury with hepatic and extra-hepatic iron accumulation. We report a case of neonatal liver failure (NLF) with coagulopathy and direct hyperbilirubinemia. A diagnosis of neonatal hemochromatosis (NH) secondary to GALD was made on postmortem. An infant, born preterm presented with petechiae, bruises and hepatomegaly. Parents were non-consanguineous with previous history of neonatal deaths. The laboratory parameters showed thrombocytopenia, abnormal liver function (hypoalbuminemia, coagulopathy), and increase in liver enzymes. Viral screening, ultrasound and inborn error metabolism (IEM) screenings were unremarkable. Autopsy was performed and diagnosis of GALD-NH was confirmed by significant multisystem iron (hemosiderin) depositions (hepatic and extra-hepatic), massive necrosis of liver parenchyma, perisinusoidal fibrosis and marked cholestasis. Our patient presented with antenatal distress signs of prematurity, oligohydramnios, failure of liver function (coagulopathy) and evidence of acute liver injury in keeping with NLF, suggesting a congenital liver disease due to prenatal insult. The possible causes of significant extra-hepatic siderosis include GALD, IEM and mitochondrial respiratory chain disorder (MRCO). GALD was favoured as investigations for IEM and histology for MRCO were negative. GALD is a rare but documented differential for severe NLF. Lethal recurrence in subsequent pregnancies is high. Early use of intravenous immunoglobulin (IVIG) is crucial to allow longer survival of the neonate.

AP 10

Intravascular Large B-cell Lymphoma Presenting as a Multinodular Goitre

Nurul Atiqah Abu Sahmah¹, Kevin Min Yek Ling¹, Shahrin Niza Abdullah Suhaimi², Suria Hayati Md Pauzi¹, Geok Chin Tan¹

¹ Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

² Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Intravascular Large B-cell Lymphoma (IVLBCL) is a rare variant of Large B-cell Lymphoma. It has an estimated incidence of <1 person per million population. We present the histopathological finding of IVLBCL in the thyroid of a patient presented as multinodular goitre. A 74-year-old lady with underlying multinodular goitre with retrosternal extension and tracheal compression presented with exertional dyspnea. Otherwise she was euthyroid. Clinically there was no lymphadenopathy or hepatosplenomegaly. Subsequently, hemithyroidectomy was performed. Macroscopic examination shows multiple nodules with two dominant nodules displaying brownish myxoid appearance. Microscopically, large atypical lymphoid cells are seen distending the lumen of capillaries within an adenomatoid nodule without any extravascular growth. These cells show irregular nuclear membrane, hyperchromatic to vesicular nuclei, prominent single to multiple nucleoli and scanty cytoplasm. They are positive for CD20 and shows non-germinal centre subtype with high Ki67 proliferative index (>95%). The background thyroid parenchyma exhibits nodular hyperplasia. Therefore, diagnosis of classic IVLBCL was rendered. IVLBCL usually presented with non-specific symptoms without lymphadenopathy and absence of lymphoma cells in peripheral smears. This clinical presentation causes delayed diagnosis and guarded prognosis. It may involve any organs including brain, lung, skin and spleen. Only a few cases reported on IVLBCL in thyroid gland. Chemotherapy with rituximab has shown to improve clinical outcome. IVLBCL can occur in thyroid gland hence the role of meticulous histomorphological examination and judicious use of immunohistochemistry stains cannot be overemphasized to prevent misdiagnosis in suspected cases.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP11

Uterine Intravenous Leiomyoma with Dissecting Component. An unusual variant.

Razana, MA¹, Nor Akmar, S¹, Norren Haneezah, S², Noorjehan, O²

¹ *Department of Pathology, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia Serdang, Selangor*

² *Department of Pathology, Hospital Sultan Idris Shah, Serdang, Selangor*

Leiomyoma is the most common mesenchymal neoplasm in the uterus. Variants like intravenous leiomyoma, where smooth muscle proliferation involves venous spaces are exceptionally rare. A 48-year-old female with heavy menstrual bleeding and anemia was diagnosed with multiple uterine fibroids via transabdominal sonography. Intraoperatively, the largest fibroid was 6x7 cm at the fundus. Two ill-defined subserosal greyish masses with slit-like spaces and worm-like tumour plugs in vessels were identified. Histology showed intravascular growth of benign spindle cells in fascicles with hydropic and hyalinized stroma. Multiple thick-walled vessels containing blood are observed. Irregular dissection by spindle cells through the myometrium was also identified. No nuclear atypia, mitosis, or necrosis was observed. Immunohistochemistry revealed positivity for Desmin, SMA, ER, and focal CD10, while CD34 highlighted the endothelium and surface of the mass. A diagnosis of intravenous leiomyoma with a dissecting component was made. Intravenous leiomyoma of the uterus is a rare variant showing venous intrusion of benign smooth muscle, potentially linked to benign metastasizing leiomyoma. Despite its benign morphology, it may exhibit more aggressive behavior. Some suggest it originates from vascular smooth muscle, but histologic and cytogenetic evidence showed similarities with leiomyoma of myometrial origin with venous growth likely due to additional genetic alterations. Intravenous leiomyoma of the uterus is a rare variant. Awareness is crucial for distinguishing it from other benign uterine neoplasms. As the intravenous extension might be considered as more aggressive behaviour, careful follow-up is warranted.

AP12

Eye-Conic Gliomas: A Case of Optic Nerve Glioma

Dahlia Munchar Elias¹, Man Kein Seong¹

¹*Department Of Pathology, University Malaya Medical Centre*

Optic nerve gliomas (ONGs) are rare, low-grade childhood tumours, often linked to neurofibromatosis type 1 (NF1), but may occur sporadically. We report a case of sporadic ONG in a 3-month-old boy. Patient presented with worsening left eye protrusion for a month. Examination revealed proptosis, inferior dystopia, and optic disc swelling. Imaging showed diffusely thickened left optic nerve (4.4cm x 1.4cm x 2.1cm) with enhancing perineural tissues. Biopsy revealed a biphasic tumor with alternating cellular and loose microcystic regions. The neoplastic cells were GFAP-positive, monomorphic and pilocytic. Rosettes, Rosenthal fibers, eosinophilic granular bodies, microvascular proliferation, mitosis, and necrosis were absent. Ki-67 index was 2-5%. Final diagnosis was low-grade glioma, WHO grade 2. Molecular studies identified BRAF V600E mutation, with no IDH1/2, TERTp, ATRX, TP53, KRAS, NF1, PDGFRA, PIK3CA, PIK3R1, FGFR1, EGFR, chromosome 7, CDKN2A/2B mutations or 1p/19q co-deletions. ONGs are frequently pilocytic astrocytomas, but can also be diffuse gliomas. Morphology alone is insufficient for grading due to tumour biology variability. The lack of classic features and a low Ki-67 index suggests a low-grade tumor, while BRAF V600E mutation, associated with higher-grade gliomas, supports a WHO grade 2 diagnosis. This mutation implies a more aggressive tumour with potential chemotherapy resistance and highlights the value of targeted therapy. Incorporating molecular data into glioma grading provides a more accurate and comprehensive approach to diagnosis and treatment.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP13

Navigating The Challenges of Renal Ewing Sarcoma: A Rare Case of Aggressive Tumour with Multidisciplinary Management

Wei Meng Phang^{1,2}, Noriah Othman¹

¹Department of Pathology, Hospital Sultan Idris Shah, Serdang, Selangor, Malaysia

²Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia.

Ewing sarcoma/primitive neuroectodermal tumour (ES/PNET) is a rare, aggressive malignancy that affects children and young adults. It typically presents as a high-grade, small round cell tumour with neuroectodermal differentiation. Although primarily a bone tumour, ES/PNET can also occur in extraskeletal sites, such as the renal pelvis. We report the case of a 19-year-old female with a right renal mass, IVC, and right renal vein thrombosis complicated by left pleural effusion and pulmonary embolism. CT imaging revealed a heterogeneous right renal mass extending into the right renal hilum, vein, and IVC. The patient was scheduled for neoadjuvant chemotherapy and CT reassessment was planned to evaluate mass resectability. Renal biopsy revealed sheets of small monotonous cells with high nuclear-to-cytoplasmic ratios and uniform round nuclei, inconspicuous nucleoli, and scanty to moderate cytoplasm. Dilated vascular channels and thrombosed vessels were observed. Immunohistochemistry was positive for CD99 (diffuse), FLI-1, Cyclin D1, focally positive for synaptophysin, and negative for CKAE1/AE3, desmin, myogenin, WT1, CD56, and TdT. The Ki67 proliferation index was 40-50%, supporting the diagnosis of ES/PNET. Strong and diffuse membranous expression of CD99 is evident in approximately 95% of Ewing sarcomas. The most common translocation, $t(11;22)(q24;q12)$, results in EWSR1-FLI1 fusion, which is present in approximately 85% of cases. ES/PNET are aggressive, with local invasion and metastatic tendencies. Surgical resection, when feasible, improves the outcomes. Despite its aggressive nature, early diagnosis and comprehensive treatment significantly enhance outcomes, underscoring the need for a multidisciplinary approach involving pathologists, oncologists, and geneticists.

AP14

High Grade Pilomatrixoma-like Endometrioid Carcinoma of The Ovary: A New Variant

Arvend K¹, Shirin DN¹, Shobana MD¹

¹Anatomic Pathology Unit, Department of Pathology, Hospital Selayang, Selangor, Malaysia

Endometrioid carcinoma can show several different types of altered differentiation which may mimic other tumors and constitute diagnostic pitfalls¹. Endometrioid carcinoma may also undergo high-grade divergent differentiation, or they may dedifferentiate completely². We report a rare variant of ovarian endometrioid adenocarcinoma. A 58-year-old lady who presented with a left ovarian mass. Gross finding shows a multiloculated solid cystic tumour measuring 110x110x50mm with adhesions to the lower uterine segment and left parametrium. Microscopy examination shows a tumour with a high-grade and low-grade component. The high-grade component is composed of rounded clusters of basaloid cells with central ghost-like cells and necrosis reminiscent of pilomatrixoma-like features. These cells are positive for beta-catenin, synaptophysin with proficient MMR staining while being negative for ER and PR. The p53 stain shows wild-type staining pattern. Pilomatrixoma-like high-grade endometrioid carcinoma (PiMHEC) is a recently described variant of endometrioid carcinoma¹. In the past, ghost-like cells had been missed and recognized as conventional squamous metaplasia in the routine diagnostic practice⁴. The recognition of PiMHEC is important to avoid diagnostic misinterpretation of this high grade tumour as a low grade malignancy. PiMHEC typically shows a diffuse nuclear β -catenin expression, which reflects underlying CTNNB1 exon 3 mutations^{1,5}. PiMHEC displays a few characteristic histological and immunohistochemical features and has a highly aggressive behavior which may warrant its recognition as a distinct entity. A larger case series is needed to establish the diagnostic criteria of PiMHEC to differentiate it from its mimickers as it has both prognostic and therapeutic implications^{1,6}.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP 15

Thyroid-Like Follicular Renal Cell Carcinoma: A Case Study of Rare Renal Neoplasm Mimicking Thyroid Morphology

Amirah H¹, Suhaila A¹, Norhidayah J²

¹ Department of Pathology, Hospital Tengku Ampuan Afzan, Kuantan, Malaysia

² Department of Pathology, Hospital Sultan Idris, Serdang, Malaysia

Thyroid-like follicular renal cell carcinoma (TFRCC) is a rare and recently recognized subtype of renal cell carcinoma. It is characterized by a morphology resembling follicular carcinoma of the thyroid gland, yet it lacks the thyroid-specific immunohistochemical expression. Due to its rarity, only a limited number of cases have been reported in the literature. A 47-year-old male, with a history of pulmonary embolism, heart failure, and cor-pulmonale secondary to obstructive sleep apnea, was referred from Hospital Sultan Idris Shah, Serdang for a second opinion. Initially, a solid mass in the right upper pole of the kidney was incidentally noted measuring 2.1x2.2x3.4 mm, classified as Bosniak grade IIF. The patient otherwise had no history of thyroid lesions or goiter. Histopathological analysis of the renal mass demonstrated a follicular-like architecture with variable sizes of follicles containing eosinophilic colloid-like material. There was no evidence of sarcomatoid differentiation. Immunohistochemical staining revealed that the tumor cells were positive for Pax8, CK19, CK7, Vimentin, and CD10, while negative for RCC, AMACR, TTF, and Thyroglobulin. These findings support the renal origin of the mass, leading to the diagnosis of thyroid-like follicular renal cell carcinoma after excluding the possibility of a thyroid lesion or metastasis. TFRCC is an extremely rare entity, with the majority of cases exhibiting low grade and indolent course. However, due to distinct malignant potential, complete surgical excision remains the preferred treatment. Recognizing TFRCC is crucial for overall appropriate management and prognostication.

AP 16

Superficial CD34-Positive Fibroblastic Tumour: Report of A Rare Entity.

Noraziah S¹, A. Yusuf², Shazatun MN³

¹Department of Pathology, Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan.

Superficial CD34-Positive Fibroblastic Tumour (SCPFT) is a rare mesenchymal neoplasm of intermediate malignancy, characterized by superficial tumor with striking atypia, low mitotic rate, and strong diffuse CD34 positivity. We report a case of SCPFT in a 19 years old lady, presented with right buttock swelling for 3 years, gradually increasing in size. Clinical impression was dermoid cyst. Excisional biopsy done and found a superficial lesion, based in dermis, not involving underlying fascia or skeletal muscle. A diagnosis of SCPFT is confirmed by histopathology examination (HPE). Grossly, tumour is well circumscribed, tan homogeneous surface, measuring 5.0 cm in largest diameter. HPE showed highly cellular fascicles and sheets of spindle to epithelioid cells with abundant granular to glassy eosinophilic cytoplasm. The tumour cells exhibit marked nuclear pleomorphism, hyperchromatism, prominent nucleoli, intranuclear pseudoinclusions and bizarre giant cells. Mitotic activity is low (0-2/10 high power fields). The tumour cells show diffuse and strong positivity to CD34, patchy positivity to Pancytokeratin. SCPFT is a low grade mesenchymal neoplasm (French Grade 1), has PRDM10 gene rearrangement in a high number of cases (not performed in this case). The recognition of this entity is important to avoid confusion with other cutaneous pleomorphic soft tissue tumours, especially high grade undifferentiated pleomorphic sarcoma to avoid unnecessary overtreatment. Combination of accurate clinical assessment, histomorphological features and immunohistochemical markers is necessary to obtain a correct diagnosis in most cases. The primary treatment of SCPFT is surgical resection with negative margins.

POSTER PRESENTATION: ANATOMICAL PATHOLOGY

AP 17

Complexity of Diagnosing Langerhans Cell Sarcoma: A Case Report

Nurul Shuhada AH¹, Mohd Farhan O¹, Nur Amira Izzah MNS¹, Shafinaz Shabudin²

¹ Department of Pathology, Hospital Sultanah Bahiyah Alor Setar, Kedah

² Department of Pathology, Hospital Raja Permaisuri Bainun Ipoh, Perak

Langerhans cell sarcoma (LCS) is an extremely rare and aggressive malignant neoplasm that originates from Langerhans cells. The diagnosis is difficult, requiring extensive immunochemical panels and the exclusion of many differential diagnoses. A case of LCS in a 70-year-old man who presented with left inguinal swelling for 3 months, associated with multiple lymphadenopathies. The diagnosis of possible metastatic melanoma was established after a histologic examination. A thorough physical examination was performed and showed a few skin lesions, which were biopsied and confirmed a benign neoplasm. A revision of the initial histological examination concluded the diagnosis of LCS. Histologic examination revealed a lymph node with tumour necrosis and infiltrated by malignant cells with high-grade cytological features. These malignant cells showed strong and diffuse positivity towards CD1a, S100, Langerin, CD163, and Vimentin, with patchy expression of LCA, CD4, CD68, CD15, and CD30, and were negative for CKAE1/AE3, EMA, Melan A, SOX10, and HMB45. The morphologic clues for LCS are pleomorphic tumour cell nuclei with some wreath-like appearance and nuclear grooves. The latter may not be apparent in some cases. The immunohistochemical expression of Langerhans cell phenotype is variable. Exclusion of more common neoplasms such as metastatic carcinoma, melanoma, and B and T lymphoma is mandatory to avoid overdiagnosis of this rare entity. Due to its rarity, diagnosis is difficult, and standard protocols of treatment for this disease have not yet been identified. The combination of surgical excision, chemotherapy, and radiotherapy can be an effective approach for treatment.

AP 18

Eyelid Follicular Squamous Cell Carcinoma: Reevaluating A Common Yet Under-Recognized Cutaneous Neoplasm

Wei Meng Phang^{1,3}, Nor Akmar Tak², Amizatul Aini Salleh¹

¹ Department of Pathology, Hospital Sultan Idris Shah, Serdang, Selangor, Malaysia

² Department of Pathology, Hospital Tuanku Ja'afar, Seremban, Malaysia

³ Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia.

Follicular squamous cell carcinoma (fSCC) is a subtype of cutaneous squamous cell carcinoma that originates from the hair follicle infundibula. It predominantly affects sun-damaged, hair-bearing skin in elderly males and often presents as nodular lesions. Its unique histopathological features can make differentiation from other skin tumors challenging. A 46-year-old male presented with a 3-year history of a painless, progressively enlarging mass on the right lower eyelid. Examination revealed a pigmented mass measuring 6mm x 7mm, involving the lateral edge of the lower punctum. Microscopic examination showed an exoendophytic tumor with circumscribed borders, displaying confluent infundibular canals and surface hyperkeratosis. The tumor was composed of multiple squamous morules, keratin pearls, and keratinocytes with mild pleomorphic nuclei. Scattered dyskeratotic keratinocytes and focal irregular clusters were observed within the stroma, along with central acantholytic mucin pools and acellular mucin material. These features were consistent with well-differentiated fSCC. The patient is currently under ophthalmological follow-up. Histologically, fSCC displays malignant cytological features, abrupt connections to the epidermis, and distinctive tricholemmal keratinization. Differential diagnoses include keratoacanthoma (KA) and other forms of SCC, with intra-epithelial "follicular" mucin serving as a diagnostic clue. Invasive cases require management similar to conventional SCC, with surgical excision, particularly Mohs micrographic surgery, being preferred. Despite being under-recognized, fSCC presents distinct histopathological features crucial for accurate diagnosis and management. Increasing awareness of these features is essential to avoid misdiagnosis and ensure effective treatment strategies.

POSTER PRESENTATION: CHEMICAL PATHOLOGY

CP 01

Green Glow Plasma: Unraveling Methylene Blue-Induced Plasma Discoloration

Aminah Asykin AH¹, Wan Asmuni WMS^{1,2}

¹Department Of Clinical Diagnostic Laboratory, Hospital Al-Sultan Abdullah, Puncak Alam, Selangor, Malaysia

²Department of Pathology, Faculty of Medicine, Universiti Teknologi Mara, Sungai Buloh, Selangor, Malaysia

Methylene blue is used intra-operatively for lymphatic mapping during mastectomy with sentinel lymph node biopsy. Occasionally, patients injected with methylene blue may develop temporary bluish discoloration of the skin. Therefore, we present a rare case of greenish discoloration of plasma following methylene blue administration intra-operatively. A 45-year-old female diagnosed with bilateral breast carcinoma underwent mastectomy and sentinel lymph node biopsy. Intra-operatively, methylene blue dye was injected for lymphatic mapping. Post-operatively, the patient developed bluish discoloration over the neck and chest. Blood samples were sent for routine laboratory tests. Upon centrifugation, the plasma was noted to have greenish discoloration. Despite abnormal plasma colour, all routine laboratory test results including full blood count, coagulation profile, liver and renal function tests, were similar with patient's baseline investigations result pre-operatively. The greenish discoloration observed in the plasma post-methylene blue injection is likely attributable to the dye or its metabolites. Previous literature has documented similar instances of greenish discoloration of plasma associated with methylene blue administration. Importantly, our findings demonstrate that this discoloration does not interfere with routine laboratory tests. Methylene blue-induced greenish plasma is a rare occurrence following surgical procedures involving lymphatic mapping. Clinicians and laboratory personnel should be aware that this phenomena does not interfere with routine laboratory results.

CP 02

Neonatal Abstinence syndrome: A Case Review

Rosemawati A¹, Nor' Ashikin O²

¹Hospital Sultanah Nur Zahirah Kuala Terengganu

²Hospital Kuala Lumpur

Neonatal abstinence syndrome (NAS) refers to a collection of postnatal withdrawal symptoms among newborns with a history of prolonged in-utero exposure to licit or illicit substances. Case 1: Baby of MAJ, 33w5d with birth weight 1.9kg, via EMLSCS due to placenta abruption. infant of mother with drug abuse since 20 years ago but latest intake of ice 2 days prior to delivery. Currently treated for Neonatal Abstinence syndrome on iv morphine 10mcg/kg/hr. Toxicology report positive for amphetamine, methamphetamine and morphine. Case 2: Baby of S Clinically term SGA with birthweight 2.03kg. Infant of single mother possible multidrug abuser. Currently treated for Neonatal Abstinence syndrome on oral morphine 0.5mg/kg/day. Toxicology report positive for amphetamine, methamphetamine and morphine and ephedrine. Urine toxicology done by tandem mass spectrometry LC/MS/MS. Maternal use of illicit or prescribed drugs – opioids or non-opioids - during pregnancy leads to fetal exposure. Neonatal abstinence syndrome (NAS) occurs when there is sudden withdrawal of these drugs in the postnatal period. NAS is characterised symptomatically by a constellation of autonomic, gastrointestinal and neurological signs varying from mild to severe in intensity. The American Academy of Paediatrics (AAP) recommends that opioid-exposed neonates be observed for 3–7 days before discharge. Neonates discharged after treatment for NAS will benefit from follow up in the outpatient setting with neonatologists, dieticians, and physiotherapists.

