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19th Annual Scientific Meeting, College of Pathologists, Academy of Medicine of Malaysia: Pathology and Laboratory Medicine: Current, Advancement and Emerging Trends, co-organised by Department of Pathology, Hospital Melaka, Department of Clinical Diagnostic Laboratories, Hospital Universiti Teknologi MARA (HUiTM) and the College of Pathologists, Academy of Medicine of Malaysia and held virtually on 22nd-24th June 2022. Abstracts of K. Prathap memorial lecture, plenary, symposium and paper (oral and poster) presented are as follows:

K. Prathap Memorial Lecture: Viral infections of pregnancy, beyond diagnosis to treatments

William D Rawlinson[1,2,3,4]
[1]Serology and Virology Division, Microbiology, NSW Health Pathology, Prince of Wales Hospital, Sydney, Australia, [2]School of Medical Sciences, University of New South Wales, [3]School of Women's and Children's Health, University of New South Wales, [4]School of Biotechnology and Biomolecular Sciences, University of New South Wales, Sydney, Australia

Advances in understanding viral infections such as congenital CMV continue to be introduced into clinical practice. There remain areas where additional data are needed to guide use of diagnostics, antivirals and vaccines. Areas of particular interest include i) the pathogenesis of congenital infection, particularly mechanisms of mother to child transmission (MTCT), placental cell infection, and viral genomic variability, ii) models of infection including multicellular human organ/organoid and animal models, iii) issues of transmission including screening of pregnant women routinely, biomarkers of transmission, timing of subsequent pregnancy post-primary infection, iv) clinical presentation and definitions, v) complications of infection, particularly the role in chronic disease, long term effects of infection on asymptomatic infants, long term effects of neonatal antiviral therapy, vii prevention strategies including education, primary prevention and universal newborn screening, and viii) vaccine delivery, models and new vaccines. My focus will be on diagnosis of infection, particularly in relation to congenital Cytomegalovirus (CMV). I will reflect upon how our studies of pathogenesis, prevention, and complications influences how we approach the diagnosis of congenital infection, particularly congenital CMV. Pathogenesis studies have advanced our understanding of the progress of infection during MTCT, with evidence of CMV dysregulation of cellular proteins showing specific pathways are altered. Diagnosis and complications of congenital CMV complications with new assays to identify symptomatic (mortality in 1-2%), and longer term adverse neurodevelopmental outcomes in otherwise asymptomatic infants. Prevention of CMV and CMV vaccines are occurring in many countries. This herald a new era in reducing the burden of congenital CMV in all countries.

Plenary 1: Digital Pathology and Artificial Intelligence: Embracing the Future of Modern Technology (Plenary)

Manuel Salto-Tellez
Queen's University Belfast, UK

In-silico reporting holds significant advantages in relation to traditional, microscope-based reporting, including improvements in diagnostic accuracy, long-term cost-effectiveness, laboratory quality and accreditation, and other measures of diagnostic quality such as turn-around time. In addition, the opportunity of remote reporting has become increasingly relevant after situations such as the COVID-19 crisis. Indeed, digital pathology is able to facilitate remotely the full extent of the pathological routine: access to slides, laboratory requests and clinical information; intradepartmental consultations, sign-outs and resident teaching; attendance to multidisciplinary team meetings; remote interdepartmental expert consults and remote, extramural teaching. However, the main advantage of diagnostic digitisation in routine pathology is only beginning to be a practical realisation, holding significant promise to represent a true disruptive diagnostic approach: the application of digital pathology and artificial intelligence tools in diagnostics, either as clinical decision support tools or as automated diagnostic decision algorithms. These tools are beginning to emerge at many levels, applied to H&Es, immunohistochemistry or new, complex hybridisation approaches such as multiplex immunofluorescence. This plenary lecture will review this evidence in some detail, placing these developments in the overall evolution of microscopic pathology since its establishment as a clinical discipline.

AP02 Fibrosarcomatous dermatofibrosarcoma protuberans

Dayangku Norlida A. Ojep, Mohammad Zulkarnaen Ahmad Narihan, Than Than Aye
Department of Pathology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak

