The International Congress of Pathology & Laboratory Medicine (ICPALM) 2025: Pathology & Artificial Intelligence: Transforming Diagnostic & Patient Care held on 21st – 23rd July 2025 at Shangri-La Hotel, Kuala Lumpur, Malaysia

ICPALM 2025: International Speakers

1. Anatomical Pathology

Cancer reversion: A new therapeutic approach from systems biology

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Current cancer treatments predominantly rely on inducing cancer cell death. However, from an evolutionary perspective, this approach inherently leads to limitations such as drug resistance, recurrence, and adverse side effects. What if cancer cells could be reprogrammed to revert to a state resembling normal cells instead of being destroyed? In this talk, I will introduce the concept of 'cancer reversion', a novel therapeutic strategy that aims to reverse cancer cells to a non-malignant state from a systems biology perspective. Furthermore, our recent research findings will be discussed, highlighting how this approach has the potential to overcome the fundamental limitations of current anticancer therapies and provide an eventual cure of cancer while maintaining the quality of life of patients.

The Challenges and Pitfalls in the Diagnosis of Extranodal Extension in Head and Neck Squamous Cell Cancers

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Extranodal extension (ENE) in p16-negative head and neck squamous cell cancers (HNSCC) is a critical prognostic factor, influencing staging, treatment decisions, and patient outcomes. However, its diagnosis presents significant challenges and pitfalls, stemming from both clinical and pathological complexities. A multidisciplinary approach, involving oncologists, radiologists, surgeons and pathologists, is essential to mitigate diagnostic pitfalls and ensure accurate staging. Clinically, ENE often manifests subtly, complicating its detection through physical examination alone. Imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI) are important for identifying radiologic ENE (rENE), yet their sensitivity and specificity remain limited, particularly in distinguishing subtle cases. Radiological findings may be confounded by inflammation, fibrosis, or adjacent anatomical structures, leading to potential misdiagnoses. Pathologically, the assessment of ENE relies on histological examination of lymph nodes (LN)s. Currently, histopathologically detected major (>2mm) ENE (pENE) in surgical neck dissection specimens from patients with HNSCC leads to treatment escalation with addition of adjuvant radiotherapy or chemoradiation given its significantly poorer prognosis. There is marked variation in the prevalence reported of pENE ranging from 20% to 80%. The reasons include variability in macroscopic examination, definitions and interobserver interpretations posing challenges in achieving diagnostic consistency. Practical guidelines have been recently published by the pENE Working Group, a body established to refine and harmonize diagnoses in head and neck pathology with the goal of improving the care provided to patients with diseases of the head and neck. pENE should be diagnosed only when viable carcinoma extends through the primary LN capsule and directly interacts with the extranodal host environment with or without desmoplastic stromal response. Identifying the original LN capsule and reconstruction of its contour can assist in the detection and assessment of pENE. Principles that can be used for assessment of pENE in challenging histologic situations such as the nodal hilum, post fine needle aspiration or adherent lymph nodes are provided.

Diagnostic Approach to Non-Neoplastic Salivary Gland Lesions

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Non-neoplastic salivary gland lesions encompass a diverse range of conditions and can broadly be divided into developmental or non-developmental. The non-developmental lesions include inflammatory, infectious, autoimmune, deposits, and obstructive pathologies. Accurate diagnosis is essential for effective management, as these lesions often mimic neoplastic processes both clinically and radiologically. A systematic diagnostic approach to these conditions, integrating clinical, radiological, and pathological findings is required. Age, gender and features such as pain, swelling, xerostomia, systemic symptoms and whether single or multiple glands are involved guide the differential diagnosis. Imaging modalities, including ultrasound, CT and MRI, play a pivotal role in characterising many lesions and identifying ductal obstructions or sialolithiasis. Fine-needle aspiration cytology (FNAC) serves as a minimally invasive tool to distinguish between inflammatory and neoplastic processes, while serological tests aid in diagnosing autoimmune conditions like Sjögren's syndrome and IgG4-related disease. Histopathological examination remains the gold standard for definitive diagnosis, particularly in cases of chronic sialadenitis or granulomatous inflammation. Non-neoplastic lesions are more frequent in major salivary glands with non-specific chronic sialadenitis constituted the most common diagnosis in surgically excised specimens. A multidisciplinary approach, involving general practice, radiologists, surgeons and pathologists,