POSTER PRESENTATION: CHEMICAL PATHOLOGY

CP 03

Magic Mushroom abuse: A Diagnostic Dilemma

Rosemawati A¹, Nor' Ashikin O²

¹Hospital Sultanah Nur Zahirah Kuala Terengganu

²Hospital Kuala Lumpur

Many designer drugs are not detected in workplace or medical drug tests thus it become a diagnostic challenge as well as for law enforcement. MR RMBA 22/M/male was brought to emergency & Trauma department due to abnormal behavior for 3 weeks associated with irritability and reduced appetite and auditory hallucination. Patient admit taking vape with magic mushroom since 2 years ago. Patient subsequently treated as substance induced mood disorder. Urine toxicology done by tandem mass spectrometry LC/MS/MS negative for dangerous drugs. Urine drug testing in ETD was negative. Abuse of magic mushroom, peyote cactus, or khat may escape detection during routine drug testing, although there is one commercially available immunoassay capable of identifying mescaline and synthetic cathinone. However, due to poor cross-reactivity of psilocin with commercially available amphetamine/methamphetamine immunoassay, such abuse may also be difficult to recognize during routine urine toxicology screen conducted by clinical laboratories. Psilocin is eliminated as psilocin-Oglucuronide. Due to the higher stability, they may extend the time of detection in the urine samples These can be detected using various techniques such as capillary electrophoresis, gas chromatography, HPLC and also with chemiluminescence technique. Biosensors can be used in the detection of themycotoxins and ergot alkaloids. Future studies may help in better detection of these compounds in the human samples and also in the forensic analysis.

CP 04

Pre-operative Optimization of Glucocorticoid Replacement Therapy: A Case Study on Hydrocortisone Day Curve in Managing Secondary Adrenal Insufficiency

Wan Nor Fazila Hafizan WN¹, Tuan Salwani TI², Hani Ajrina Z³, Siti Nadirah AR⁴, Nur Amalia Syahira NA⁵

¹ Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kota Bharu, Kelantan, Malaysia.

² Endocrine Unit, Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kota Bharu, Kelantan, Malaysia.

³ Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Bandar Baru Nilai, 71800 Nilai, Negeri Sembilan, Malaysia

⁴ Pathology Unit, Faculty of Medicine and Defence Health, National Defence University of Malaysia, Kem Perdana Sungai Besi 57000 Kuala Lumpur

⁵ Faculty of Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

Adequate glucocorticoid replacement is important in adrenal insufficiency. The primary goal of glucocorticoid replacement therapy is to improve patient's overall well-being while preventing adrenal crises during stress condition. We present a case of secondary adrenal insufficiency due to radiotherapy for cerebral neuroblastoma, where persistent hypocortisolaemia posed challenges despite glucocorticoid therapy. A 47-year-old male with panhypopituitarism secondary to radiotherapy for cerebral neuroblastoma was scheduled for tumour excision. He received T.Hydrocortisone (10mg/5mg). Pre-operative random serum cortisol level revealed persistent hypocortisolaemia (<20 nmol/L) despite patient's good compliance to medication and claimed asymptomatic. A hydrocortisone day curve confirmed inadequate treatment: pre-morning cortisol was below the detection limit (<1.50 nmol/L), indicating the absence of endogenous glucocorticoid production, while 3pm and 6pm levels remained <50 nmol/L due to delayed and insufficient evening dosing. Adjusting the hydrocortisone regimen (15mg/5mg/5mg) normalised cortisol levels. A stress-dose of glucocorticoids was added, and the surgery was uneventful. Monitoring glucocorticoid replacement primarily relies on clinical judgement, lacking reliable objective assessments. However, during peri-operative periods, measuring cortisol through a hydrocortisone day curve becomes a valuable alternative for guiding therapy and preventing adrenal crises. Optimal replacement aims for 1200h and 1800h cortisol levels >50 nmol/L, ideally >100 nmol/L. Notably, afternoon nadirs in twice-daily regimes prompt consideration of thrice-daily dosing. Hydrocortisone day curve is a useful tool that helps adrenal insufficiency treatment optimization. As a form of personalised treatment approach, this test provides a guide to hydrocortisone dosage adjustment, preventing pre-operative under-replacement that could lead to adrenal crises.

POSTER PRESENTATION: CHEMICAL PATHOLOGY

CP 05

Pseudohyperkalemia Manifesting as Discrepancies in Potassium Levels in a Patient with Acute Lymphoblastic Leukemia: A Case Report

Asmaliza AM¹, Hafizah A¹, Nur Eliani Akma MZ¹

¹ *Department of Pathology, Hospital Tunku Azizah, Kuala Lumpur, Malaysia*

Severe hyperkalemia requires urgent treatment due to its potential life-threatening nature, yet caution is warranted when confirming the diagnosis. Our case illustrates such a scenario: pseudohyperkalemia occurring amidst severe leukocytosis in a patient with acute lymphoblastic leukemia (ALL). A discrepancy was observed between potassium levels measured in blood gas (2.2 mmol/L) and plasma (9.8 mmol/L). Despite the elevated plasma potassium level, no treatment was administered as the patient showed no discomfort, exhibited no ECG changes indicative of hyperkalemia, and had no signs of renal dysfunction or hyperglycemia. The sample was non-hemolyzed, uncontaminated, and calcium levels were within the normal range. The laboratory initially reported the potassium level as critically high. A peripheral smear revealed ALL with blast crisis, showing 72% blast cells, and the abnormal white blood cell (WBC) count was beyond the assay's range. The discrepancies in potassium values, in conjunction with the elevated WBC count and absence of hyperkalemia symptoms, led to a diagnosis of pseudohyperkalemia. Pseudohyperkalemia is characterized by a serum-to-plasma potassium concentration difference exceeding 0.4 mmol/L, with serum levels typically higher when both samples are collected simultaneously, stored at room temperature, and tested within an hour. The diagnosis of pseudohyperkalemia should be considered when there is elevated potassium without clinical signs of hyperkalemia, a normal ECG, and extreme leukocytosis. Accurate diagnosis is crucial to avoid unnecessary treatments based on falsely elevated potassium levels. Prompt recognition and differentiation of pseudohyperkalemia from true hyperkalemia are essential for appropriate medical management.

CP 06

Abnormal Serum Separation in A Multiple Myeloma Case

Nurhidayu Mohd Shariff¹, Azariah Adnan¹

¹ *Department of Pathology, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan*

M protein from myeloma cells has been recognized as a source of interference in laboratory assay. We present a case of 55-year-old man whose blood sample showed abnormal serum separation despite centrifugation. Repeated blood sampling also showed a similar outcome. A 55 year old man presented with anaemia and hypercalcemia with constitutional symptoms. Therefore, multiple myeloma was suspected. Blood sample was sent in serum separator gel tube for serum protein electrophoresis (SPE). It was noted that barely any serum after centrifuge. Repeated blood sample was done to exclude gel or tube defect by any chance, however still unable to obtain any serum. Analysis of total protein using plasma sample sent in lithium heparin tube showed marked elevation of 117 g/L. As an alternative, we advised clinician to repeat blood sample for SPE in plain tube, and serum was separated successfully. Serum protein electrophoresis and immunofixation revealed IgG kappa paraproteinemia with immune paresis consistent with bone marrow and free light chain findings. Rarely protein can cause unusual serum separation and significant interference in the laboratory assay analysis. Careful inspection of the sample in serum separator gel tubes should be done prior analysis if highly suspicious of M protein interference, which evidenced by abnormal serum separation.

POSTER PRESENTATION: CHEMICAL PATHOLOGY

CP 07

Case of Hypokalaemia in DKA with Severely Hemolysed Sample

Evana H¹, Siti Nur Aisyah MT¹, Muhd Fakhrudin H¹, Noor Hidayah K¹, Nurul Shuhada S¹

¹ Department of Pathology, Hospital Kajang, Selangor

Hemolysis is a frequent cause of sample rejection in laboratories due to its impact on result accuracy. In vivo hemolysis, though rare and harder to distinguish from in vitro hemolysis due to subtle serum color, should not automatically lead to sample rejection.

A 50-year-old woman with hypertension and diabetes presented with abdominal pain, lethargy, vomiting, and cough. She was dehydrated, hypertensive, and tachycardic. Initial tests revealed high ketone and glucose levels, alongside metabolic acidosis, leading to a diagnosis of diabetic ketoacidosis (DKA) secondary to community-acquired pneumonia (CAP). Laboratory samples were initially rejected due to severe hemolysis, and a repeated sample half an hour later also showed gross hemolysis. Despite this, the lab analysed the sample, revealing hypokalemia (2.9 mmol/L) with a hemolysis index of 9+. Other results included elevated LDH (3347 U/L), low hemoglobin (6.1 g/L), elevated reticulocytes (4.4%), high total bilirubin (22.3 µmol/L), and a positive Direct Coombs test, suggesting in vivo hemolysis. The hemolysis index normalised after four days. In vivo hemolysis is rare, occurring in about 3.2% of hemolysed samples. Unlike in vitro hemolysis, which can result in falsely elevated potassium levels, in vivo hemolysis usually maintains normal serum potassium levels due to the body's regulatory processes. Hypokalaemia in this case was attributed to intracellular potassium shifts, renal and gastrointestinal losses, and acidosis. For a patient with in vivo hemolysis, test results reliably indicate their actual condition. Adhering to proper laboratory protocols for handling hemolysed samples is crucial to avoid unnecessary rejections and provide appropriate patient care.

CP 08

Complex Glycerol Kinase Deficiency in Xp21 Contiguous Gene Deletion Syndrome: An Unusual Cause of Salt'a'

Saraswathy A.¹, Noornatisha S.¹, Norzahidah K.¹, Ros Hamieza M.Y.¹, Anasufiza H¹, NoorSyazwani S², Khoo H.L.³

¹Specialised Diagnostic Centre, Institute for Medical Research, National Institute of Health, Ministry of Health, Malaysia

²Department of Pathology, Hospital Putrajaya, Putrajaya

³Department of Paediatrics, Hospital Lahad Datu

Complex glycerol kinase deficiency (CGKD) (OMIM: 300679) is an X-linked recessive Xp21-contiguous gene deletion syndrome caused by multiple microgenes deletions. It is characterised by adrenal hypoplasia, glycerol kinase deficiency, Duchenne muscular dystrophy (DMD) and intellectual disability. A 7-year-old boy presented with gross motor delay, progressive difficulty climbing stairs and proximal myopathy since 3 years old. On examination, he was hypotonic with lumbar lordosis and bilateral calf pseudohypertrophy. He demonstrated waddling gait with positive Gower's sign. His high creatine kinase led to diagnosis of DMD and was started on steroids. His 3-year-old younger brother presented with gastroenteritis and scrotal hyperpigmentation in the neonatal period raising the suspicion of adrenal dysfunction. No hypoglycemic and virilisation features were noted. Laboratory findings showed hyponatremia, hyperkalemia, elevated ACTH/Renin, hypocortisolism, hypoaldosteronism and normal 17-hydroxyprogesterone. He was treated for adrenal insufficiency with steroids. At 10 months, he developed delayed speech, gross motor impairment, hypertransaminitis, high creatine phosphokinase and hypertriglyceridemia. In view of pseudohypertriglyceridemia, urine organic acids analysis using Gas Chromatography-Mass Spectrometry (GCMS) demonstrated marked glyceroluria which confirmed the diagnosis of CGKD. Genetic investigations revealed Xp 21.1-21.2 deletion shared among both siblings. Combining the evidence of DMD, CGKD and adrenal hypoplasia, the diagnosis of Xp21 contiguous gene deletion syndrome was made. This case report highlights the importance of multidisciplinary evaluation of early diagnosis of CGKD that could provide optimal multi-profile medical care and quality of life. Hyperglyceroluria using GCMS is an effective detection method to supplement the diagnosis of Xp21 gene deletion syndrome.

POSTER PRESENTATION: CHEMICAL PATHOLOGY

CP 09

Case Report: Addressing False Positives in Intraoperative PTH Measurement

Ariff Aizzat AR^{1,2}, Noor Hafidah H^{2,3}, Tuan Salwani TI^{2,3}

¹Pathology Unit, Faculty of Medicine, Universiti Sultan Zainal Abidin, Kuala Terengganu, Terengganu, Malaysia.

²Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia Health Campus, Kubang Kerian, Kelantan, Malaysia

³Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Intraoperative parathyroid hormone (IOPTH) measurement is the gold standard for focused parathyroidectomy, minimizing postoperative complications. However, several factors may contribute to false results, leading to unsuccessful removal of hyperfunctioning parathyroid tissues. A 55-year-old woman presented with a one-month history of abdominal discomfort and constipation. Laboratory investigations revealed persistent hypercalcemia, elevated parathyroid hormone level with normal thyroid and renal function tests, hence raising suspicion of primary hyperparathyroidism. Imaging studies, including ultrasound and Tc-99m sestamibi scintigraphy, identified a multinodular goiter. However, no hyperfunctioning parathyroid gland was detected. The patient underwent a total thyroidectomy and removal of parathyroid adenoma. The excision was guided by a 50% reduction in parathyroid hormone levels intraoperatively after removing all 4 parathyroid glands, with a presumed complete excision. However, postoperatively, hypercalcemia persisted. Further evaluation revealed a residual functioning left parathyroid adenoma. A second parathyroidectomy was performed, resulting in more than 50% reduction in IOPTH level at 5 minutes post-excision, resolving hypercalcemia and confirming successful adenoma removal. IOPTH testing mandates a 50% PTH reduction 5 minutes post-excision based on Miami criteria, with 95% accuracy. False positive results may arise from delayed sample separation and processing, extreme temperature exposure, hemolysis, or sample dilution. In this case, dilution is highly suspicious in view of arterial line sampling, leading to false reduction of first IOPTH measurement. Discarding the initial blood withdrawal and proper sampling from arterial or venous access are necessary to ensure the accuracy of PTH level intraoperatively. Proper sampling of IOPTH determines the accuracy of PTH level and eventually, prevents false positives to ensure effective surgical outcomes.

CP 10

Serum Glutamate-Pyruvate Transaminase (SGPT) Elevation following Cholinesterase Level Reduction in Organophosphate Pesticides Exposure

Farhana AH¹, Siti Sarah Z¹, Paizah I¹, Freaddy E¹, Fatin Nazira MD¹

¹Biochemistry Unit, Disease Section, Johor Bahru Public Health Laboratory, Johor

Involvement in pesticide space spraying (fogging) activities for management of dengue outbreaks submits vector operators towards occupational exposure related to hazardous organophosphate compounds. Hence, this case report study was aimed to discuss on cholinesterase level reduction and Serum Glutamate-Pyruvate Transaminase (SGPT) elevation in vector operators following Organophosphate Pesticides (OPPS) exposure during fogging activity. OPPS Post Exposure serum samples of vector operators were sent to Johor Bahru Public Health Laboratory (JBPHL) after the last fogging activities. The samples were analysed for Cholinesterase Test and Liver Function Test using Automated Chemistry Analyzer Beckman Coulter AU480. Out of 9 cases of low Cholinesterase levels, 5 (56%) cases have shown increase in SGPT levels. Exposure to OPPS even in a short term could inhibit the activity of cholinesterase enzymes leading to the reduction of Cholinesterase level. Impaired liver function due to OPPS exposure could be observed from the enzymes that were excreted by the liver cells (hepatocytes) into the blood such as Serum Glutamic Pyruvic Transaminase (SGPT), Serum Glutamic Oxaloacetic Transaminase (SGOT) and Alkaline Phosphatase (ALP). For this case study, the results have shown increase in SGPT level with Cholinesterase level reduction following OPPS exposure. This case study highlights the toxic potential of pesticides on human health and their biological consequences, which require an increase in consciousness of the precautions imposed on their use. However, further studies with a larger number of samples and other related variables are recommended.

POSTER PRESENTATION: HAEMATOLOGY

HM 01

Trapped Within: Unmasking a Case of Intravascular Large B-Cell Lymphoma

Hari Priya Raghvan¹, Wee Shiang Yui¹, Ehram Jamian¹, Caroline Ho¹, Nor Ashikin Azizan¹, Indhira Subbiah¹

¹Hematology Unit, Department of Pathology, Hospital Sultanah Aminah, Johor Bahru

Intravascular large B-cell lymphoma (IVLBCL) is a rare and aggressive subtype of lymphoma characterized by the selective growth of malignant lymphocytes within the lumina of blood vessels. Due to its non-specific clinical presentation, IVLBCL often poses significant diagnostic challenges. We present a case of IVLBCL emphasizing more on the morphological findings. A 49-year-old lady presented with generalized seizures and reduced consciousness. No organomegalies or lymphadenopathies detected. Frontal release signs were elicited on neurological examination. Additional laboratory investigations were inconclusive. MRI brain was suggestive of encephalitis and she was treated as such. However, few weeks later, she was readmitted for similar symptoms. Full blood picture showed bicytopenia (anemia and thrombocytopenia) with 4% abnormal lymphoid cells. Serum LDH was markedly raised. Bone marrow aspirate revealed some suspicious looking abnormal mononuclear cells. Trepine biopsy showed abnormal lymphoid cells filling up the entire vascular space (cohesive growth pattern) and intrasinudoidal with extravasation infiltrative pattern. They are positive for pan-B-cell markers and high Ki-67 proliferative index leading to a diagnosis of IVLBCL. This case demonstrates the rare type of IVLBCL. The malignant cells can be confined to the vascular spaces as in our case, free floating or exhibits a marginating growth pattern. Mostly, the cells have pure intrasinusoidal infiltrative pattern but certain cases can show extravasation as seen in our patient. Immunohistochemistry is crucial in aiding the diagnosis. These peculiar growth patterns make IVLBCL challenging to diagnose due to its subtle histopathological appearance, requiring additional ancillary studies for accurate diagnosis.

HM 02

Heterozygous Hereditary SEA Ovalostomatocytosis (SAO) Causing Haemolysis and Inspissated Bile Syndrome.

Praveena S

Department of Pathology & Transfusion, Hospital Slim River, Perak.

SAO is an autosomal dominant disorder caused by deletion of 9 codons in gene for band 3 (SLC4A1). SAO may present with neonatal haemolytic anaemia and typically resolves within 3 years. This is a case of SAO with haemolysis, manifesting at infancy. 2 month old Orang Asli child, born full term with BW 2.29kg, and no history of neonatal jaundice or previous admissions, presented with pallor, jaundice and hepatomegaly. Investigations upon admission showed Hb 6.4g/dl (normal MCV, MCH), Platelet $462 \times 10^9/L$, WBC $22.8 \times 10^9/L$, reticulocytes 7.79%. FBP revealed typical SAO morphology with haemolysis. Liver function was significantly deranged with elevated ALT, AST, ALP, GGT, LDH and total bilirubin (predominant direct form). Screening for G6PD, Inborn Error of Metabolism (IEM), TORCHES, Direct Coombs Test and iron profile were within normal limits. Mother's and child's blood grouping is Group B RhD Positive. Both parents' smears exhibit SAO without haemolysis. Molecular analysis for child and both parents reported as Heterozygous SAO Band 3 deletion identified. No evidence of biliary atresia or choledochal cyst noted on ultrasound. Child was diagnosed with inspissated bile syndrome though not supported by radiological findings, likely due to underlying haemolytic anaemia. She was started on Ursodeoxycholic acid and jaundice recovered, with normal liver function test and Hb of 10.1g/L. This case highlights possibility of severe anaemia with secondary complication in SAO trait and importance of identifying haemolysis from blood smears during diagnostic process. Availability of molecular study for SAO is useful for genetic counselling and future management of the patient.

POSTER PRESENTATION: HAEMATOLOGY

HM 03

Hemoglobin $\alpha 2$ Codon 15 (-G + CC): First Report of Hb H Disease in a Compound Heterozygous Patient.

Ulfatul KS¹, Yuslina MY¹, Ermi NMS¹, Azian NMR¹, Suguna S¹, Syahzuwan H¹, Syahira LO¹, Nurul AJ¹, Indhira S², Ashwin R³, Ezalia E¹, Norafiza MY¹

¹*Haematology Unit, Cancer Research Centre (CaRC), Institute for Medical Research (IMR), National Institute for Health (NIH) Setia Alam, Selangor, Malaysia;*

²*Department Of Pathology, Hospital Sultanah Aminah, Johor Bahru, Johor;*

³*Department Of Internal Medicine, Hospital Sultanah Aminah, Johor Bahru, Johor*

Hemoglobin $\alpha 2$ Codon 15 (-G + CC) mutation is a novel alpha variant thalassemia. This is an indel mutation that involves deletion of G nucleotide and insertion of two C nucleotides into codon 15 in exon 1 of HBA2 gene. Initially identified in a Malay lady with mild hypochromic microcytic anemia, this mutation has now been observed in a second case involving a compound heterozygous state with alpha zero thalassemia, resulting in Hb H disease. A previously healthy Chinese man presented with fever and dizziness. He was admitted to the hospital following a positive serology test for dengue fever. He has family history of anemia and no prior history of blood transfusion. On physical examination, he exhibited pallor and had hepatosplenomegaly. His full blood count revealed a hemoglobin level of 4.9 g/dl, with mean corpuscular volume (MCV) of 64 fl, mean corpuscular hemoglobin (MCH) of 18.5 pg, and a red cell distribution width (RDW) of 23%. The peripheral blood film showed marked anisopoikilocytosis, and some fragmented cells. Low HbA2 levels were found by capillary electrophoresis (CE) and high-performance liquid chromatography (HPLC), which account for 0.8% and 1.3% of the total Hb. An anomalous peak in CE, seen at 18.1%, suggested the presence of Hb H. Molecular testing using alpha Multiplex Gap identified a heterozygous SEA deletion, and subsequent sequencing revealed homozygosity for $\alpha 2$ codon 15 (-G + CC) and $\alpha 2$ codon 137 (ACC>ACT) variations. Hemoglobin $\alpha 2$ Codon 15 (-G + CC), a rare alpha variant of hemoglobin, was initially discovered during a thalassemia screening program. This indel mutation causes a frameshift, resulting in a shortened α -globin chain with a stop codon at codon 16 (AAG>TAA). Despite this, the alteration does not give rise to important clinical manifestations in heterozygous individuals. This is the first description of Hb H disease caused by a combination of $\alpha 0$ -thalassemia with Hb $\alpha 2$ Codon 15 (-G + CC) in the Malaysian population. Based on the phenotypic features and the mutational effects of this variant, we propose classifying it as pathogenic variant. Characterizing such variant is crucial for advancing genetic counseling and prenatal diagnosis.