Introduction: Dermatofibrosarcoma protuberans (DFSP) is a fibrohistiocytic tumour that commonly recurs locally due to its infiltrative growth. Classically, DFSP comprise of tumour with prominent storiform growth and diffuse CD34 expression. 'Fibrosarcomatous' dermatofibrosarcoma protuberans (FS-DFSP) is more aggressive compared to DFSP. *Case Report:* A 56-year-old man with left gluteal mass underwent a wide local excision (WLE) with initial diagnosis of DFSP. He developed two recurrences despite WLE with clear surgical margins. The recurrent tumour displayed fascicular growth as opposed to storiform pattern. There was nuclear atypia with tumour giant cells. Mitosis was 38/10hpf with atypical forms and loss of CD34 expression. Metastatic deposits were identified within the inguinal lymph node. *Discussions:* DFSP is an uncommon superficial tumour affecting adults between the third and sixth decades. FS-DFSP is a rare variant with a higher risk of local recurrence, metastasis, and death from disease. FS-DFSP is mainly seen on the trunk and the proximal extremities similar to DFSP. For FS-DFSP diagnosis, the "sarcomatous" component constitutes 5-10% of the tumour. The neoplastic cells are in fascicular pattern rather than the classical storiform growth. There is nuclear atypia with increased mitosis of > 7 mitosis/10 hpf. CD34 immunoreactivity is often lost. Adjuvant radiotherapy and targeted therapy by detection of COL1A1-PDGFB fusion gene is beneficial to reduce local recurrence and metastasis. *Conclusion*: FS-DFSP imposed significant morbidity due to its more aggressive behaviour. Hence, thorough assessment of recurrent DFSP and use of ancillary diagnostic testing is helpful to confirm the diagnosis and treatment.

AP03 Unusual molecular alteration in a synovial sarcoma

Nurwahyuna Rosli, Amanda Ang Yee Ping
Department of Pathology, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Introduction: Synovial sarcoma (SS) is a soft tissue sarcoma with specific chromosomal translocation, t(X;18)(p11.2;q11.2) that creates SS18-SSX1, SS18-SSX2 and SS18-SSX4 fusion proteins. In the routinely used fluorescence in situ hybridization (FISH) assay applying SS18 break-apart dual-colour signal probe, the common criterion for positive evaluation is seeing unpaired (isolated) red and green signals. We herein report a synovial sarcoma case with unusual FISH analysis finding. *Case report:* A 24-year-old man with no past medical history presented with left thigh swelling for 5 months, dyspnoea and cough for 2 days. Imaging revealed a 25 cm multiloculated, multiseptated mass arising from posterior thigh and a huge heterogeneous mass in the left hemithorax with pleural effusion. Biopsy of the thigh mass showed high grade spindle cell lesion with positivity towards CD99, pan-cytokeratin and BCL2. FISH analysis for SS18 gene showed many nuclei with loss of green signal with 1 to 2 extra red signals and 1 to 2 fused signals. The findings were consistent with synovial sarcoma with peculiar unbalanced rearrangement of the SS18 gene. *Discussion:* Synovial sarcoma showing loss of a green signal in the SS18 FISH has been reported as a variant positive FISH pattern for the molecular diagnosis of SS. This is following positive SS18-SSX gene fusion transcripts on reverse transcriptase-polymerase chain reaction (RT-PCR) and sequencing in cases with similar FISH findings. Postulated mechanisms in this type of FISH appearance include monosomy of chromosomes X and 18, aneuploidy of chromosome 18 or amplification 18q with deletion in a part of the 3' end.

AP04 Leiomyosarcoma with partial rhabdomyoblastic differentiation

Mohammad Zulkarnaen[1], Dayangku Norlida Awang Ojep[1], Than Than Aye[1], Chan Wai Hoong[2]
[1]Department of Pathology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak; [2]Department of Orthopaedics, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak

Introduction: Leiomyosarcoma (LMS) is a malignant neoplasm showing pure smooth muscle differentiation. LMS with rhabdomyoblastic component in the soft tissue is a rare entity described in only few cases in the literature. Previous studies of LMS with rhabdomyoblastic differentiation have indicated a poorer prognosis of this tumour compared to the classical LMS. *Case Report:* A 78-year-old male patient presented with a painful mass at the right scapula for 4 years. Excision was performed and histopathological diagnosis was LMS grade 2 with involvement of the surgical margins. Subsequent serial radiological scans revealed no disease progression. However, he developed recurrence one year after the initial excision. A second wide local excision was performed with right total scapulectomy. The tumour showed hypercellularity with a mixture of caldesmon and desmin positive spindled cells arranged in fascicles and desmin positive large multinucleated cells with abundant cytoplasm (rhabdomyoblastic cells). Areas of positivity towards myogenin were also seen. Thus, a diagnosis of recurrent LMS with partial rhabdomyoblastic changes was rendered. *Discussion:* Leiomyosarcoma of the soft tissue account for 5 to 10% of soft tissue sarcoma. The presence of rhabdomyoblastic cells has been reported in various types of malignancy and has been determined to be a predictor of aggressive behaviour of neoplasms regardless of tumour histogenesis. The coexistence of rhabdomyoblastic component within LMS represent a poorer prognostic parameter.