POSTER PRESENTATION: HAEMATOLOGY

HM 04

Interaction of Haemoglobin Adana with Single Alpha Gene Deletion: 8 years Data from Northern Molecular Thalassaemia Diagnostic Centre Peninsular Malaysia.

Nurhana AS¹, Noor Adilah J³, Siti Zaharah I², Muhammad Hafiz S¹, Hafizah H²

¹Department of Pathology and Transfusion, Hospital Pengang,

²Department of Pathology, Hospital Sultanah Bahiyah Alor Setar Kedah,

³Department of Pathology, Hospital Sultan Abdul Halim Sungai Petani

Haemoglobin (Hb) Adana is an Alpha (α) thalassaemia variant due to mutations in $\alpha 1$ - or $\alpha 2$ -globin codon 59 (α CD59) which is commonly found in the Malay ethnic. In this case series, we studied the interaction of Hb Adana with single α gene deletion based on clinical presentation, haematological parameters, Hb typing and transfusion requirement. We retrospectively collected data from all samples categories from March 2016 to December 2023 through Laboratory Information System (LIS) using DNA national coding systems namely CH1AD ($\alpha\alpha^{CD59/-\alpha^{3.7}}$) compound heterozygous α plus 3.7 kb deletion with Hb Adana and CH2AD ($\alpha\alpha^{CD59/-\alpha^{4.2}}$) compound heterozygous α plus 4.2 kb deletion with Hb Adana. FBC were performed using various analyzers meanwhile Hb typing using Capillary Zone Electrophoresis (CZE) and High-Performance Liquid Chromatography (HPLC). Multiplex Gap PCR and multiplex ARMS PCR were used to detect deletional and common non-deletional α -thalassaemia, respectively. A total of 25 cases showed CH1AD ($\alpha\alpha^{CD59/-\alpha^{3.7}}$) and no sample of CH2AD ($\alpha\alpha^{CD59/-\alpha^{4.2}}$) identified. Three cases showed co-inheritance with heterozygous Hb E. 24% of CH1AD shows mild anaemia with mean Hb 10.8 \pm 0.6g/dL, MCV 69.8 \pm 5.6fL, MCH 22.0 \pm 1.3pg, 56% of cases shows moderate anaemia with mean Hb 8.8 \pm 0.6g/dL, MCH 24.6 \pm 2.9pg, MCV 76.1 \pm 8.7fL and 20% of cases shows severe anaemia with mean Hb of 6.6 \pm 0.8g/dL, MCH 23.1 \pm 2.4pg and MCV 76.4 \pm 8.6fL. Four adult patients presented with more severe phenotypes and one 10-month-old baby was diagnosed and became a non-transfusion dependent thalassaemia patient. This case series highlights the phenotypic variability of these interactions in which the management should be tailored individually.

HM 05

Unveiling The Silent Vampire as A Culprit for Unexplained Severe Anaemia in Post Renal Transplant Recipient.

Azzatul Husna A¹, Sharifah Mai Sarah SA¹, Norlida MT¹, Zahrah T¹, Tengku Norita TY¹

¹Department of Pathology, Hospital Selayang, Selangor

Anaemia in post-renal transplant patients may increase morbidity and mortality rates. One known cause of post-transplant anaemia is parvovirus B19 (PVB19) infection. A 42-year-old man with end-stage kidney disease underwent a deceased donor renal transplant. Pre-transplant, his haemoglobin was 11.8 g/dL. During the clinic follow-up, it was noted that his haemoglobin gradually decreased and on day 68 post-transplant, he developed symptomatic anaemia with a haemoglobin level of 5.2 g/dL, WBC of 5.98 $\times 10^3$ /uL, platelets of 376 $\times 10^3$ /uL and significant reticulocytopenia (reticulocyte count of 0.15%). A peripheral blood smear revealed severe normochromic normocytic anaemia. Other causes of anaemia including adverse drug effects, bleeding, haemolysis, and nutritional deficiency had been ruled out. Due to persistent anaemia of unknown cause despite frequent blood transfusions, bone marrow aspiration was done and revealed suppression of isolated single-lineage haematopoiesis, specifically erythropoiesis, with indistinct morphological abnormality of intranuclear inclusions within the proerythroblasts. Trephine biopsy showed marked suppression of mature erythropoiesis with the presence of giant early proerythroblasts that were positive for parvovirus staining. The parvovirus polymerase chain reaction (PCR) test result, which came back later, was positive. He was treated with IV immunoglobulin for 5 days, and haemoglobin levels gradually increased to 10.4 g/dL in 1 month without the further need for packed cells transfusion. In immunocompromised patients, serology test for parvovirus may yield negative results due to a delayed and inadequate antibody response. PCR can enhance the detection of PVB19 infection, but it is not widely available. Therefore, bone marrow aspiration and trephine biopsy can aid in early diagnosis through the morphological findings and immunohistochemistry staining, thereby improving patient outcomes.

POSTER PRESENTATION: HAEMATOLOGY

HM 06

Surviving Homozygous South East Asia Ovalocytosis : Early Detection And Long Term Complication

Nadhirah Abdul Kadir¹, Nur Aliaa Anuar¹, Taye Zhi Ling²

¹ Department of Pathology, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

² Department of Pathology, Hospital Tampin, Negeri Sembilan

South East Asian Ovalocytosis (SAO) is an autosomal dominant hereditary defect in red blood cell (RBC) membranes caused by codons 400-408 deletion which codes for band 3, results in mutations of the anion exchanger 1 (AE1), affecting the RBC membrane's anion transport function. The mutations also cause distal renal tubular acidosis (dRTA) due to disrupted anion-transport activity in kidney. We report two cases of live born homozygous SAO. A girl and a boy both delivered at 33 weeks, were diagnosed with hydrops fetalis at 26 and 24 weeks respectively, due to severe fetal anemia requiring intrauterine transfusions. Both were born with severe anemia (6.2g/dl and 8.2g/dl). Their full blood pictures showed spherocytes, nucleated RBCs, and polychromatic cells suggestive of hemolysis. Molecular studies confirmed band 3 deletion. After birth, both underwent multiple exchange and blood transfusions for severe neonatal jaundice due to hemolysis and also treated for dRTA due to persistent metabolic acidosis (venous blood gases show consistently low pH level, below 7.3 with bicarbonate value persistently below 20). They were discharged home and currently thrive (age 19 and 5 months respectively), yet require monthly blood transfusions, keeping the Hb level above 9g/dL and on daily syrup sodium bicarbonate. In the past, homozygous SAO was considered fatal, but advancements in prenatal care now yield survivors. However, the outcome is poor as they become transfusion dependent since birth with other comorbidity. Implementing a screening, prevention, and control program for homozygous SAO is crucial to prevent its escalation into a major health crisis.

HM 07

Unexpected Finding of a Soft Tissue Myeloid Sarcoma in a Newly Diagnosed Chronic Myeloid Leukaemia in Chronic Phase

Intan Noorliza MS^{1,2}, Syirah Nazirah MT¹, Kanmani M¹

¹ Department of Pathology, Hospital Tuanku Ja'afar, Ministry of Health Malaysia, Jalan Rasah, Bukit Rasah, 70300 Seremban, Negeri Sembilan, Malaysia.

² Department of Pathology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia.

Chronic myeloid leukaemia (CML) is a slow-growing type of malignancy originates from an abnormal proliferation of haematopoietic pluripotent stem cell caused by t(9;22) translocation leading to BCR::ABL1 fusion gene. CML could progress into medullary blast phase (CML-BP) or extramedullary manifested as myeloid sarcoma (MS). Herein, we report an unusual case of a newly diagnosed CML with medullary chronic phase (CML-CP) and coexisting findings of extramedullary MS. A 25-year-old gentleman presented with abdominal pain, splenomegaly and lymphadenopathy. His blood investigation showed hyperleukocytosis with white blood cell count of 270.1 x10⁹/L, haemoglobin of 8.5g/dL and platelet count of 578 x10⁹/L. Peripheral blood film showed hyperleukocytosis with peaks in the proportion of neutrophils and myelocytes with the presence of 4% blasts, suggestive of CML. Bone marrow aspirate was dry tap. Trephine biopsy showed granulocytic hyperplasia with no excess of blasts (<5%). Molecular and cytogenetic analysis confirmed the diagnosis in which Major BCR::ABL1 fusion transcript and presence of Philadelphia (Ph) chromosome were detected. To our surprise, his inguinal lymph node biopsy revealed evidence of myeloid sarcoma as evidenced by diffuse positivity to CD34, MPO and CD117 immunohistochemistry stain with high proliferative index (>90%). His new revised diagnosis was chronic myeloid leukaemia in blast phase. Limited literatures suggested that MS in CML with medullary CP confer a better prognosis than in BP. However, MS could also be the first sign of blast phase transformation thus an early evaluation of MS among CML patients is essential for best treatment decision.

POSTER PRESENTATION: HAEMATOLOGY

HM 08

Unveiling A Case of Suspected Neonatal Alloimmune Thrombocytopenia: Uncommon Platelet Reactive Antibody

Maryam Kameelah MF¹, YY Wong¹

¹ Department of Pathology, Hospital Sultan Abdul Aziz Shah (HSAAS), Universiti Putra Malaysia, Serdang, Selangor, Malaysia

Neonatal alloimmune thrombocytopenia (NAIT) is a potentially life-threatening condition characterised by maternal alloantibodies targeting foetal platelet antigens, leading to severe thrombocytopenia in the neonate. Here we report a case of a baby boy on his fourth day of life, initially admitted for neonatal jaundice and an incidental finding of severe thrombocytopenia (platelet count $2 \times 10^3/\text{uL}$) with no bleeding tendencies. Intravenous immunoglobulin (IVIG) was administered on the sixth day of life, and the platelet count subsequently increased to $72 \times 10^3/\text{uL}$. No platelet transfusion was needed. The patient was discharged well, and subsequent platelet counts returned to normal ($356 \times 10^3/\text{uL}$) at day 40 of life. Platelet immunology testing at the National Blood Center revealed a strong reaction at GP IIb/IIIa, showing significant incompatibility on parental crossmatch. Maternal autoantibodies were negative. Human platelet antigen (HPA) genotyping showed a discrepancy at allele 3bb where the father was 3aa and the baby was 3ab. However, anti-HPA 3a was not detected. NAIT with uncommon platelet reactive antibody was suspected. Platelet crossmatch incompatibility suggested alloimmune thrombocytopenia. Additionally, the favourable response and recovery of the platelet count after IVIG administration supported the immune nature of thrombocytopenia. Further gene sequencing at an international reference laboratory was suggested for confirmation. This report describes a case with severe thrombocytopenia that could be overlooked due to initial asymptomatic presentation. While platelet antigen studies and gene sequencing may not be available in every laboratory, prompt clinical suspicion is imperative for enhancing patient outcomes and averting severe bleeding complications.

HM 09

The Critical Role of Trepine Biopsy in Diagnosis: A Case Series of Hepatosplenic T-Cell Lymphoma in Hospital Kuala Lumpur

Salihah Muda¹, Darnina Abdul Jalil², Faridah Ahmad Maulana²

¹ Department of Pathology, Hospital Canselor Tuanku Muhriz, Cheras

² Department of Pathology, Hospital Kuala Lumpur

Hepatosplenic T-cell lymphoma (HSTCL) is a rare, aggressive form of peripheral T-cell lymphoma, characterized by cytotoxic T cell proliferation exhibiting a sinusoidal infiltration pattern in the spleen, liver, and bone marrow. Patients are typically present with B symptoms, cytopenias and hepatosplenomegaly without lymphadenopathy. Two cases of hepatosplenic T-cell lymphoma were encountered from trephine biopsies involving a 57 years old lady and a 37 years old gentleman. Both presented with B symptoms. Clinical examination and radioimaging showed hepatosplenomegaly but no lymphadenopathy. Both cases had anemia and thrombocytopenia with no absolute lymphocytosis. The bone marrow aspirate smears from both cases were suboptimal with few hemophagocytosis observed in the first patient. The trephine biopsies showed presence of intrasinusoidal infiltration of abnormal T lymphoid cells in the background of myeloid and erythroid hyperplasia. These cells were small to intermediate in size with clumped nuclear chromatin pattern, inconspicuous nucleoli; and positive for CD3 and CD7. First patient displayed positive TIA-1 but negative CD8. For second patient, CD8 showed heterogeneous weak positivity and negative TIA-1. Both patients tested negative for CD4, CD5, CD56, Epstein-Barr encoded region (EBER) in situ hybridization and TdT. Bone marrow involvement by HSTCL is common when trephine biopsies are carefully investigated. There is predominantly sinusoidal infiltrate composed of atypical small to medium sized lymphoid cells forming aggregates within the sinuses. The neoplastic cells infiltration is often subtle and may be difficult to recognize in routine hematoxylin-eosin-stained sections; immunohistochemistry is often required for its demonstration of the intrasinusoidal T lymphoid cells infiltration.

POSTER PRESENTATION: HAEMATOLOGY

HM 10

Hb Q Thailand vs Hb San Jose: Diagnostic pitfall and case series

Darnina AJ¹, Siti Alywiah J¹, Norafiza Y², Munirah AR¹

¹ Department of Pathology, Hospital Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur

² Department of Pathology, National Institute of Health, Shah Alam, Selangor

Haemoglobin (Hb) Q-Thailand is an alpha variant with risk of thalassaemia intermedia if compound heterozygous with alpha zero thalassaemia. Whereas HbG-San Jose is a benign beta variant and reported as normal phenotype in homozygous state. Both variants manifest similar amount and pattern on Hb analysis causing diagnostic confusion. We demonstrate unique features of HbQ-Thailand as opposed to HbG-San Jose. Five cases were reported, including three with HbQ-H disease, one with heterozygous HbQ-Thailand, and one with HbG-San José. Two of the HbQ-H cases were investigated for anemia, while the others were identified through screening program. All cases showed hypochromic microcytic red blood cells, with presence of Hb variant at zone 7 on capillary electrophoresis (CE) and S window on High Performance Liquid Chromatography (HPLC) amounting ~29-30% for heterozygous and ~ 89-95% for compound heterozygous state. All cases with Hb Q-Thailand have additional HbA2 variant peak, and for HbQ-H cases have additional HbH identified. These two variants migrate to the same positions on Hb analysis with ~30% hemoglobin in the heterozygous state. Though, an alpha variant is expected to have <25% in heterozygous state, HbQ-Thailand is linked to 4.2kb alpha deletion, affecting two alpha genes, causing higher percentage of the variant. In contrast to HbG San José, HbQ-Thailand also has additional peak of HbA2 variant and unique pattern on Hb analysis. Knowledge of the characteristics of Hb variants allows for correct presumptive diagnosis from Hb analysis, facilitating counseling when molecular analysis is unavailable.

HM 11

Lineage switch from Acute Myeloid Leukemia to Mixed Phenotype Acute Leukemia: A Rare Case Report.

Geetha Nallappan¹, Chow Lai Chee², Zainura Anita Zainal Abidin¹

¹Department Of Pathology, Hospital Tengku Ampuan Rahimah, Selangor

²Haematology Unit, Department of Medicine, Hospital Tengku Ampuan Rahimah, Selangor

Lineage switch in acute leukaemia is rare and it poses diagnostic and therapeutic challenges to both pathologists and clinicians. Here, we report a rare case of acute myeloid leukaemia (AML) during initial presentation and transformed into mixed-phenotype acute leukaemia (MPAL) during relapse. A 52-year-old male was diagnosed with AML, intermediate risk in 2022. Molecular analysis showed FLT3-ITD and wild-type NPM1 mutation. He achieved morphological remission with given chemotherapy but defaulted to follow-up since then. Two years later, he presented with fever, cervical lymphadenopathies and a left parapharyngeal mass. Bone marrow aspirate showed >80% blast with 2 distinct populations. Trephine revealed a sheet of blast that expressed myeloid and T cell markers correlating with immunophenotyping (IPT) findings. There were no molecular or cytogenetic abnormalities. A diagnosis of MPAL, T/Myeloid was then established. To date, the transformation of AML into MPAL is rare worldwide with few cases reported. The diagnosis of MPAL is challenging and requires the integration of IPT and molecular techniques. For this case, the immature cells in MPAL exhibit features of myeloblast and lymphoblast, making an initial diagnosis by morphological assessment and cytochemical stains difficult. The blast cells also may lose or gain expression of several antigens during relapse. Therefore, extensive IPT is required to achieve the right diagnosis. MPAL should be considered as a differential diagnosis in relapse AML. Further studies are required to understand the mechanism of lineage switch to improve the risk stratification and management strategy for the near future.

POSTER PRESENTATION: HAEMATOLOGY

HM 12

Molecular Cytogenetics Unveil a Rare Variant Philadelphia Chromosome in Chronic Myeloid Leukemia: A Case Report

Azian Naila MN¹, Nor Rizan K¹, Ermi Neiza MS¹, Ezalia E¹, Norafiza MY¹, Suguna S¹, Liew CY², Noria AM², Nor Syamsuridah A³, Yuslina MY¹

¹ Haematology Unit, Cancer Research Center, Institute for Medical Research, National Institutes of Health, Selangor, Malaysia

² Department of Pathology, Hospital Pulau Pinang, Pulau Pinang

³ Department of Pathology, Hospital Sultanah Bahiyah, Kedah

Molecular cytogenetics play a crucial role in modern medicine, allowing for the precise identification of genetic abnormalities that underlie various diseases. The t(9,22) translocation, known as the Philadelphia chromosome, is a hallmark genetic abnormality in Chronic Myeloid Leukemia (CML), resulting in the BCR::ABL1 gene fusion. However, 5-10% of cases may present with variant translocations involving additional chromosomal rearrangement beyond 9 and 22. A 70-year-old man with no prior medical conditions presented with abdominal pain, vomiting, and diarrhea but no other significant symptoms. Physical examination shows no obvious organomegaly. Full blood count showed leucocytosis of WBC $62.5 \times 10^3/\mu\text{L}$ with haemoglobin level of 11.6g/dL and platelet at $265 \times 10^3/\mu\text{L}$. The peripheral blood smear showed a biphasic pattern of neutrophilia, myelocytes and presence of 2% blast cells. Bone marrow examination showed hypercellularity with increased granulopoiesis and less than 1% blast cells, suggesting CML in the chronic phase. Cytogenetic karyotyping analysis revealed a 46, XY chromosome pattern with t(11;22)(q23;q11.2). Fluorescence in situ hybridization (FISH) showed positive fusion signal of BCR::ABL1 gene on derivative of chromosome 22. Molecular analysis using real-time polymerase chain reaction (PCR) revealed major BCR::ABL1 fusion transcript. Identifying variant Philadelphia translocations is crucial for a complete genetic profile of CML. Molecular cytogenetic techniques are indispensable in the comprehensive evaluation of variant Philadelphia translocations in CML. They provide detailed insights into the genetic complexity of the disease, which is crucial for diagnosis, treatment planning, and understanding the potential implications for patient outcomes.

POSTER PRESENTATION: HAEMATOLOGY

HM 13

The Hidden Culprit: Chronic Lymphocytic Leukemia with Lack of Surface and Cytoplasmic Immunoglobulin Light Chain

Farhuda Zulaikha Dol¹, Hani Azahar¹, Qhasmira Abu Hazir², Alia Suzana Asri³, Hafiza Alauddin¹

¹*Department of Pathology, Faculty of Medicine, National University of Malaysia, Kuala Lumpur, Malaysia.*

²*Hematology Unit, Department of Diagnostic Laboratory Services, Hospital Canselor Tuanku Muhriz National University of Malaysia, Kuala Lumpur, Malaysia.*

³*Department of Diagnostic Laboratory Services, Hospital Tunku Ampuan Besar Tuanku Aishah Rohani, National University Malaysia, Kuala Lumpur, Malaysia.*

Clonal B-lymphoproliferative disorder (B-LPD) usually expresses surface immunoglobulin (sIg) light chains restriction. However, some may have lack of sIg light chains thus making it diagnostically challenging to prove clonality. We highlight a very rare case of chronic lymphocytic leukaemia (CLL) with absence of both surface (sIg) and cytoplasmic immunoglobulin (cIg) light chain restriction. A 74-year-old male was incidentally found to have persistent lymphocytosis ($5.3-7.5 \times 10^9/L$) and eosinophilia ($1.2-4.4 \times 10^9/L$) for three years. His haemoglobin and platelet counts were normal. Lymphadenopathy or hepatosplenomegaly were absent. The peripheral blood film showed medium-sized lymphocytes exhibiting moderate amount of cytoplasm, clumped chromatin pattern with inconspicuous nucleoli. Some smudge cells were seen. The immunophenotyping of peripheral blood revealed 95.8% of the B-cell population was positive for CD19, CD20, CD5, CD23 and CD200. They were negative for FMC7, CD123, CD3, CD10, CD56, nTDT and CD34, in favour of CLL. However, there were lack of both surface and cytoplasmic Kappa or Lambda light chain. Mature B-cell lymphomas lacking sIg and cIg have been observed, albeit very rarely. A thorough review of the literature revealed no instances of reactive lymphoid hyperplasia or lymphocytosis with total absence of cIg light chain, although sIg alone might be absent. Thus, the absence of both sIg and cIg in mature B-cells may serve as a reliable surrogate marker for clonality/neoplastic determination, provided comprehensive investigations have been undertaken. Performing monoclonal sIg and cIg preferably with polyclonal antibodies may help to recognize this otherwise obscured clonal population.

HM 14

Composite Lymphoma: A Rare Case of Concurrent Burkitt and Mantle Cell Lymphomas with CNS Involvement In Sabah

Nursyaza MY¹, Noorhana SI¹, Nizmah MM¹, SL Lee¹, Raja Muhamad Zul Hatta RI¹

¹*Department of Pathology, Hospital Queen Elizabeth, Kota Kinabalu, Sabah, Malaysia*

Composite lymphoma (CL) is characterized by two or more distinct lymphoma subtypes within a single anatomical site. This case report details a 42-year-old male diagnosed with a composite lymphoma consisting of Burkitt lymphoma (BL) and mantle cell lymphoma (MCL), a rare combination with limited prior documentation. He presented with abdominal discomfort, night sweats, cranial nerve palsies, splenomegaly, and lymphadenopathy. Blood tests revealed a high white blood cell count with abnormal lymphoid cells. Flow cytometry identified two populations of abnormal B-lymphoid cells: one expressing CD5+/CD10- with Lambda light chain restriction, and the other expressing CD5-/CD10+ with Kappa light chain restriction. Trepchine and lymph node biopsies confirmed a composite lymphoma diagnosis, showing distinct immunophenotypic profiles: Cyclin D1 and SOX11 positivity for mantle cell lymphoma (MCL), and c-MYC and CD10 positivity with BCL2 negativity and high Ki67 (>95%) for Burkitt lymphoma (BL). Fluorescent in situ hybridization (FISH) analysis revealed the coexistence of CCND1/IGH and MYC rearrangements, consistent with MCL and BL diagnoses, respectively. Imaging showed secondary central nervous system (CNS) involvement. A thorough flow cytometry analysis helps identify various lymphoma subtypes in this case. Additionally, immunohistochemistry and genetic analysis are essential for distinguishing the specific lymphoma components. This case underscores the uncommon instance of composite lymphoma, necessitating a comprehensive approach to achieve a definitive diagnosis and ultimately inform effective treatment strategies for these complex malignancies.

POSTER PRESENTATION: HAEMATOLOGY

HM 15

Bone Marrow Involvement in Cardiac Amyloidosis: A Case Report

WYS Chee¹, Norsafina Z¹, Amizatul Aini S², Siti Nur Azwa MS¹

¹ Haematology Unit, Department of Pathology, Hospital Sultan Idris Shah, Serdang;

² Histopathology Unit, Department of Pathology, Hospital Sultan Idris Shah, Serdang

Amyloidosis is characterized by abnormal deposition of misfolded proteins in beta-pleated sheet structure in various tissues leading to progressive organ failure. Very often, in patients with tissue amyloidosis, bone marrow examination is performed to exclude secondary amyloidosis by plasma cell myeloma. A 71-year-old man with multiple comorbidities, presented with heart failure symptoms and diagnosed with ATTR cardiac amyloidosis. Clinically, there is no hepatosplenomegaly. Blood film shows mild thrombocytopenia with no leucoerythroblastic picture. No monoclonal paraprotein detected on protein electrophoresis with normal free light chain ratio. Bone marrow aspirate is unremarkable. Trepine biopsy demonstrates normocellularity with adequate trilineage haematopoiesis. Plasma cells are not increased, with equivocal light chain expression. Patchy pink amorphous amyloid deposits noted, characterized by apple-green birefringence on congo red stain under polarized light, consistent with marrow involvement by amyloidosis. Two forms commonly affect the heart, immunoglobulin light chain amyloidosis (AL) and transthyretin amyloidosis (ATTR). AL, an acquired disease associated with monoclonal plasma cell that produces abnormal light chains which aggregate, forming insoluble fibrils. ATTR, misfolding of transthyretin due to either inherited destabilizing variants (ATTRv) or ageing (ATTRwt). Accurate amyloid typing is crucial for patient management as treatment regimen varies. AL is rapidly progressive and requires chemotherapy to halt amyloidogenic light chain production. Whereas, ATTR progresses slowly and requires targeted therapy such as selective TTR stabilizer. However, recent studies revealed that marrow involvement by ATTR may represent advanced-stage disease. This case illustrates the significance of bone marrow assessment in cardiac amyloidosis.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 01

A Fitting Manifestation of *Oligella urethralis* Bacteraemia

Nurnabilah Zainuddin¹, Nor Zanariah Zainol Abidin¹, Narcisse Mary Sither Joseph²

¹ Microbiology Unit, Pathology Department, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

² Medical Microbiology Department, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, UPM Serdang, Selangor

Oligella urethralis is an oxidase-positive non-fermenting gram-negative organism of low virulence. Previously known only as a human genitourinary tract commensal, this bacterium has been of growing pathogenic significance in immunocompromised patients. Among the few reported cases of *O. urethralis* infections, almost all patients recovered as the organism is susceptible to multiple antibiotics. We report a case of fatal *O. urethralis* bacteraemia manifested with status epilepticus involving a relatively immunocompetent patient. Elderly, diabetic gentleman was brought in by ambulance due to gradual decrease of responsiveness for the past day with generalized myalgia over two days. He was unresponsive, in hemodynamic shock and lost gag reflex. His Glasgow Coma Scale persistently reduced on the second day of admission, following a convulsion episode in the ward, and thus intubated. A blood culture taken on the second day of admission grew *Oligella urethralis*, identified via MALDI-TOF and was confirmed with 16S rRNA sequencing. Antibiotic sensitivity test revealed the isolate was sensitive to cefepime, ceftazidime and piperacillin-tazobactam. Urine, cerebrospinal fluid, and tracheal aspirate cultures were negative. Despite being treated for six days with effective antimicrobial agents, the patient succumbed to sepsis with multi-organ failure. Seizure manifestation has never been reported due to the rarity of *Oligella urethralis* infections. Despite its generally low virulence and good response to antimicrobial agents, *Oligella urethralis* infections should not be taken lightly as there are cases with aggressive manifestation resulting to fatal consequences.

MM 02

Breaking New Ground: First Tissue Isolation of *Kalamiella piersonii* and Its Clinical Implications

Nor Zanariah Z.A.¹, Nurnabilah Z.¹, Narcisse Mary S.J.², Nur Afzan R.¹, Stephanie J.P.¹

¹ Pathology Department, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

² Medical Microbiology Department, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, Serdang, Selangor Darul Ehsan

Kalamiella piersonii is a newly discovered gram-negative bacterium, first isolated from the International Space Station. Recently proposed for reclassification as *Pantoea piersonii* comb. nov. this motile, non-fermenting gram-negative Enterobacterales belongs within the Erwiniaceae family. It has been isolated from human saliva, urine and blood, posing an opportunistic pathogen in both immunocompromised and immunocompetent host. This case report describes the first instance of *K. piersonii* isolated from a tissue specimen in the country. A 32-year-old man, newly diagnosed with advanced retroviral disease (RVD) and hepatitis B, presented with fever, chills and generalized rashes for a week. Examination revealed a dry scab lesion on the right wrist. Excision biopsy was performed and tissue sample was sent for culture. A non-haemolytic, non-lactose fermenting colony was isolated on blood and MacConkey agar. Matrix-assisted laser desorption ionization-time-of-flight mass spectrometry (MALDI-TOF MS) identified the organism as *Kalamiella piersonii* with a log score of 2.23, confirmed via 16S rRNA gene sequencing. Antibiotic susceptibility, which was determined using CLSI M100 Enterobacterales breakpoints revealed as AmpC-producer. Misidentification of *K. piersonii* is common due to its similar biochemical characteristics to other *Pantoea* species such as *P. agglomerans*, *P. septica* or even *Salmonella*. This may cause its prevalence underestimated. *K. piersonii* can acquire multiple drug resistance mechanisms, including efflux pump systems and chromosomally encoded beta-lactamase genes, leading to resistance against penicillins and cephalosporins, as observed in our isolate. MALDI-TOF proves to be a reliable diagnostic modality in identifying rare gram-negative species causing human infections.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 03

A Case Report: A Rare Case of Mycobacterium Brisbaneense Peritonitis in A Patient of Continuous Ambulatory Peritoneal Dialysis.

Nurul Aqila Ramlee^{1,2}, Suzuriani Hashim¹, Siti Nur Syuhadah Abdullah¹, Roesnita Baharudin¹, Maria Kahar Bador Abdul Kahar²

¹ Microbiology Unit, Pathology Department, Hospital Tengku Ampuan Afzan, Kuantan, Pahang

² Department of Medical Microbiology, Universiti Malaya Medical Centre, Kuala Lumpur

Mycobacterium brisbanense is a rapid-growing nontuberculous mycobacterium that is typically ubiquitous. This organism is considered a rare and significant human pathogen, with less than ten reported cases up to 2023. Recognizing *M. brisbanense* as a potential causative agent is crucial, as it is usually resistant to most first-line antituberculous medications. In this case report, we will discuss a rare case of *Mycobacterium brisbanense* peritonitis in a 68-year-old Malay woman with underlying end-stage renal failure who started peritoneal dialysis in August 2022. She initially presented with lower abdominal pain, which was pricking in nature for two weeks. Abdominal examination revealed mild tenderness at the lower abdominal region, with cloudy and turbid peritoneal fluid seen at the site of the Tenckhoff catheter. Peritoneal fluid FEME appeared turbid with numerous pus cells (>25/LPF) and a total leukocyte count of 4680 cells/uL. The peritoneal fluid culture showed the presence of *Mycobacterium brisbanense*, identified via MALDI-TOF mass spectrometry. The patient is subsequently planned to remove the Tenckhoff catheter, with IV Amikacin treatment for 2-3 weeks post-catheter removal, and oral clarithromycin and levofloxacin for a total of 6 months. Upon discharge, the patient was well as her condition improved; all the infective cultures were negative, and she was scheduled for hemodialysis. In summary, this case contributes to the limited literature on *Mycobacterium brisbanense* peritonitis in CAPD patients. Early recognition and appropriate treatment are essential for successful outcomes, thus preventing complications.

MM 04

***Vibrio cholera* Non-O1/Non-O139 and Rotavirus acute gastroenteritis: a rare co-infection case report.**

Nurzulaikha J¹, Nor Zanariah ZA.¹, Nurul HMY¹, Rukman AH², Rosni I²

¹ Pathology Department, Hospital Tuanku Jaafar, Seremban, Negeri Sembilan

² Department of Medical Microbiology and Parasitology, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, Serdang, Selangor Darul Ehsan

Vibrio cholerae belongs to the family Vibrionaceae. It is one of the most common species that cause human infections, with serotypes O1 and O139 once thought to be the source of epidemic cholera. Non-O1/Non-O139 *Vibrio cholerae* serotypes, are non-pathogenic and rarely cause significant symptoms. This case report describes the first documented co-infection of Non-O1/Non-O139 *V. cholerae* and rotavirus in a healthy young child. A 7-year-old girl presented with profuse vomiting, fever, and non-watery loose stools. In the ward, she received intravenous fluid therapy for rehydration, and a stool culture was sent for analysis. The stool culture exhibit a pure growth of big, flat yellow colonies that were isolated on thiosulphate citrate bile salt sucrose (TCBS) agar. TCBS is a selective medium for differentiating *V. cholerae* from other enteropathogenic *Vibrio*. *V. cholerae* is a sucrose fermenter that acidifies the medium and changes the bromthymol blue indicator to yellow. Gram stain showed gram-negative, curved shaped bacterium with rapid darting movement. The organism was identified as *Vibrio cholerae* using matrix-assisted laser desorption ionization-time-of-flight (MALDI-TOF) with a score of 2.02, confirmed as Non-O1/Non-O139 by serotyping. Stool rotavirus antigen was positive. Detection of rotavirus antigen from the stool taken on the same day strongly implies co-infection with Non-O1/Non-O139 *V. cholerae*. Molecular testing can help identify the virulence factors. The emergence of disease caused by Non-O1/Non-O139 *V. cholerae* is likely determined by a unique combination of potential virulence factors carried by the infecting strain and presence of co-infection with other organisms.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 05

Brucellosis Or Not? The Case of *Aureimonas Altamirensis* in A 3-Years-Old Malaysian Boy

Evita SK¹, Nur Hazwani Z¹, KJ Wong², Sithra R²

¹Department of Pathology, Queen Elizabeth 1 Hospital, Kota Kinabalu, Sabah

²Department of Paediatric, Likas Women and Children's Hospital, Kota Kinabalu, Sabah

Aureimonas altamirensis is a Gram-negative bacterium, considered as potential opportunistic pathogen in humans. It is closely related to *Brucella* species which can lead to misidentification. This case report details *Aureimonas altamirensis* misidentification as *Brucella melitensis* in a paediatric patient in Sabah. A 3-year-old boy with no comorbid presented with recurring fever, lethargy, musculoskeletal pain, headache and gastrointestinal losses which causes multiple hospitalisation. Blood culture grew gram negative short bacilli with oxidase and catalase positive. Mass spectrometry identification using VITEK-MS system yielded 'No Identification' result, while VITEK-2 system revealed *Brucella melitensis*, matching the gram stain and biochemical test. In addition, the patient lived near a cow farm, however he denied consuming unpasteurized milk. Thus, treatment for Brucellosis with intravenous Ampicillin was initiated by the treating Paediatrician. The isolate was sent to NIH for confirmation. Brucella PCR was negative and 16S ribosomal RNA PCR by NIH confirmed *Aureimonas altamirensis*. Database limitation of VITEK-MS hindering *Aureimonas altamirensis* identification highlights the critical need for more comprehensive databases for precise and prompt identification. Cases of *Aureimonas altamirensis* misidentification as *Brucella melitensis* by VITEK-2 in few reports are mostly due to the close evolutionary relationship between the families *Brucellaceae*, *Aurantimonadaceae*, and *Rhizobiales*, as shown by whole genome-based phylogenetic analysis. Such error can result in inappropriate treatments and unnecessary public health measures. The case emphasizes the importance of accurate microbial identification and confirmatory testing to prevent diagnostic errors. Further research is needed to improve these methods and avoid similar problem.

MM 06

A Rare Case of Bacterial Endocarditis Caused by *Corynebacterium Striatum*

Dr Khairul Muttaqin bin Abd Ghani¹, Dr Wan Alifah binti Wan Ismail¹, Dr Azura binti Hussin¹

¹Microbiology Unit, Pathology Department, Hospital Raja Perempuan Zainab II Kota Bharu, Kelantan

Corynebacterium striatum is a gram-positive, facultative anaerobe commonly found in the human skin and nasopharyngeal microbiota. Although usually non-pathogenic, it can act as an opportunistic pathogen, particularly in immunocompromised individuals. Infective endocarditis caused by *C. striatum* is rare, making timely recognition and management critical. We present a 57-year-old male with prolonged fever following acute tonsillopharyngitis. On examination, he appeared febrile and lethargic, with a pansystolic murmur detected. Laboratory investigations revealed leucocytosis, neutrophilia, and elevated C-reactive protein (CRP). Empirical treatment for infective endocarditis was initiated due to clinical suspicion. During hospitalization, his condition deteriorated, with decreased consciousness and septic embolic encephalitis diagnosed via contrast-enhanced CT. Blood cultures taken in both aerobic and anaerobic Bactec bottles yielded *C. striatum*, identified by MALDI-TOF. Transthoracic echocardiography (TTE) revealed a vegetation measuring 1.27 x 0.8 cm on the posterior mitral valve leaflet. Further identification using 16S rRNA gene PCR confirmed *C. striatum* as the causative organism. Despite a prolonged course of parenteral vancomycin, serial TTEs showed increasing vegetation size, leading to a referral for surgical intervention. *Corynebacterium striatum*, often dismissed as contaminants, are increasingly recognized as causes of native valve endocarditis. Early diagnosis and treatment are essential to prevent severe complications. *Corynebacterium* species are underestimated pathogens that can cause severe infections. Prompt recognition and intervention are crucial to mitigating adverse outcomes.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 07

Cedecea lapagei: A Rare Human Pathogen Causing Bacteremia in Immunocompromised Patient

Hassan Sholahuddin Salleh¹, Dayangku Seritul Akmar Abd Razak¹

¹Microbiology Unit, Pathology Department, Hospital Sultanah Aminah Johor Bahru, Johor, Malaysia

The genus *Cedecea* (family *Enterobacteriaceae*) causes a wide spectrum of acute infections in immunocompromised hosts, from oral ulcers to pneumonia and bacteremia. Five species have been identified, including *Cedecea davisae*, *Cedecea lapagei* and *Cedecea neteri* and two unnamed species. *Cedecea lapagei* was recognized as a human pathogen in 2006. We report to our best knowledge, the first case of *Cedecea lapagei* bacteremia in Malaysia. A 51 year old man with underlying type 2 diabetes mellitus, hypertension and history of cerebral vascular accident was presented to the emergency department with less responsiveness, facial asymmetry, slurring of speech and loss of nasolabial fold. On examination, his GCS was E4V1M4 with stridor, febrile and lungs showed reduced air entry bilaterally. Subsequently, he was intubated for airway protection. The blood tests revealed leukocytosis with predominantly neutrophils. CT brain revealed acute left basal ganglia hemorrhage. Chest X-ray shows right perihilar opacities. *Cedecea lapagei*, AmpC β -lactamase producer was identified by the MALDI-TOF mass spectrometry and Cefoxitin disc screening. The patient was diagnosed with hypertensive emergency with left basal ganglia bleed and *Cedecea lapagei* bacteremia with pneumonia. The antibiotic was escalated to IV Cefepime. Subsequently, the patient's white blood cells were reducing in trend and patient's condition was afebrile prior to discharge. Infections caused by *Cedecea lapagei* are exceedingly rare in humans. The accuracy and speed of MALDI-TOF mass spectrometry enabled early identification of pathogens compared to conventional methods, allowed early initiation of appropriate antimicrobial therapy and subsequently improved the patient's outcome.

MM 08

A Fatal Case of *Fusobacterium Varium* Infection in An Elderly Patient.

Claudia Cassandra Stephen¹, Ruzanna Dayanna Zawawi¹, Saarah Huurieyah Wan Rosli^{1,2}

¹Microbiology Unit, Department of Pathology, Hospital Ampang, Malaysia

²Microbiology Unit, Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia

Fusobacterium is an anaerobic organism that predominantly colonizes the oral, gastrointestinal, and upper respiratory tract. The incidence of *Fusobacterium varium* infection is less common as compared to *Fusobacterium necrophorum* and *Fusobacterium nucleatum* but is associated with severe infections. We report a fatal case of *Fusobacterium varium* infection in an elderly patient. This is a case of a 71-year-old gentleman with underlying hypertension and neurofibromatosis who presented with body weakness and slurred speech. He was diagnosed with right lentiform hyperdensities with possible cerebral involvement of neurofibromatosis. Case was discussed with neurosurgical team and patient was planned for urgent MRI. On day 11 of admission, he developed respiratory distress with a temperature spike of 37.8 °C. Intravenous piperacillin-tazobactam was administered for hospital acquired pneumonia. His blood culture was positive and identified as *Fusobacterium varium* using Matrix-Assisted Laser Desorption Ionization Time-of-Flight (MALDI-TOF) with a score of 2.58. Unfortunately, despite early antibiotic coverage, the patient succumbed due to severe pneumonia on the same day. *Fusobacterium* infection can manifest as isolated bacteraemia, soft tissue infection or head and neck infection. Bacteraemia due to *Fusobacterium* infection was associated with a higher mortality rate as observed in this patient. Among the risks of having bacteraemia infection is underlying malignancy and old age. Despite appropriate antibiotics and surgery, mortality remained high in patients with isolated bacteraemia, underscoring the need for better treatment strategies and prognostic markers. Future studies are required to ascertain the optimal therapeutic options to improve patient outcome.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 09

Beyond the Obvious: Delayed Diagnosis of *Entamoeba histolytica* Infection with Ruptured Liver Abscess.

Noor Hamidah CA^{1,2}, Roesnita B.¹, Siti Nur Syuhadah A¹., Noorul Faizura Y¹., Shahida O¹

¹ Microbiology Unit, Department of Pathology, Hospital Tengku Ampuan Afzan, Kuantan, Malaysia

² Department of Medical Microbiology & Immunology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur.

Amebiasis, caused by *Entamoeba histolytica*, is a parasitic infection commonly affecting the intestines and liver, with significant global prevalence, especially in resource-limited settings. Here, we report a case of a 64-year-old Malay male presenting with chronic abdominal pain and constitutional symptoms, later diagnosed with a ruptured liver abscess due to *Entamoeba histolytica*. Initially treated for melioidosis, the patient's condition did not improve despite broad-spectrum antibiotics. Imaging revealed a large liver abscess with bilateral pleural effusion, prompting percutaneous drainage. Microbiological cultures were negative, and viral serology was unremarkable. Due to the lack of clinical response, a protozoan PCR was performed, confirming *Entamoeba histolytica* infection. The patient showed marked improvement following a 7-day course of oral metronidazole. This case highlights the diagnostic challenges posed by atypical presentations of amebiasis and emphasizes the importance of considering parasitic infections in non-endemic regions, especially when empirical treatments fail. Early use of molecular diagnostics like PCR is critical in avoiding delays in diagnosis and improving patient outcomes in amoebic liver abscess cases.

MM 10

Central Nervous System Listeriosis – A Case Study.

Chellaiah Archanaa¹, Md Hanapiah Suhaila¹, Mohamad Hamidah¹, Abdul Rahman@Che Wan Noraini¹

¹Department of Pathology, Institut Kanser Negara, Putrajaya, Malaysia

This is a report of a case of *Listeria monocytogenes* bacteraemia in an oncology patient. Cases of bacteraemia complications with central nervous system (CNS) Listeriosis are relatively high, with mortality rates of up to 70%. This facultative anaerobic bacterium, was isolated in pure culture in a 55 year old Stage IV Nasopharyngeal cancer patient who presented with fever, headache & vomiting. Eventually became less responsive in the ward. Brain CT had no brain parenchymal lesions/suspicious leptomeningeal enhancement. Blood culture taken during this ordeal yielded *Listeria monocytogenes*, as identified by MALDI-TOF MS with susceptibility to Penicillin. Septic shock with persistent coagulopathy prevented further investigation with lumbar puncture, however after antibiotic treatment; patient recovered well and was discharged home. The successful identification by MALDI – TOF MS, helped this patient have a successful treatment outcome. *Listeria monocytogenes* invades the cytosol of cells and causes gastroenteritis; however in vulnerable immunocompromised patients, it causes life-threatening invasive infections causing bacteraemia/sepsis and infection of the CNS. Here, despite not being able to proceed with confirmatory test of CSF biochemistry & cultures, the clinical presentation with presence of *L. monocytogenes* bacteraemia prompted the effective working diagnosis of CNS Listeriosis (meningitis). *L. monocytogenes* is a facultative, intracellular parasitic bacterium; therefore, the ideal antimicrobial agent should be able to penetrate host cells and bind to intracellular targets. Precise identification of *L. monocytogenes* & use of IV Ampicilin for 3 weeks positively impacted this patient in an otherwise, high risk with a high mortality rate infection.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 11

Perforated Gallbladder Empyema with Cystic Duct Dilatation Concurrent *Ascaris* Infestation and *Salmonella Typhi* Bacteremia

Muhammad Amirul Faris Zulkafli¹, **Zarifah Zam¹**, Anis Roziana Mohmad¹, Shazwani Zakaria¹ Mohd Rohaizad Mohd Rodzi¹

¹ *Microbiology Unit, Department of Patology, Hospital Taiping, Perak*

Gallbladder empyema is a rare severe manifestation of acute cholecystitis, often precipitated by cystic duct obstruction. Intestinal parasitic infestation, notably *Ascaris lumbricoides*, can exacerbate this condition by obstructing the biliary tract and mimicking gallbladder disorders. Additionally, *Salmonella Typhi* bacteraemia in this patient further complicate the clinical picture in this case. Case Presentation: A 38-year-old Orang Asli female presented with 2-day history of abdominal pain, loose stools, and vomiting. Physical examination revealed right upper quadrant tenderness and positive Murphy's sign. Blood investigations showed hypochromic microcytic anemia and neutrophilia. Initial abdominal ultrasound indicated the presence of cholelithiasis. However, contrast-enhanced computed tomography (CECT) revealed perforated gallbladder with empyema, cystic duct dilatation, enhancement, and multiple laminated calcifications at the gallbladder and neck of the cystic duct, possibly indicating calcified worms. Stool for ova and cysts was positive for presence of *Ascaris* and *Trichuris* ova. Blood cultures revealed presence of gram-negative bacilli subsequently identified as *Salmonella Typhi*. Ultrasound-guided percutaneous cholecystostomy was performed, draining 100 CC of hemoserous fluid. The patient was treated with antibiotics and antihelminthic. Discussion: This case illustrates a rare and intricate scenario where gallbladder empyema was complicated by *Ascaris* infestation and *Salmonella Typhi* bacteraemia. The *Ascaris* infection likely contributed to bile obstruction and empyema formation. The coexistence of other biliary tract disorders, such as choledocholithiasis and *Salmonella Typhi* complicated the diagnosis and management of the patient's condition. Conclusion: Clinicians should anticipate parasitic infections in spectrum of gallbladder disease in patients from endemic regions for optimal management.

MM 12

Timely Diagnosis and Targeted Treatment: A Case Report of Successful Management of Listeriosis In A Newborn

Shazwani Zakaria¹, Zarifah Zam¹, Anis Roziana Mohmad¹, Muhammad Amirul Faris Zulkafli¹, Norliza Abu Bakar¹

¹ *Microbiology Unit, Department of Pathology, Hospital Taiping, Perak, Malaysia*

Gram-positive *Listeria monocytogenes* poses significant risks, particularly to neonates and high-risk populations. Neonatal listeriosis can manifest as early-onset disease within the first week of life or late-onset disease, with high mortality rates, especially among preterm infants. A term infant delivered via emergency caesarean section by a mother who presented with fever and urinary symptoms with no known high-risk food exposure prior to delivery. The infant exhibited respiratory distress and required oxygen supplementation shortly after birth, subsequently covered for congenital pneumonia. Blood cultures revealed *Listeria monocytogenes* identified by matrix-assisted laser desorption/ionization (MALDI-TOF). Cerebrospinal fluid (CSF) analysis showed leucocytosis and elevated protein, with negative CSF culture. The antibiotic given to the infant included intravenous (IV) ampicillin and gentamicin. However, the infant's condition deteriorated, requiring intubation and inotropic support. Subsequently antibiotic were escalated to amikacin, meropenem, and sulfamethoxazole and trimethoprim, a total of 2 weeks antibiotic treatment were given. The infant ultimately improved, was extubated on Day 11 of life, and discharged after 26 days of admission. Diagnosing neonatal listeriosis is challenging due to its low incidence, non-specific symptoms, and the potential for misidentification with other Gram-positive organisms. Conventional culture methods for isolating *Listeria* are time-consuming and may be outcompeted by other microbes especially in non-sterile sample. To address these challenges, laboratories are increasingly adopting MALDI-TOF, which enhance identification speed and accuracy, although the implementation are costly. Neonatal listeriosis, though rare, can cause severe complications and high mortality, making accurate early diagnosis and timely treatment essential for improving outcomes.

POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 13

A Complicated MSSA Catheter-Related Blood Stream Infection with Infective Endocarditis and Multiple Metastatic Foci in A Hemodialysis Patient: A Case Report

Nurul Hikmah MR¹, Fariz N¹, Sugenthiran M¹, Yap HK¹, Nurul Huda MR²

¹ Department of Internal Medicine, Hospital Sultan Ismail, Johor Bahru

² Department of Medical Microbiology, Hospital Sultan Abdul Aziz Shah, UPM, Serdang, Selangor

Catheter-related blood stream infection (CRBSI) is a serious complication in hemodialysis patient with prolonged catheter dependence. A 20-year-old recently diagnosed end stage renal failure (ESRF) gentleman on regular hemodialysis presented to us with reduced effort tolerance and persistent vomiting. His central and peripheral blood cultures grew methicillin-sensitive *Staphylococcus aureus* (MSSA) thus treated as CRBSI which catheter was then removed. He proceeded with routine echocardiogram (ECHO) and abdominal ultrasound; which revealed tricuspid valve vegetation measuring 14 x 23mm with thrombus in pulmonary artery and splenic lesion of likely infective foci respectively. CT pulmonary angiography showed multiple scattered cavitating and non-cavitating lesion with several pulmonary arteries aneurysm. Despite clinical improvement and bacteremia clearance with six weeks cefazolin for infective endocarditis (IE) treatment, serial ECHO revealed increasing vegetation size up to 28mm. He was then referred to Cardiothoracic surgeon for valve replacement. We report a complicated case of MSSA CRBSI with IE and multiple metastatic foci namely lung, large vessels and spleen. *Staphylococcus aureus* is the second most common organism causing CRBSI in hemodialysis patient, and is the most common pathogen causing IE. Our patient was indicated for urgent surgery due to isolated large vegetation for embolism prevention. With the background of ESRF, appropriate investigation is warranted to differentiate with heart failure from valvular dysfunction, mimicking fluid overload from kidney failure. IE may involve multi-organ system causing great challenge to clinician. Therefore, multidisciplinary involvement between infectious disease, cardiologist and microbiologists is essential.

MM 14

***Staphylococcus aureus* Endogenous Endophthalmitis Secondary to Calf Carbuncle Requiring Eye Evisceration: A Case Report**

Nurul Huda MR¹, Nurul Hikmah MR², Fatimahtuz Zahrah MD¹, Rosni I^{1,3}

¹ Department of Medical Microbiology, Hospital Sultan Abdul Aziz Shah, UPM, Serdang, Selangor

² Department of Internal Medicine, Hospital Sultan Ismail, Johor Bahru, Johor

³ Department of Medical Microbiology, Faculty of Medicine and Health Sciences, UPM, Serdang, Selangor

Endogenous endophthalmitis (EE) is a rare ophthalmological emergency with devastating visual outcome. A 69-year-old gentleman with underlying diabetes and renal failure on hemodialysis came with sudden onset non-traumatic right-sided blurring vision and right leg pain for two days. Upon arrival, right eye visual acuity was hand gestures and investigation showed unmeasurable high capillary glucose and severe anemia. He was treated as EE and hyperosmolar hyperglycemic state secondary to right lower limb cellulitis with empirical intravitreal vancomycin, ceftazidime and amphotericin B, anti-inflammatory eye drops and intravenous antibiotics. Intravitreal tapping attempt was failed. He progressed to right eye total blindness on the fourth day and CECT orbit revealed evidence of right orbital infection involving pre-septal and globe. He subsequently underwent right eye evisceration and right calf carbuncle saucerization at second week admission as his condition stabilized. Both intraoperative tissues from eye and calf grew methicillin-susceptible *Staphylococcus aureus* (MSSA), however blood culture reported negative. He was discharged well after total of two weeks intravitreal and systemic antimicrobials. EE occurs secondary to distant foci infection, accounts for minority endophthalmitis cases. Although fungi being the most common etiology, bacteria such as *Staphylococcus aureus*, is often associated with poorer visual outcome. This case represents a survivor case of rapid progression culture-proven EE requiring eye evisceration despite early intravitreal and systemic antimicrobials treatment. Cultures are essential, of which vitreous is superior to blood. Early EE detection and prompt treatment is crucial to avoid disease morbidity and mortality.



POSTER PRESENTATION: MEDICAL MICROBIOLOGY

MM 15

Case Report: False Positive Rapid Plasma Reagin in a Patient with Severe Aplastic Anemia and Thymoma on Immunosuppressive Therapy

Noor Hamidah C.A.^{1,2}, Roesnita B.¹, Asrul A.W.^{2,3}, Janaki A.¹, Radin Wafa Najwa R.Z.¹

¹Microbiology Unit, Department of Pathology, Hospital Tengku Ampuan Afzan, Kuantan, Malaysia

²Department of Medical Microbiology & Immunology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur

³Department of Diagnostic Laboratory Service, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur

The rapid plasma reagin (RPR) card test is a widely used screening tool for the serological detection of syphilis due to its simplicity and cost-effectiveness. However, limitations exist, including the potential for false-positive results, particularly in individuals with underlying medical conditions. We present a case report of a 38-year-old female with thymoma and severe aplastic anemia who exhibited a false-positive RPR test result, highlighting the complexities of interpreting serological tests for syphilis in patients with underlying conditions. Despite negative confirmatory tests of syphilis, the patient's RPR titers continued to rise, reflecting the challenges of distinguishing true positives from false positives in individuals with complex medical histories. This case highlights the importance of considering patient-specific factors and employing confirmatory testing strategies to ensure accurate diagnosis and appropriate management. Healthcare professionals must be aware of the potential for false-positive results in RPR testing and exercise caution in interpreting results, particularly in patients with underlying medical conditions and a history of blood transfusions. This case emphasizes the need for a comprehensive approach to syphilis diagnosis, integrating clinical evaluation, patient history, and confirmatory testing to mitigate the risk of misdiagnosis and ensure optimal patient care.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAC01

Pre-Analytical Phase Errors: The Ultimate Rationale of High Laboratory Sample Rejection in Hospital Bentong

Komate Ramaya¹ & Nor Asiah Binti Mat¹

¹Unit of Pathology & Transfusion Medicine, Hospital Bentong

Errors associates with pre analytical phase as mentioned in Total Testing Process affecting the sample integrity which leading to sample rejection in laboratory. Non-adherence of pre analytical procedures is among the reason for rejection. A sample that is considered as not fit for analysis may get rejected as a precaution for results accuracy. This study was conducted to analyze the rate of laboratory sample rejection by units & to identify the pre analytical errors that contributing to sample rejection in Hospital Bentong. The data of laboratory sample rejection in year 2023 were extracted from Laboratory Information System. Questionnaire-based assessment on pre analytical phase of laboratory testing was conducted among 67 phlebotomists, who volunteered, over the period 14/08/2023 - 17/08/2023. High sample rejections in year 2023 were from Emergency & Trauma Unit (ETU) & followed by male ward which eventually causing the laboratory sample rejection to 1.84% as overall in Hospital Bentong. The pre analytical errors on sample collection & handling contributing to in-vitro hemolysis & clotted samples were identified as the major reason for rejection where 44.81 % & 36.24 % respectively among the total rejected sample. Rejection due to insufficient samples were 10.89%, while wrong containers & barcode errors were respectively 5.86% & 3.82%. Questionnaire-based assessment on pre analytical phase among phlebotomist in Hospital Bentong were less than 50% scoring which was the main reason behind high laboratory sample rejection.

OAC02

Quality Indicators of The Preanalytical Practice in Point of Care Testing (POCT) Involving Multi-sites Blood Gas Analyzers: An Audit in A Tertiary Public Hospital.

Norizati R¹, Ismiza I¹, S.Norhidayah MY¹

¹ Department of Pathology (Chemical Pathology Unit), Hospital Sultanah Bahiyah Alor Setar, Kedah Darul Aman, Malaysia

Adherence to good pre-analytical practices in POCT Blood Gas Analysis (BGA) is important to ensure quality results, patient's safety and fulfill accreditation requirements. To determine the frequency of BGA reports completed with operator ID and two unique patient identifiers as recommended by national guidelines. The types of patient's identifier used in BGA reporting are determined. BGA reports for one month extracted from 17 units of GEM Premier Blood Gas Analyzers located in multi department POCT sites. Retrospective data analysis by simple random sampling of reports in all locations. 11 POCT locations; total of N=13,537 reports generated within specified interval. 18% (n = 2449) reports were audited. 80% (1979) were completed with operator ID; with non-compliance seen in ICU hybrid, Medical OPD and few general wards. Most reports had 1 type of patient's identifier (56.9%, 1394); followed by 2 types of identifiers (28.4%, 696) and no identifier in the remaining reports (14.7%,359). Among reports with 2 types of patient's identifiers, 72% (502) used "Registration Number/IC" and "Name"; contributed mainly by Emergency Department (ED) since it is the only POCT site with instrument connectivity to hospital information systems and dedicated analyzers operators. Excluding ED results, commonly used identifiers were for example bed numbers, oxygen supply status or uncertain meaning alphanumeric identifiers. Adherence to the proper POCT ABG handling as per standards is still inadequate; requiring actions for improvements.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAC03

Reflex Testing Proposal for Bilirubin: Do We Need Direct Bilirubin in The Panel?

Wenna Nallance Lim¹, Izzanuddin Ali², Nurul Syafiqah Ahmad²

¹ Unit Patologi dan Tabung Darah, Hospital Mukah, Sarawak

² Jabatan Patologi, Hospital Bintulu, Sarawak

Reflex testing is a procedure where additional tests are automatically ordered based on initial abnormal test results. Total bilirubin (TBIL) and direct bilirubin (DBIL) are often ordered together at our facility. Therefore, the objective of our study was to evaluate the impact of bilirubin reflex testing algorithm. We conducted a retrospective and observational study by reviewing patient records from January 2023 to December 2023 in Hospital Mukah. We categorized the test results into four groups, (1) TBIL normal and DBIL normal, (2) TBIL high and DBIL normal, (3) TBIL normal and DBIL high (4) TBIL high and DBIL high. We then assessed the number of tests in each category and calculated the median (min, max) of test results using SPSS Statistics Software version 26. During the assessed months, a total of 9,834 orders were placed for TBIL and DBIL tests. Of these, the predominance of tests (83.8%) are normal for both analytes; only 16.2% of the orders had more than ≥ 1 abnormal result.

The majority of bilirubin tests ordered by the emergency department, out-patients, and hospitalized patients fall within the reference interval. Specifically, 83.8% of the total orders, equating to 8,241 tests for both normal total bilirubin and direct bilirubin. Translating these 8,241 direct bilirubin tests into financial terms, at a cost of RM0.50 per test, amounts to RM4,120.50 per year. Consequently, implementing reflex testing for elevated total bilirubin could eliminate the need for a significant number of direct bilirubin tests without jeopardizing patient safety.

OAC04

Folate study: Assessing analyte stability in serum separator gel tube.

Mohamad Faiz MN¹, Muhammad Akmal K¹, Azrulnaim M¹, Nur Hazwani HS¹, Syazana MK¹.

¹ Department of Pathology, Hospital Tuanku Ampuan Najihah, Negeri Sembilan

This study aims to compare serum folate test results stored in plain secondary tube (recommended by manufacturer) and in serum separator gel tube. Method: Forty patients' samples were aliquoted and stored in secondary tube and gel tube at 2-8 degree Celsius for up to 7 days. Samples were then analyzed using the Abbott Architect i1000SR analyzer. Bias was calculated at medical decision points (MDP) based on the linear regression equation and compared with pre-determined Analytical Performance Specification (APS) of less than 15.5% (based on Total Error (TE) derived from Desirable Biological Variation). Bias calculated at medical decision points is acceptable (3.2-12.2%). It was concluded that results measured in plain secondary tubes are comparable to those of serum separator gel tubes. Storing serum samples in serum separator gel tube is more practical in batch testing analytes and this finding can support current practice in our laboratory.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAC05

Unmasking Falsely Elevation of Plasma Ammonia

Norsyuhadah M¹, Wan Norlina WA¹, Wan Asma WAA¹, Wan Mohd Saifuhisam WZ¹, Wan Nor Fazila Hafizan WN¹

¹Department of Chemical Pathology, School of Medical Sciences, Universiti Sains Malaysia (Health Campus) Kelantan, Malaysia

The Pediatric Clinic at Hospital Universiti Sains Malaysia (USM) has reported issues with plasma ammonia levels in pediatric patients. An investigation has revealed that pediatric Potassium Ethylenediaminetetraacetic Acid (K2EDTA) tubes may be causing the elevated results. The aim is to assess three different types of K2EDTA tubes to identify the source of the problem. Plasma Ammonia was obtained from 10 volunteers using three distinct types of K2EDTA tubes - Tube I (adult BD), Tube II (Pediatric Labtub PC), and Tube III (pediatric BD Vacutainer®) - and subjected to analysis through the COBAS e800 analyser. The data were analysed using One-way ANOVA and simple linear regression. Statistical significance was set at $P < 0.05$. The average biases between tubes were compared with desirable specifications derived from biological variation. Mean plasma ammonia levels were 16.3 ± 5.25 for Tube I, 249.0 ± 38 for Tube II, and 18.10 ± 5.76 for Tube III. Statistical significant differences were found between Tube I vs. Tube II and Tube II vs. Tube III ($P < 0.001$), while Tube I and Tube III showed no significant difference. Simple linear regression analysis for Tube I and Tube III showed good correlation and no significance bias. However, poor correlation and unacceptable positive constant bias was observed between Tube I vs Tube II (95% CI: 196.79 to 381.82) and Tube II vs Tube III (95% CI: 102.91 to 283.05). The mean % bias for Tube I vs Tube II was 1541%, compared to 11.3% for Tube I vs Tube III and 1368% for Tube II vs Tube III, exceeding the desirable acceptable bias $\pm 5.45\%$. Tube II caused falsely elevated plasma ammonia levels, possibly due to a manufacturing defect, leading to unnecessary admission and follow-up investigation. Tubes I and III showed clinically significant bias, likely due to differences in preservative composition in these tubes.

OAC06

Liver Transaminases: Another Potential Biochemical Indicator of Organophosphate Pesticide Poisoning?

Farhana AH¹, Siti Sarah Z¹, Paizah I¹, Freaddy E¹, Fatin Nazira MD¹

¹ Biochemistry Unit, Disease Section, Johor Bahru Public Health Laboratory, Johor

Organophosphate Pesticides (OPPS) are major chemicals used in fogging operations in Malaysia to control dengue outbreaks. OPPS accumulated in a long term would cause damage to the liver through biotransformation. When the liver is injured or impaired, such as in cases of OPPS poisoning, the levels of liver transaminases in the bloodstream can become elevated, serving as important indicators of liver damage. This study aimed to determine Liver Transaminases as another potential biochemical indicator of OPPS poisoning. Serum samples from 160 Vector Operators with OPPS exposure and non-exposed to OPPS were chosen by random sampling. The samples were analyzed for Liver Transaminases using Automated Chemistry Analyzer Beckman Coulter AU480. The data analysis was performed using t-test. The results have shown that the mean Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) levels are higher among the Vector Operators exposed to OPPS. However, the mean differences compared to non-exposed group are not significant as $p > 0.05$. These higher Liver Transaminase levels specifically ALT and AST among the OPPS exposed group serve as important markers for diagnosing and assessing the severity of liver injury in cases of OPPS poisoning. We can infer that Liver Transaminases as a potential biochemical marker for predicting the severity of OPPS poisoning with consideration of larger sample size and other related variables especially for long term exposure to OPPS. This study provides valuable insight into occupational chemical hazard and incident of liver disease in future.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAC07

Enhancing Financial Resilience: A novel technique utilizing reconstituted Feecal Occult Blood Test (FOBT) External Quality Assurance (EQA) material among district hospitals in Kedah.

DD Ramadras¹, NH Murad², MH Mohamad Ramli¹, N Razali²

¹Hospital Sultan Abdul Halim, Sungai Petani, Kedah

²Hospital Sultanah Bahiyah, Alor Setar, Kedah

EQA program, albeit an important quality aspect, can be costly to subscribe especially in limited-resource laboratories such as in district hospitals. We developed a novel method to reduce these costs while maintaining the effectiveness of EQA in the state of Kedah. This study aims to analyze the cost savings and effectiveness of this novel method. Retrospective analysis from May 2023 to August 2024 (total of 4 surveys) with 8 laboratories participating in FOBT inter-laboratory comparison. Each survey consisted of 2 standardized EQA materials i.e. the leftover reconstituted commercial EQA from tertiary hospitals; aliquoted, frozen, and passed to all participants. A preliminary stability study was performed to guide the provider in choosing appropriate leftover materials. Post analysis by participants, results were submitted to the coordinating lab and compared to target concentrations in the commercial EQA provider's official report. Data was analysed using Excel Software and all information was managed online via a specific link. An overall high degree of accuracy with target values of 75% of samples being concordant and 25% discordant. Result variations were observed among samples with target values at the cut-off point because these samples' stability is poor when reconstituted and freeze-thawed again. The cost savings of the FOBT EQA samples was about RM26 000 (an 80% reduction from the original expenditure). Significant cost savings were achieved with this novel method. As this is a single-center study, a prospective multi-center study is recommended to validate the results and assess the broader applicability.

OAH01

National Thalassemia Coding System: Beyond Laboratory Diagnosis

Hafizah H¹, Ida Marhainis I², Noraesah M³, Ezalia E⁴ Munirah AR³, Faridah M³, Norafiza Y⁴, Don Ismail M⁵ Saidatul Norbaya B⁵, Raudhawati O⁶

¹ Department of Pathology, Hospital Sultanah Bahiyah Alor Setar Kedah

² Department of Pathology, Hospital Pulau Pinang

³ Department of Pathology, Hospital Kuala Lumpur

⁴ Institute for Medical Research Setia Alam

⁵ Family Health Development Division, MOH Putrajaya

⁶ Department of Pathology, Hospital Melaka

Thalassemia is one of the common genetic disorders in Malaysia. Prevalence of α and β -thalassemia varies between 4.5% to 40%. The National Thalassemia population school screening programmes have been introduced in 2016. Complexity of thalassemia diagnosis without an integrated database leads to difficulties in delivering accurate diagnosis to client and statistical collection. National thalassemia coding (NTC) system was initiated in 2012 to standardise Haemoglobin analysis and DNA analysis reports, creating a database for thalassemia diagnosis among Ministry of Health (MOH) hospitals laboratories. Capillary Zone Electrophoresis (CZE) is mostly used as the first method of haemoglobin analysis and High Performance Liquid Chromatography (HPLC) as secondary method for thalassemia screening and diagnosis. Hb analysis Coding system were divided into 6 main categories namely no abnormality detected (N), α -thalassaemia (A1-A7), β -thalassaemia(B1-B7), haemoglobinopathies(C1-C13), haemoglobin variants or other findings (D1-D16) which require DNA analysis as a confirmatory method. The DNA coding system is more complex and was classified into heterozygous, homozygous and interaction between different genotypes commonly found in Malaysia. NTC have successfully developed a national database of thalassemia diagnosis, identify common types of thalassemia, mapping of thalassemia prevalence, identify cut off value of MCV and MCH levels for alpha thalassemia screening, able to differentiate between thalassemia carriers and disease and facilitate genetic counselling and family screening. This system is not only applicable for laboratory databases but simplifies the complex thalassemia diagnosis. Thus, this system becomes an important rule to facilitate communication between health-care personnel.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAH02

Clinical Utility of Extended Red Blood Cell Parameters in The Diagnosis of Latent Iron Deficiency and Thalassemia Trait

Sivanesan S^{1,2}, Rosnah B^{1,2}, Zefarina Z^{1,2}

¹*Department of Haematology, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, Kelantan.*

²*Transfusion Medicine Unit, Hospital USM, Health Campus, Universiti Sains Malaysia, Kelantan.*

The use of extended RBC parameters - reticulocyte haemoglobin equivalent (RET-He), percentage of microcytic RBC <60fL (MicroR), and percentage of hypochromic RBC <17pg (HYPO-He) may aid in the detection of latent iron deficiency (LID) and thalassaemia trait (TT). The study aims to determine the diagnostic ability of these extended RBC parameters to distinguish LID and TT from control. This prospective, case-control study involved 341 out of 423 blood donors who fulfilled the inclusion criteria and were classified into control group, LID group and TT group based on RBC parameters, serum ferritin and thalassaemia status. Receiver operating characteristic (ROC) curve analysis and comparison of area under the curve (AUC) for the extended RBC parameters were determined. There were 25 (7.3%) subjects with LID, 55 (16.1%) subjects with TT and 261 (76.6%) subjects in the control group. The extended RBC parameters were beyond the reference interval in LID and TT. Considering the reference interval, RET-He was the best parameter to distinguish LID from control (AUC 0.769, 95% CI 0.690-0.847; 76.00% sensitivity and 77.39% specificity at 30.1pg cut-off) and to distinguish TT from control (AUC 0.807, 95% CI 0.744-0.870; 78.18% sensitivity and 76.63% specificity at 30.2pg cut-off). The extended RBC parameters were not acceptable (AUC <0.7) to distinguish between TT and LID. In conclusion, RET-He was the best parameter for the detection of LID and TT from control. As extended RBC parameters are similar in LID and TT, TT needs to be excluded before the use of RET-He in screening for LID.

OAH03

Hemoglobin And Haematocrit Determination by Point-Of-Care Testing, Performance Evaluation Compared to Automated Haematology Analyzer

Noor Aini Anuwar¹, Saidatul Akmal Amir², Anisah Musa², Noor Farisah Abdul Razak², Azrena Anee², Arthi Dhanabalan³, Raja Zahratul Azma Raja Sabudin¹

¹*Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

²*Department of Laboratory Diagnostic Services Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

³*Active Scientific Sdn. Bhd., Kuala Lumpur, Malaysia*

Health care services are essential in the community. Point-of-care testing (POCT) plays a crucial role in delivering urgent and appropriate health services, especially in peripheral communities, emergency situations, disaster areas and overcrowded areas. POCT for haemoglobin (Hb) measurement allows rapid and accurate results at a reduced cost. In this study, our aim was to compare the values of Hb and haematocrit (HCT) determined by POCT devices and automated haematology analyzer in Hospital Canselor Tuanku Muhriz (HCTM). We evaluated the accuracy of Very Q Hb meter for measurement of Hb and HCT among 100 volunteer subjects with normal Hb level at Haematology laboratory, Department of Laboratory Diagnostic Services, HCTM. A drop of blood sample was applied onto the test cartridge. The findings of Hb and HCT results were then compared with Sysmex XN 300 Automated Haematology Analyzer (Japan). Overall, the correlation between POCT-Hb and Sysmex-Hb was highly significant ($r = 0.9671, p < 0.001$), similar with POCT-HCT and Sysmex-HCT was also significant ($r = 0.855, p < 0.001$). Mean differences were -0.645g/dl for Hb and -0.87% for HCT. Precision studies for both Hb and HCT by POCT showed good repeatability. Overall, we found a highly significant correlation between POCT devices and Sysmex XN 300 Automated Haematology Analyzer in the measurement of Hb and HCT. This Hemoglobin meter provides the most precise results that are equivalent to laboratory haematology analyzer. It is easy to handle and provides fast and accurate results.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAH04

The Impact of Artificial Intelligence in the Preanalytical Practice at the Outpatient Phlebotomy Center in Hospital Melaka.

Wan Aswani WY¹, Raudhawati O¹, Norhernani L¹, Noor Hafizah Y¹, Adeline Y¹, Mohd. Azmi MS¹, Azhar A², Afzanizam MA²

¹ *Department of Pathology, Hospital Melaka, Negeri Melaka*

² *Pusat Pengambilan Darah, Hospital Melaka, Negeri Melaka*

The use of artificial intelligence (AI) has become extensive in an area of digitalization, science and medicine, including laboratory testing. Laboratory testing for medical diagnosis is divided into preanalytical, analytical and postanalytical phases. This study demonstrates AI by using an automatic blood tube labeling to enhance efficiency, reduce preanalytical errors and lean management at the outpatient phlebotomy services. The MyPHLEBO Pre-Analytical Solution System, which uses AI models for tube selection and labeling, has been used for the outpatient phlebotomy services since 2022. The study evaluated the patients waiting time from registration, tube labeling till phlebotomy, correct tube selection and correct patient's identification on tubes and forms by monitoring specimen rejection and incident reporting. MyPHLEBO system has reduced the patient waiting time from an average of 90 and 60 minutes in 2022 and 2023 respectively to 5 minutes (single test) and 30 minutes (multiple tests) recently. This system excellently selected the correct tubes (100%) by zero rejection of wrong tube usage. Rejection specimen due to wrong/incomplete/discrepancy labeling was reduced from 13 cases (2022) to 10 cases (2023) and 2 cases (Jan-June 2024). Incident reporting related to wrong labeling is reducing from 3 cases (2023) to 2 cases (Jan -Jun 2024). By integrating AI into the preanalytical practice, outpatient phlebotomy service can become more efficient, accurate and patient centered, ultimately leading to better outcomes and reduced operational costs.

OAH05

Verification of Rosner Index (RI) Cutoff Values for Prothrombin Time (PT) and Activated Partial Thromboplastin Time (APTT) Mixing Tests Interpretation at Haematology Laboratory Hospital Tunku Azizah (HTA)

Suzana Zainol¹, Nurimatussolehah Sarijan¹, Sri Rahayu Sabtu¹, Elyn Syazana Zolkifli¹, Faridah Md Afandi¹.

¹ *Haematology Laboratory, Department of Pathology, Hospital Tunku Azizah, Kuala Lumpur.*

A mixing test is frequently conducted to investigate unexplained prolonged Prothrombin Time (PT) and/or Activated Partial Thromboplastin Time (APTT). It helps determine whether the cause is a factor deficiency or presence of inhibitor. The Rosner Index (RI) is a commonly used formula for determining correction and interpretation. A value of less than 12% suggests correction, indicating a likely factor deficiency, while a value of more than 15% suggests the presence of inhibitor. Values between 12-15% are considered indeterminate, and strongly demand clinical correlation for further investigations. These cutoff values require verification at local laboratory. To verify the RI cutoff values used for interpreting mixing tests. A retrospective analysis of 22 PT and 33 APTT 1:1 mixing tests was conducted on cases diagnosed with specific factor deficiencies (inherited and acquired) and inhibitors. RI values were analysed by diagnosis category, with all diagnoses confirmed by factor assays, inhibitor study, or lupus anticoagulant tests. For factor deficiencies, all 22 PT mixing tests showed values below 12% (mean: 5.6%). Similarly, 16 out of 19 APTT mixing tests for factor deficiencies, had values below 12% (mean: 8.5% at immediate & 7.8% at 2 hours incubation), confirming correction. In contrast, 12 out of 14 APTT mixing tests for inhibitor cases showed values above 15% (mean: 37.5%). Overall, five cases fell between 12-15%, indicating an indeterminate interpretation (mixture of factor deficiency and inhibitor cases). RI cutoff values were successfully verified for local laboratory use, with clinical correlation remaining crucial for accurate interpretation.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAM01

Serotype And Genotype Diversity of Dengue Virus Circulating Trend From 2018-2022 in Dengue Virus Surveillance System (DVSS) Sentinel Sites in Johor

Haida ZN¹, Norlin AL², Sharifah Izwan TO³

¹Public Health Laboratory, Department of Infectious Disease, Johor Bahru, Johor

²Microbiology Unit, Department of Pathology, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

³University Selangor, Department of Health Sciences

Dengue virus (DENV) poses a substantial global public health threat, imposing a considerable burden of illness. The primary objective of this study was to explore the prevalence and genetic variations of DENV serotypes and genotypes in Johor, Malaysia, spanning the years 2018 to 2022. A total of 5,611 samples, collected from Dengue Vector Surveillance System (DVSS) sentinel sites, underwent serotyping, with subsequent in-depth genotyping and phylogenetic analysis applied to 38 samples from severe dengue cases. The predominant serotype observed throughout the study was DENV 2 (47.0%), followed by DENV 3 (31.0%), DENV 1 (13.0%), and DENV 4 (9.0%). Genetic diversity assessment, accomplished through DNA sequencing of the dengue Envelope (E) gene in 38 severe and fatal dengue cases, revealed the presence of five distinct genotypes among the four DENV serotypes. Notably, the D2Cosmo_cladelb genotype dominated among DENV 2 cases, comprising 76.3% of instances, indicating its prevalence in the study population. DENV 3 cases exhibited two genotypes (D3G1 and D3G111), identified in five cases, while DENV 1 cases demonstrated a singular genotype (D1G1). An exclusive case of DENV 4 was detected, aligning with the D4GII genotype. Furthermore, a statistically significant association between dengue serotype and disease severity was observed. This underscores the potential link between the specific DENV serotype and the severity of dengue illness, urging further exploration of underlying mechanisms. In conclusion, this study contributes valuable insights into the dynamic distribution and genetic diversity of DENV in Johor, Malaysia, providing a foundation for refined public health strategies and targeted interventions.

OAM02

Predictors of COVID-19 Clusters Among Negeri Sembilan SARS-CoV-2-Positive Patients in 2021

Nurnabilah Zainuddin¹, Nor Zanariah Zainol Abidin¹, Niazlin Mohd Taib², Siti Salwa Ibrahim³, Tengku Zetty Maztura Tengku Jamaluddin²

¹Microbiology Unit, Pathology Department, Hospital Tuanku Ja'afar Seremban, Negeri Sembilan

²Department of Medical Microbiology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, UPM Serdang, Selangor

³Epidemiology Unit, Negeri Sembilan State Health Department, Seremban, Negeri Sembilan

Although being less fatal among the members of the same lineage, the SARS-CoV-2 virus causes the most catastrophic pandemic owing to its high infectivity. Cluster patients, especially those associated with variants of concern (VOC) inflict huge economic impact. We aim to predict COVID-19 cluster status among SARS-CoV-2 positive patients in Negeri Sembilan in August 2021. This is an observational cross-sectional, aetiologic study conducted from 1st August 2021 until 1st August 2022 in Hospital Tuanku Ja'afar, Seremban. Combined oral and nasopharyngeal swab samples received for the period of 1st August 2021 until 31st October 2021 were randomized into 390 samples. Medical records of the patients were reviewed for demographical and clinical characterization, and cluster status were counter-checked with state health department epidemiology unit. The majority of cluster patients were indigenous people, living in Jelebu district and are clinically asymptomatic. The cluster patients' age is significantly younger than the non-cluster patients. Clinical symptoms status and age were statistically significant univariate predictors of COVID-19 cluster. However, upon multivariate analysis, only clinical symptoms status was found to be significant risk factor for COVID-19 cluster status, with the odds ratio for asymptomatic patients was 4.89 compared to symptomatic patients. Cluster patients are more likely to be younger and asymptomatic compared to the non-cluster patients.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAM03

Antinuclear Antibody Test: A Descriptive Evaluation of EliA™ CTD Screen in Comparison to Indirect Immunofluorescent and ENA Line Immunoblot Assays

Hasni Mahayidin^{1,3}, Fatimahtuz Zahrah Muhamad Damanhuri², Nurul Huda Mohamed Rashidi²

¹ *Department of Pathology, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor*

² *Department of Medical Microbiology, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, Serdang, Selangor*

³ *Department of Pathology, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia, Serdang, Selangor*

Antinuclear antibody (ANA) is the serological hallmark for systemic autoimmune rheumatic diseases (SARDs). There are several methods for detecting ANA other than the reference method, indirect immunofluorescent (IIF) assay using HEp-2 cells. We aim to evaluate the performance of EliA™ CTD Screen in comparison to IIF and ENA (16 cellular antigens) line immunoblot assays currently employed by our laboratory. 44 ANA IIF positive sera with available ENA follow-up testing results were analysed using EliA™ CTD Screen (Thermo Fisher Scientific). 45.5% and 81.2% of ANA IIF positive samples were positive by EliA™ CTD Screen and ENA immunoblot, respectively. All 7 borderline negative samples by ENA immunoblot were negative while 1 absolute negative sample by ENA immunoblot was positive when tested by EliA™ CTD Screen. 9 samples were positive only by ENA immunoblot for antibodies against antigens that are not included in EliA™ CTD Screen i.e. AMA-M2, DFS-70, and histone. Despite included, EliA™ CTD Screen was unable to detect samples found to be positive for anti-Scl-70 (3+), anti-SS-B (1+), and anti-Jo-1 (1+) by ENA immunoblot. The ability of EliA™ CTD Screen to detect antibodies to Sm, dsDNA, Ribosomal P and nucleosomes in this study is uncertain. The positive, negative and overall percent agreement between EliA™ CTD Screen and ENA immunoblot was 65.5%, 85.7% and 69.4%, respectively. In conclusion, EliA™ CTD Screen can detect most of ANA-specific autoantibodies important for SARDs. The sensitivity of the EliA™ CTD Screen, however, does not necessarily match the cut-off values of each ENA immunoblot antibodies.

OAM04

Kelantan Towards Zero BFMP Slide Discrepancy at the Brink of Malaria Elimination

Suhana H¹, Muhsin A¹, Mohd Romdhan Z¹, Isameyah D¹, Noor Hafizan MS¹

¹ *Kota Bharu Public Health Laboratory, Kelantan*

Malaysia is on the brink of malaria elimination. Cross-checking of BFMP slides is part of QA to maintain slide discrepancy less than 1% in Malaysia. The aim of this study is to investigate and do corrective action for all malaria cases with errors during slide rechecking in Kelantan. A cross-sectional study was conducted in 2023. All microscopic centres in Kelantan will send all positive cases and 10% of negative slides to Kota Bharu Public Health Laboratory for rechecking monthly. All discrepancy cases will be confirmed by PCR test. Audit visits will be conducted to assess staff competency, microscope performance, quality of the reagent and equipment used etc. Refresher training is compulsory for the related staff. In 2023, Kelantan recorded 18 cases of discordance (0.3%) which increased from 9 cases in 2022. Half of the cases involved foreigners. 17 of them were from Malaria Red Zones; Gua Musang(10), Kuala Krai(3), Jeli(3) and Tanah Merah(1). About 39% (7) of the slides were poor in quality. There were few possible causes for errors; very low density with early trophozoites stage (7), poor quality of staining(2), 3 cases related with staff competency and 1 case due to technical problems. 1 false negative case detected from the private lab. There were 4 cases with challenges in morphology and discussion amongst experts was done to overcome the issues. Corrective actions must be taken whenever non-conformity is identified. Very low density count with early trophozoite stage is the only culprit that enable us to achieve zero errors in BFMP.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAM05

Diagnostic Performance and Clinical Impact of a Gastrointestinal Multiplex Panel in Acute Gastroenteritis Patients: A Pilot Study

MY Yeoh¹, Karshini JP¹, Maria KB¹

¹ Department of Medical Microbiology, University Malaya Medical Centre, Kuala Lumpur

Accurate and timely diagnosis of acute gastroenteritis is an unmet clinical and public health need, as diarrhea remains a leading cause of morbidity and mortality worldwide. Conventional methods for identification of gastrointestinal pathogens, for example antigen tests, microscopic examinations for parasites and culture are time-consuming, costly and have limited sensitivity. Our study aims to compare the performance of QIAstat-Dx Gastrointestinal Panel (GIP) and routine diagnostic methods in patients suspected to have acute gastroenteritis in a university hospital in Malaysia in terms of diagnostic sensitivity, turnaround time, cost effectiveness and technical ease of use. In this study, 30 archived fecal specimens from patients suspected to have infectious gastroenteritis were randomly selected and tested with QIAstat-Dx Gastrointestinal Panel (GIP), and the results compared with those of routine diagnostic methods. QIAstat-Dx GIP detects pathogens in 16 (53.3%) specimens, compared to 7 (23.3%) for conventional methods. The GIP assay detected additional 22 enteropathogens that were not detected or tested by conventional testing. These included Enteroaggregative *E. coli* (EAEC), Enteropathogenic *E. coli* (EPEC), *Salmonella spp*, *Campylobacter spp*, *Plesiomonas shigelloides*, *Clostridium difficile*, Norovirus, *Cyclospora cayetanensis* and *Giardia lamblia*. QIAstat-Dx GIP panel is a valuable tool for detecting the causative pathogen for acute gastroenteritis with improved sensitivity and rapid turnaround time that could impact patient management.

OAM06

Confronting Melioidosis in Sandakan: A Retrospective Study on Epidemiology, Microbiological Data and Mortality in 2023

Nur Afifah Nasuha Saiful Bahri¹, Thartsiny Devi Balkerishna¹, Mohamad Hafiz Mohamad Nasir¹, Nik Noramalina Rozik¹

¹ Department of Pathology, Hospital Duchess of Kent, Sandakan, Sabah

² Unit Kawalan Penyakit Berjangkit, Pejabat Kesihatan Kawasan Sandakan, Sabah

This study aims to provide local data on melioidosis in Sandakan by analyzing the epidemiology, microbiology data, and clinical outcomes. It will determine on demographics, clinical presentations, anti-melioidosis susceptibility, treatment initiation, and mortality. A one-year retrospective study was conducted on patients admitted to Hospital Duchess of Kent Sandakan with culture-confirmed melioidosis in 2023. Data were extracted and analysed to describe epidemiological data, clinical and laboratory findings. Total of 99 isolates from 45 confirmed cases of melioidosis were recorded. Most were male (66.6%), with the highest age group being 45 to <60 years (37.7%). Notably, the paediatric group (<5 years old) was among the highest (20%). 77.8% of patients had comorbidity, notably diabetes mellitus (51.1%). Many patients lived in construction and muddy areas (57.7%). Majority of the patients had pneumonia (80%), followed by skin and soft tissue infections (22.2%) and deep abscesses (15.5%). Interestingly, 11.1% had gastrointestinal symptoms. All isolates were 100% sensitive to ceftazidime and carbapenems, with 6% resistant to cotrimoxazole. The average diagnosis time via positive culture was 3.7 days, however only 31.1% received Ceftazidime and Carbapenems as empirical therapy. Nearly 90% of paediatric cases experienced delays in anti-melioidosis treatment. Overall mortality was 31.1%, with children under 5 experiencing the highest (15.5%). This study provides crucial insights for clinicians to identify at-risk patients for melioidosis and emphasises the need for prompt empirical treatment, particularly paediatric cases.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAM07

Evaluating Molecular Detection of Enterovirus Across Various Clinical Specimen Types Using an In-House Real-Time RT-PCR Assay

Wan Nabilatul Huda Wan Ghazali¹, Alia Nabila Abdul Halim¹, Nadzirah Nazri¹, Nor Aziyah Mat Rahim¹, Rozainanee Mohd Zain¹

¹Virology Unit, Infectious Disease Research Centre (IDRC), Institute of Medical Research (IMR), National Institute of Health (NIH), Selangor, Malaysia

Enterovirus real-time RT-PCR has become a vital diagnostic platform due to its sensitivity, specificity, and rapid turnaround time. However, the detection capability may vary depending on the specimen type. This study examined the enterovirus real-time RT-PCR performance across various clinical specimen types. A total of 1553 samples consisted of 565/1553 (36.38%) cerebrospinal fluid (CSF), 456/1553 (29.36%) rectal swab and stool, 352/1553 (22.67%) upper respiratory tract (URT) sample, 27/1553 (1.74%) serum, 6/1553 (0.39%) lower respiratory tract (LRT) sample, 4/1553 (0.26%) blister swab and 143/1553 (9.21%) others, including post-mortem specimens were sent for enterovirus investigation from January 2023 to June 2024. The samples were extracted using QIAamp Viral RNA Mini Kit and subjected to an in-house real-time enterovirus RT-PCR assay. The highest detection rate of enterovirus was observed in blister swabs (25%), followed by URT samples (20.17%), LRT samples (16.67%), and rectal/stool specimens (15.79%). Tissue and CSF exhibited low detection rates, accounting for 4.2% and 2.48%, respectively, and nil was detected in serum. The lowest cycle threshold (CT) values were observed in positive URT samples (mean 29.10, SD = 4.24) and stool/rectal swabs (mean 30.86, SD = 3.76), suggesting an optimal detection capability. Common reasons for sample rejection were inappropriate transport media (29.03%), followed by insufficient specimens or leakage (24.19%), and receipt of inappropriate specimens (20.97%). The findings offer guidance to clinical practices on specimen selection for enterovirus testing. Additionally, the insights gained can aid in refining strategies for diagnostic, epidemiological studies and outbreak investigations, where rapid and accurate detection is essential.

OAP01

Whole Slide Imaging for Cervical Cytology Screening: A Diagnostic Accuracy Study

Junainah Binti Jamir¹, Sze Khiong Lo², Aisyah Hanani Binti Md Ali@Tahir³

¹ Department of Pathology, Hospital Miri, Sarawak

² Department of Pathology, Hospital Miri, Sarawak

³ Institut Latihan Kementerian Kesihatan Malaysia, Kuala Lumpur

The primary objective of this study is to evaluate the sensitivity, specificity, and intra-observer reproducibility of Whole Slide Imaging (WSI) for cervical cancer screening and to compare its performance with conventional light microscopy (CLM). This study conducts a retrospective analysis of Pap-stained Liquid-Based cervical smears (LBP) obtained from Pathology Department, Hospital Miri, Sarawak. Sixty LBP (n=60) were digitally scanned. These digitalized WSIs were uploaded to a server and remotely reviewed by an experienced cytoscreener using online slide viewer. Each digital smear was categorized as Positive or Negative and further classified according to The Bethesda System 2014 criteria. In a subset of 10 confirmed positive cases (n=10), WSI achieved detection rate of 90% (95% CI: 82.4-97.6%). The specificity of WSI was determined to be 96% (95% CI: 91.0-100%), with an overall accuracy rate of 95% (95% CI: 89.5-100%). Substantial agreement was observed between the two screening intervals, indicating strong intra-observer reproducibility. The overall concordance rate for positive cases was 70%, with 2 false positives and 2 false negative identified. WSI demonstrates comparable performance to CLM in the detection of cervical abnormalities. However, the risk of false positives and the potential for missed diagnoses highlight the need for careful interpretation. Future research should focus on enhancing training for cytoscreeners and cytopathologists in the use of WSI according to the current standardized interpretation protocols. Additionally, there is a critical need for the standardization of equipment and optimization of scanning protocols to ensure consistency and reliability in WSI-based screenings.

POSTER PRESENTATION: ORIGINAL ARTICLE

OAP02

***p*-Cresyl Sulfate Promotes Inflammatory Cytokine Expression in Foetal Human Osteoblasts: Implications for Pathological Bone Fragility**

Ahmad Faizal Jelani¹, **Mohammad Zulkarnaen Ahmad Narihan**¹, Gabriele Ruth Anisah Fromming², Dayang Erna-Zulaikha³

¹*Department of Pathology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS)*

²*Centre of Preclinical Sciences, Faculty of Dentistry, Universiti Teknologi Mara (UiTM)*

³*Department of Paraclinical Sciences, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS)*

p-Cresyl Sulfate (*p*CS), a uremic toxin, has been associated with various adverse health outcomes, such as cardiovascular and renal complications. Specifically, *p*CS has emerged as a contributing factor to the increased prevalence of bone fragility. Emerging evidence suggests that *p*CS may exert its deleterious effects on osteoblast cells through its ability to induce inflammation. Inflammatory markers, Interleukin-6 (IL-6) and Interleukin-1 β (IL-1 β) have been implicated in the pathogenesis of these conditions yet have never been shown to be released by *p*CS-exposed osteoblasts. In this study, we aimed to investigate the effect of *p*CS on the pro-inflammatory cytokines IL-6 and IL-1 β released by the Foetal Human Osteoblast 1.19 (fHOb 1.19) cells. The IC₃₀ of *p*CS was determined as 12 millimolar (mM), which was chosen over IC₅₀ as IC₅₀ resulted in detachment of most cells from the surface. After 48 hours of treatment, medium was collected and centrifuged. IL-6 and IL-1 β were measured using enzyme-linked immunosorbent assays (ELISA). Experiments were performed in triplicate and analysed via one-way ANOVA. The results indicated that exposure to 12 mM of *p*CS lead to a significant increase in the production and release of both IL-6 (Control: 319.8 \pm 46.55, Treated: 2336.4 \pm 472.41 pg/mL) and IL-1 β (Control: 4.38 \pm 3.03, Treated: 16.54 \pm 1.63 pg/mL) in fHOb 1.19 cells. Increase in inflammatory markers could contribute to enhanced bone breakdown and loss, potentially exacerbating bone fragility, in part, through the upregulation of inflammatory signalling pathways involving IL-6 and IL-1 β in the presence of *p*CS.

OAP03

Establishing A New-Improved Transmission Electron Microscopy (TEM) Protocol for Lupus Nephritis Renal Biopsy Specimen in UPM

JS Ting¹, Fauzah Ghani¹

¹*Department Of Pathology, Faculty Medicine and Health Science*

Transmission Electron Microscopy (TEM) is an essential and fundamental tool to assess the ultrastructure of renal pathologies and diagnose renal diseases. The TEM procedure has various technical problems, especially the extended duration technique, the adverse effects of the fixation process as its reagents are potentially toxic and carcinogenic and costly and the insufficient kidney biopsy dimensions. The TEM samples used are mostly limited to the fresh renal tissues samples, which can be problematic in cases with diagnostic dilemmas requiring formalin-fixed paraffin-embedded (FFPE) tissues and stained slides. In Malaysia, diagnostic TEM are only performed in limited centres and lacks expertise. The quality of TEM for diagnostic services is somewhat suboptimal and can be improved further. This research aims to improve and introduce new protocols in TEM (routine and immunogold) on different renal biopsy tissues (fresh, FFPE and tissues from stained slides) to optimally utilize TEM in renal pathology diagnostic services. We shall use biopsy-proven lupus nephritis cases as there are sufficient immune deposits in these cases and the patients are more likely to have a repeat renal biopsy. The expected output will improve the quality of TEM morphology, have a shorter technique duration, better safety profile and save overall cost. We expect to optimally utilize FFPE and tissues from stained slides to visualize its ultrastructural morphology in TEM for diagnostic as well as future research purposes. The research outcome is hoped to refine the current practice in renal diagnostic services and future research in renal pathology in UPM.



PARTNERSHIP

ABBOTT LABORATORIES (M) SDN. BHD.

BIOMED GLOBAL (M) SDN. BHD.

SIEMENS HEALTHCARE SDN. BHD.

SYSMEX (M) SDN. BHD.

RADIOMETER (M) SDN. BHD.

ALFA DIAGNOSTIK SDN. BHD.

ALL EIGHTS (M) SDN. BHD.

AMD SOLUTIONS SDN. BHD.

FC-BIOS SDN. BHD.

HISTOCENTER (M) SDN. BHD. & LEICA BIOSYSTEMS

LABLINK (M) SDN. BHD.

PREMIER DIAGNOSTICS SDN. BHD.

ROCHE DIAGNOSTICS (M) SDN. BHD.

THERMO SCIENTIFIC MICROBIOLOGY SDN. BHD.

UC BIOSCIENCES SDN. BHD.

GLOBAL SCIENCE SDN. BHD.

STRAITS SCIENTIFIC (M) SDN. BHD.

BECTON DICKINSON SDN. BHD.



ACKNOWLEDGEMENT

We would like to extend our heartfelt gratitude to all individuals and organizations that contributed to the success of the National Pathology Conference 2024.

First and foremost, we thank our esteemed keynote speakers and panelists for sharing their invaluable insights and expertise. Your contributions have significantly enriched our understanding of the complexities and advancements in the field of pathology.

We would also like to acknowledge our sponsors and partners for their generous support, which made this conference possible. Your commitment to advancing education and research in pathology is deeply appreciated.

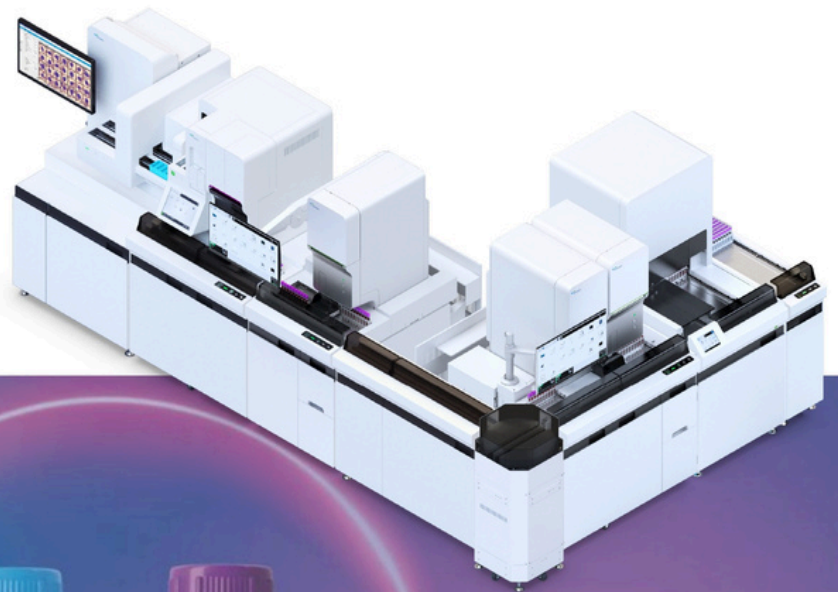
To the organizing committee, volunteers, and all participants, your hard work, dedication, and enthusiasm have created an engaging and collaborative environment. Thank you for your efforts in making this event a success.

Thank you all!

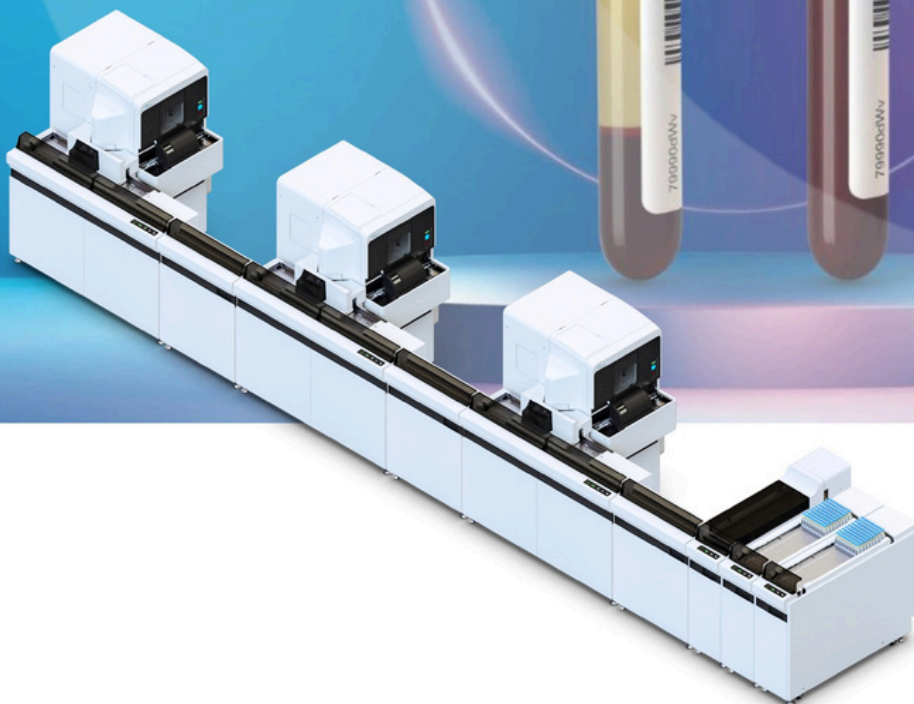
XR-Series

Haematology System

Reg. No: IVDB6506724-170755



Enjoy a worry-free
walk-away
standardised
laboratory
workflow



CN-Series

Haemostasis System

Reg. No: IVDC6362721-66356



Sysmex (Malaysia) Sdn Bhd (Reg no: 461597-A)
Level 15, Subplace Boulevard, Pusat Komersil Vestland,
No. 6, Jalan Juruanalysis U1/35, Seksyen U1, Shah Alam,
Selangor, Malaysia. Tel: +60 (3) 5870 5288

www.sysmex.com.my

Atellica Integrated Automation

Presenting the enhanced Atellica[®] Solution, now featuring Built-in Decapping and Sealer, alongside the all-new Atellica[®] CI 1900 Integrated Chemistry and Immunoassay Analyzer!



compact 1.9m² footprint



We bring together leading edge medical solutions and people to enrich lives

Total Solutions Provider | Consultation Services | Training, Service & Support | Expertise

Invasive Fungal Disease Solution

Full-Automatic Chemiluminescence Immunoassay System (FACIS)



FACIS-I

- **40 minutes** detection time
- **All-in-one** reagent strip
- High sample throughput = **12 channels**
- Run different tests **simultaneously** - BG/GM/BE
- **Early** patient management

Partners





ALINIQ PRE-ANALYTICS POWERED BY INDEXOR

Streamline & Automate Sample Tracking and Transport For Better Results



ALINIQ.COM

© 2024 Abbott. All rights reserved. All trademarks referenced are trademarks of either the Abbott group of companies or their respective owners. Indexor trademarks are owned by Isens-Electronica, LDA. The Indexor system is manufactured by Isens-Electronica, LDA and is available in select countries. ADD-151345-APAC-ENMY | 08/24

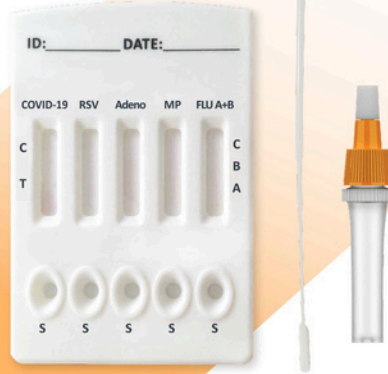
SIRIM QAS International Certificate of Conformity
Model : Indexor Module 60A : Type Approval Code: RGNF/20A/0124/S(24-0239)
Model : Mini Indexor: Type Approval Code: RGJP/94A/0124/S(24-0144)

AlinIQ



6 IN 1

**COVID-19,
Influenza A + B,
RSV, Adenovirus &
Mycoplasma
pneumoniae**



MDA Reg No.: IVDC3592723-140280

Comparison of Common Symptoms						
Symptom	COVID-19	Flu	RSV	Adeno	MP	Cold
Fever	✓	✓	✓	✓	✓	✓
Cough	✓	✓	✓	✓	✓	✓
Headache	✓	✓			✓	
Running nose		✓	✓			✓
Stuffy nose		✓				✓
Sneeze			✓			✓
Sore throat	✓	✓	✓	✓	✓	✓
Breath shortness	✓		✓		✓	
Sputum	✓			✓	✓	
Vomit		✓		✓		
Diarrhea		✓		✓		
Weak limbs	✓					
Muscle ache		✓				

* Due to certain disease progression (including individual differences), some symptoms may or may not appear

BIONEER

nnovation • Value • Discovery

IRON-qPCR™

2 Patient Samples, Random Access
Point-of-Care MDx System

MDA Reg No.: IVDC9632924-170397



- 01 SYNDROMIC DIAGNOSTICS**
· High-multiplexing up to 40 targets in a single test
- 02 NEAR-PATIENT DIAGNOSTICS**
· Results in 40 mins
· 2 Channels & Randomly accessible
· Compact size & Light weight (12 kg)
· Built-in computer with 7-inch touch screen
- 03 EASY TO USE**
· All-in-One Cartridge
· Sample In – Result Out
- 04 VARIOUS ASSAYS**

DEBUNK Fluorescence Immunoassay Analyzer AFR-400

MDA Reg No.: IVDC8286623-149000



- High Accuracy (Stringent Quality Control Monitoring & System Check Function)
- User-Friendly (Simple Plug & Play Operation)
- Easy Operation (Less Training Required)
- High Efficiency (Both STAT Testing and Batch Testing)
- Ideal for Emergency Situation (Lightweight, Small Size and Easy Operation)
- Time-saving (Reading Time less than 20 Seconds)
- Get Printing Test Reports Instantly (Built-in Thermal Printer)
- LIS/HIS Compatibility Available
- Strong Stability
- Extensive Test Menu

Test Menu						
Cat. No.	Test	Specimen	Out-of-Reference Value	Measuring Range	Pack	CE status
FI-CRP-402	CRP	WB/S/P	hsCRP: 1 mg/L, CRP: 10 mg/L	0.5-200 mg/L	10T/25T	CE
FI-PCT-402	PCT	WB/S/P	0.5 ng/mL	0.1-50 ng/mL	10T/25T	CE
FI-IL6-402	IL-6	WB/S/P	10 pg/mL	1.0-5000 pg/mL	10T/25T	CE
FI-SAA-402	SAA	WB/S/P	10 mg/L	1-400 mg/L	10T/25T	CE
FI-FSA-302	FSA	S/P	4 ng/mL	2-100 ng/mL	10T/25T	Non-CE
FI-AFP-302	AFP	S/P	20 ng/mL	5-400 ng/mL	10T/25T	CE
FI-CEA-302	CEA	S/P	4 ng/mL	1-500 ng/mL	10T/25T	CE
FI-FOB-402	FOB	Feces	50 ng/mL	10-1000 ng/mL	10T/25T	CE
FI-CT-402	ctHt	WB/S/P	0.5 ng/mL	0.1-40 ng/mL	10T/25T	CE
FI-CTNT-402	ctHt	WB/S/P	0.5 ng/mL	0.2-40 ng/mL	10T/25T	CE
FI-ANP-402	NT-proBNP	WB/S/P	402 pg/mL	300-2200 pg/mL	10T/25T	CE
FI-CKMB-402	CK-MB	WB/S/P	5 ng/mL	0.2-75 ng/mL	10T/25T	CE
FI-HFA-402	H-FABP	WB/S/P	8 ng/mL	1-100 ng/mL	10T/25T	CE
FI-MPO-402	MPO	WB/S/P	10 ng/mL	5-200 ng/mL	10T/25T	CE
FI-AM-435	Tropoin (U)/Myoglobin/CK-MB (I n 1)	WB/S/P	ctHt: 0.5 ng/mL MPO: 10 ng/mL CK-MB: 5 ng/mL	0.1-40 ng/mL 5-200 ng/mL 0.2-75 ng/mL	10T/25T	CE
FI-AMT-435	Tropoin T/Myoglobin/CK-MB (I n 1)	WB/S/P	ctHt: 0.2 ng/mL MPO: 10 ng/mL CK-MB: 5 ng/mL	0.1-40 ng/mL 5-200 ng/mL 0.2-75 ng/mL	10T/25T	CE
FI-CFC-435	Response LNT proBNP/ D-Dimer (I n 1)	WB/S/P	ctHt: 0.5 ng/mL NT-proBNP: 500 ng/mL D-Dimer: 0.45 ng/mL	0.1-40 ng/mL 100-10000 ng/mL	10T/25T	CE
FI-DDM-402	D-Dimer	WB/P	0.5 mg/L	0.1-10 mg/L	10T/25T	CE
FI-FSH-402	FSH	WB/S/P		1-100 mIU/mL	10T/25T	CE
FI-LH-402	LH	WB/S/P		1-100 mIU/mL	10T/25T	CE
FI-T3-302	T3	S/P	1.23-1.30 pmol/L	0.3-9.0 pmol/L	10T/25T	CE
FI-T4-302	T4	S/P	65-155 nmol/L	12.87-300 nmol/L	10T/25T	CE
FI-TES-302	Testosterone	S/P	Female: 0.2 ng/mL Male: 2.12 ng/mL	1.0-20 ng/mL	10T/25T	CE
FI-BHCG-302	β-HCG	S/P	25 mIU/mL	5-10,000 mIU/mL	10T/25T	CE
FI-BHCG-402	β-HCG	WB/S/P	1 mIU/mL	2-2000 mIU/mL	10T/25T	CE
FI-PA-302	Progesterone (P4)	S/P	/	1.4-60 ng/mL	10T/25T	CE
FI-FER-302	Ferritin	S/P	Male: 30-400 ng/mL, Female: 13-100 ng/mL	1.0-1000 ng/mL	10T/25T	CE
FI-TSH-302	TSH	S/P	5 μIU/mL	0.1-100 μIU/mL	10T/25T	CE
FI-AMH-402	AMH	WB/S/P	0.1 ng/mL	0.05-25 ng/mL	10T/25T	CE
FI-PRL-402	Prolactin (PRL)	WB/S/P	/	1-200 ng/mL	10T/25T	CE
FI-F1A-302	F1A	S/P	6.2-16.4 pmol/L	1-100 pmol/L	10T/25T	CE
FI-F1B-302	F1B	S/P	2.6-5.7 pmol/L	1.5-48 pmol/L	10T/25T	CE
FI-ALB-102	ALB	Urine		1-300 mg/L	10T/25T	CE
FI-CYC-402	CyC	WB/S/P	1.1 mg/L	0.1-9.0 mg/L	10T/25T	CE
FI-EMAG-402	EMAG	WB/S/P	2.2 mg/L	1-100 mg/L	10T/25T	CE
FI-NGAL-102	N-GAL	Urine	10 ng/mL	10-1500 ng/mL	10T/25T	CE
FI-STA-102	Strep A	Swab	/	Qualitative	10T/25T	CE
FI-FLU-102	FLU A+B	Swab	/	Qualitative	10T/25T	CE
FI-RSV-102	RSV	Swab	/	Qualitative	10T/25T	CE
FI-NCP-102	COVID-19 Antigen	Swab	/	Qualitative	10T/25T	CE
FI-NCP-402	COVID-19 IgG/IgM	WB/S/P	/	Qualitative	10T/25T	CE
FI-CIG-402	COVID-19 IgG/IgM Antibody	WB/S/P	/	Semi-quantitative	10T/25T	CE
FI-CIG-102	COVID-19 IgA/IgM	NP Swab	/	Qualitative	10T/25T	CE
FI-DEN-402	Dengue IgG/IgM	WB/S/P	/	Qualitative	10T/25T	CE
FI-DEN-102	Dengue NS1	WB/S/P	/	Qualitative	10T/25T	CE
FI-SYP-402	Syphilis	WB/S/P	/	Qualitative	10T/25T	CE
FI-HP-402	H. pylori Antigen	Feces	/	2-1500 ng/mL	10T/25T	CE
FI-HBAG-402	HBAG	WB/S/P	/	1-1000 mIU/mL	10T/25T	Non-CE
FI-IGG-402	IGG	WB/S/P	100 IU/mL	20-1000 IU/mL	10T/25T	CE
FI-HBA-402	HBA (Inhibitor is suggested)	WB	4.0%	4.1-5%	10T/25T	CE
FI-VD-102	Vitamin D	S/P	>30 ng/mL	5-100 ng/mL	10T/25T	CE

N.B.: Items with "*" are only for sample now, check the latest specifications with the sales representative before purchase, please.

Accurate, Fast, and Reliable

✓ The Diagnostic Device You Can Trust

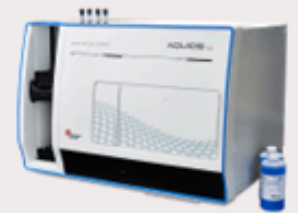


Coagulation analyzer



Full blood count and slide maker

Haematology



Flow cytometry



Semi-automated urine analyzer



Automated urine analyzer

Biochemistry



Osmometer

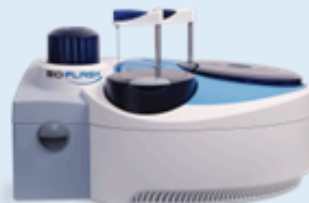


Blood gas analyzer



Culture system

Microbiology



Autoimmunity analyzer



Automated urine microscopy

Experience a new standard in medical diagnostics with our state-of-the-art device. Designed for accuracy, speed, and reliability, it is the perfect tool for your healthcare practice.

Our partner:



Contact us:



BD Vacutainer® Products

Enhancing specimen collection for 75 years and counting

A comprehensive range of solutions spanning the entire specimen management continuum and beyond

Healthcare organizations across the world rely on BD Vacutainer® collection products to enhance sample quality and protect their nurses and phlebotomists from dangerous and costly accidental needlestick injuries.

As a leader in blood and specimen collection devices for 75 years, BD is deeply committed to helping customers improve clinical and economic outcomes. We look forward to an even brighter future advancing the world of health™, together.

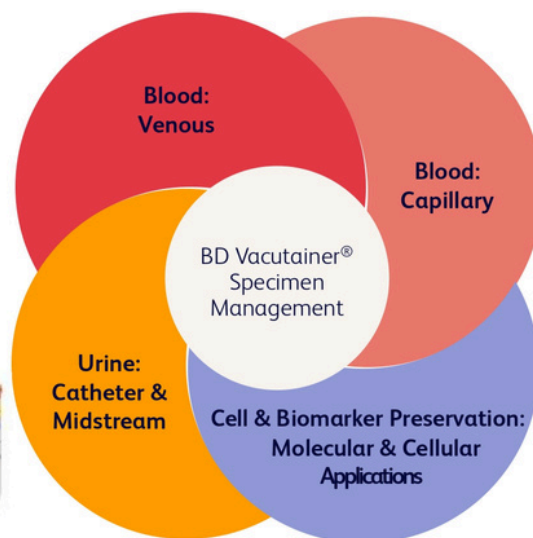
BD Vacutainer® Blood collection tubes
Blood collection needles
Blood collection holder & accessories



BD Microtainer®
Safety Lancets



Collection and transfer devices
Evacuated Preservative Tubes
Convenience kits



Cell Biomarker Preservation
PAXgene® Tubes

BD Life Sciences

Suite 8-7 & 8-8, Level 8 Wisma UOA Damansara II
No. 6 Changkat Semantan II Damansara Heights, 50490 Kuala Lumpur, Malaysia

bd.com/en-sea



BD, the BD Logo, and Vacutainer are trademarks of Becton, Dickinson and Company or its affiliates. All other trademarks are the property of their respective owners. ©2024 BD. All rights reserved. CASAJ-ENS0100724SM

Registered under Medical Device Act 737 (GMD82856267917A, GA3484523-135461, GMD77756268317A, GB99523289817, GB41428778318, JVD857633236218, JVD814372247818.



WHATEVER COMES NEXT, WE MAKE SURE LIFE COMES FIRST

For healthcare professionals working with critically ill patients, life isn't a given—it's the ultimate goal. They face demanding, heartbreaking, and rewarding situations every day. Their goal is to improve patient care. Our goal is to help them. We are a medical device company that develops products and solutions to provide healthcare professionals with the critical information they need in acute care diagnostics. Our diverse community of colleagues shares a common identity, mindset, and purpose—to empower caregivers to make diagnostic decisions to improve patient care. Because for us, answering what's next in healthcare starts with what comes first—life.

WHO WE ARE AND WHAT WE BELIEVE IN

We pioneered the blood gas market in 1954 and continue to develop our extensive knowledge and experience in acute care diagnostics. Our promise to put life first unites us and drives us to work for and with our customers to answer what comes next in healthcare. Across professional backgrounds, job positions, and locations, we work to address today's challenges and tomorrow's opportunities.

CELEBRATING 70 YEARS OF EXCELLENCE

Radiometer proudly celebrates 70 years in acute care diagnostics. Over the decades, our commitment to innovation and quality has established us as a leader in the field, delivering solutions that empower healthcare professionals worldwide.

Should you require more information, please contact:

Tel: +60(3) 7495 5959

Email: info@radiometer.my

ALL EIGHTS (M) SDN BHD



OUR CHART-TOPPING PRODUCTS



HEMATOLOGY



BIOCHEMISTRY



MOLECULAR



MICROBE



INFECTIOUS DISEASE



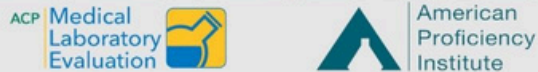
AUTOIMMUNE



WOMEN HEALTH



EQA PROGRAM



+60-3-5633 4988

www.alleights.com.my



PREMIER DIAGNOSTICS SDN BHD

WE SERVE YOUR DIAGNOSTICS NEEDS...

Point of Care



Consumables



Rapid Test Kits



Equipment



yakos TRIED & TRUSTED

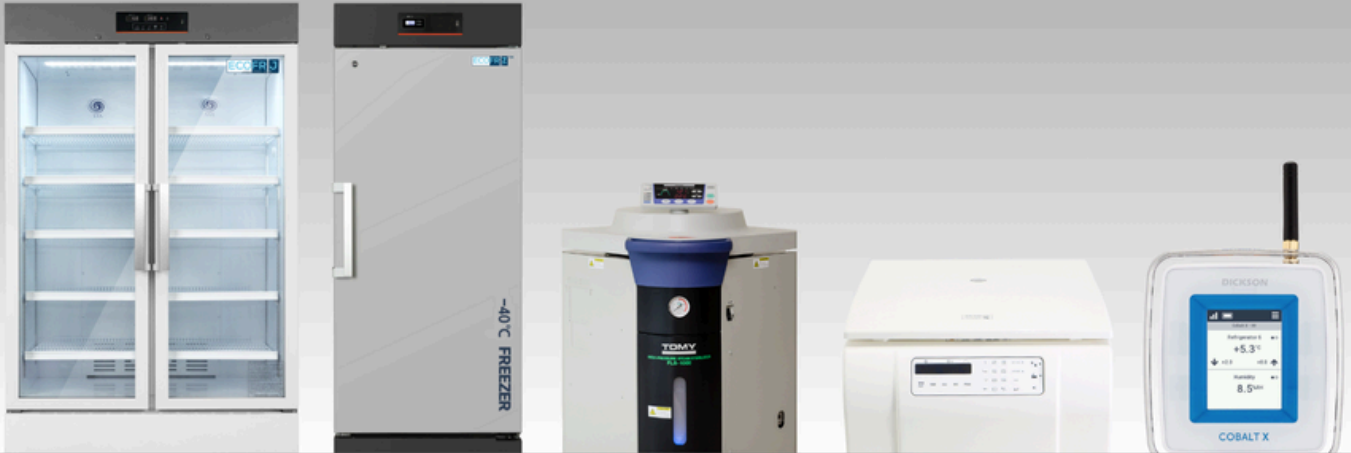


Alphavita BIO SCIENTIFIC



4, Jalan Tebuk Pulau 26/10, Seksyen 26, 40400 Shah Alam, Selangor, Malaysia
Tel: +603 5191 3943 Fax: +603 5191 3945 Whatapps : +6011-1299 3943
Email: info-pd@premierdiagnostics.com.my Web: www.premierdiagnostics.com.my

ONE STOP SOLUTION FOR YOUR LABORATORY



MICROBIOLOGY & FOOD SAFETY

LIFE SCIENCE & CELL CULTURE

LABORATORY PLASTICWARES

BIOBANKING & CRYOGENICS

TEMPERATURE MONITORING

LABORATORY EQUIPMENT & INSTRUMENT

SERVICES & TECHNICAL SUPPORT

Since 1989, FC-BIOS has been a leading source of laboratory & process supplies including consumables, equipments, chemicals & reagents. With more than 30 years of experience and support from our dedicated team, FC-BIOS is renowned for offering exceptional service and technical support.

📞 019 - 220 8238 ✉️ enquiry@fcbios.com.my 🌐 www.fcbios.com.my



Scan QR Code to explore more

L E I C A B I O S Y S T E M S

GET ON THE FAST LANE TO LAB EFFICIENCY



Discover cutting-edge insights, testimonials, and step-by-step guides on maximizing tissue processing efficiency, all in one place. Our new hub is your destination for valuable resources tailored to meet your lab's evolving needs.

SCAN QR CODE TO DIVE IN



Leicabiosystems.com/dualretort

**Advancing Cancer Diagnostics
Improving Lives**





EU-5600Pro Automatic Urinalysis Hybrid System

Throughput: 100 T/hr

Dry chemistry: 14 parameters

Microscopy: 31 parameters

3 Histograms

2 scattergrams

ADVANCED MEDICAL DIAGNOSTICS

microINR **iLine**[®]
microsystems



POCT OAT monitoring

PT and INR results

Non Coding/Auto ID

CONTACT US

+60 17-390 5700

admin@amdsolutions.com.my

www.amdsolutions.com.my



PRE-ANALYTICAL SOLUTION SYSTEM (PASS)

Alfa Diagnostik Sdn. Bhd. has made an innovation system as a solution to overcome the Pre-Analytical Errors. Patients data extracted from the Identification Card reader, test selected by using touch screen technology, generate sample barcode and patient QR code as an enhanced solution for data transfer to the Laboratory Information System (LIS).



Patient Safety
Accurate patient's information

Time & Cost Saving
Automated & Reduce Human Error

ISO 15189 | MS2702 | Patient Safety Gold
Comply with standard quality



**SMALL EFFORT
BIG IMPACT**
PREVENTION STARTS HERE



Jinquan Medical



UC Biosciences



UK NEQAS
International Quality Expertise



Delivering customer satisfaction through high quality products, excellent customer service and immediate technical support.

Suite 8-7-10, Level 7, Menara Mutiara Bangsar, Jalan Liku, Off Jalan Riong, 59100 Bangsar, Kuala Lumpur, Malaysia.
Tel: +603-22020162 Email: admin@unisoncoll.com / mthung@unisoncoll.com

thermo scientific

Thermo Scientific Sensititre System

Confidently identify bacterial pathogens and detect emerging antibiotic resistance with the gold standard equivalent accuracy of broth microdilution combined with the time-saving benefits of automation to optimize patient care, support antimicrobial stewardship, and improve lab efficiency.

With a proven history of AST accuracy, the Sensititre System delivers accurate antimicrobial susceptibility testing (AST) for the most commonly prescribed antibiotics as well as novel, last-resort therapies.

Choose from a full range of standard AST plates to use with the Sensititre AST System or design your own customized plate tailored to your formulary with access to over 300 antimicrobials and broad dilution ranges. Consolidate your susceptibility testing on a single platform.

The Sensititre System is a scalable and flexible solution, accommodating microbiology laboratories of all sizes:



cobas pure integrated solutions


Improving your efficiency

- Automated maintenance
- Predictive loading list
- Autocal
- Consolidation








Efficiency

 **5 mins**
Daily operator intervention times

 **1**
Loading event per day

 **56%**
Less calibration events



-  **One** sample tube for all CC & IM tests with industry's broadest assay menu
-  **One** set of results to track
-  **One** platform to manage and to be trained on
-  **One** user interface to interact with
-  **One** manufacturer to partner with

Roche Diagnostics (M) Sdn Bhd
(Company No.: 199101021135/23146-F)
B-20-1, Level 20, The Ascent, Paradigm,
No. 1, Jalan SS7/26A, Kelana Jaya,
47301 Petaling Jaya, Selangor, Malaysia.
Tel: +603-79672388
Email: malaysia.diagnostics@roche.com

For Healthcare Professionals Only
Registered under Act 737
MDA Registration No.: IVDA4532122-94442
MC-MY-00234



LEADING REFERENCE LABORATORY FOR:

- Autoimmune
- Histopathology
- Mycology
- Mycobacteriology
- Microbiology



>30 network lab across the region



>13 pathologists



>1500 tests available



>500 staff serving you

OUR PROMISE

- ✓ Right Tests
- ✓ Right Time
- ✓ Right Results

Accreditation & Certification:

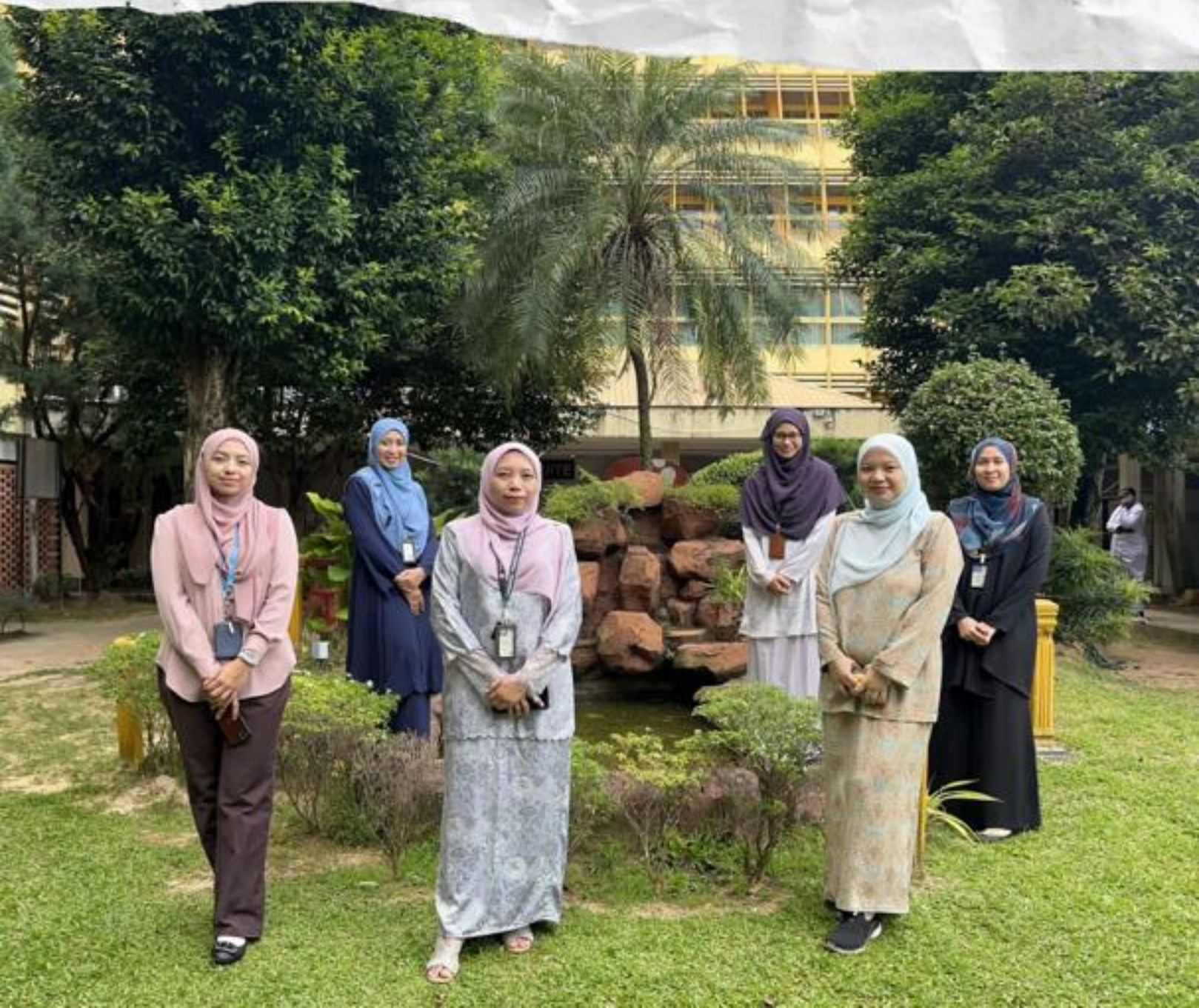


More about us:





EDITORIAL COMMITTEE





BEHIND THE SCENE





BEHIND THE SCENE





BEHIND THE SCENE





Thank You