FORENSIC (FP)

FP1: Primary Versus Secondary Head Injuries- The Importance in Forensic Pathology Practice: A case report

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Introduction: Cases of traumatic brain injury (TBI) with periods of survival are not uncommon in forensic pathology practice. Autopsy in this cohort plays a crucial role as it provides vast information from multiple points of view. *Case report:* The deceased, an adult male, was allegedly hit on the head during an altercation, succumbed to death after being treated conservatively for one and a half days. He had sustained primary and secondary head injuries. The primary head injuries had led to increased intracranial pressure, hence causing herniation and subsequently post-traumatic cerebral infarction. No significant natural disease contributed to death. *Discussion:* Differentiating primary from secondary injuries is very crucial in coming into best expert opinion for cases of TBI with period of survival. It is of paramount importance to extricate this information as not to mistake these secondary changes as contusions, as it will imply that the number of impacts and overall, the mechanisms are different.

FP2: Unravelling Mystery: Renal Tubular Acidosis in a Teen with Southeast Asian Ovalocytosis – A case report

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Introduction: Hypokalaemia paralysis is a rare but fatal condition caused by severe potassium depletion, leading to muscle weakness and potential respiratory failure. Renal tubular acidosis (RTA), which has been associated with Southeast Asian Ovalocytosis (SAO), exacerbates potassium loss, increasing the risk of severe electrolyte imbalances and hypokalaemia. We present a forensic case of a 15-year-old girl with no known medical history, who experienced progressive weight loss and weakness but did not seek further medical attention. A week before her death, she developed bilateral lower limb paralysis and loss of appetite before being found deceased at home. *Case Report:* Autopsy revealed a cachexic, pale individual with poor hygiene and no external injuries. Internally, both lungs showed pulmonary infarctions, the kidneys appeared pale, and the heart was grossly unremarkable. Histopathology, confirmed with special stains, revealed pulmonary infarction with antemortem microthrombi, renal changes consistent with RTA, and cardiomyocyte wasting. A full blood picture indicated mild anaemia of inflammation with underlying SAO. Additionally, nucleated red blood cells suggesting a hypoxic response. Postmortem potassium levels remained low at 3.9 mmol/L. The cause of death was determined as hypokalaemia paralysis, with RTA and underlying SAO as contributing factors. *Conclusion:* This case underscores the fatal risk of chronic hypokalaemia in SAO patients with renal dysfunction. The link between SAO and RTA highlights the need for early recognition, electrolyte monitoring, and timely intervention. Forensic pathology plays a key role in uncovering overlooked metabolic disorders, emphasising the importance of a multidisciplinary approach and greater awareness to prevent avoidable deaths.

FP3: Sudden Death from Peritonitis: An Autopsy Case Report of Duodenal Ulcer Perforation by Helicobacter pylori

Hazimin Syahir Jamil[1], Bashirah Mohd Nor[1], Shahirah Azman[1], Wan Ajeerah Wan Mustaffa[1], Woo Tay Cheong[1], Asyraff Mohd Najib[1], Faridah Mohd Nor[1,2]
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Introduction: Helicobacter pylori is a well-established cause of peptic ulcer disease globally. While often presenting as a chronic condition, it can lead to severe complications such as duodenal ulceration and gastrointestinal perforation. Perforation of the gastrointestinal tract may result in peritonitis, a life-threatening condition that can lead to sudden and unexpected death. In such cases, autopsy plays a crucial role in identifying underlying or previously undiagnosed causes. *Case report:* We present the case of a 24-year-old male who had experienced abdominal discomfort for five days before being found unresponsive at home. He had previously consulted a general practitioner and was treated for acute gastroenteritis. Autopsy revealed generalized peritonitis and a 0.5x0.5 cm perforated ulcer on the anterior wall of the duodenum. Histological examination showed chronic inflammation with mucosal ulceration, and special staining confirmed the presence of *H. pylori* within the affected area. *Discussion:* This case underscores the potentially fatal consequences of *H. pylori*-associated peptic ulcers. In the absence of clear clinical signs, such complications may only be discovered postmortem. Recognising *H. pylori* as a contributing factor in sudden deaths due to ulcer perforation highlights the importance of early diagnosis and treatment of peptic ulcer disease to prevent life-threatening outcomes.

FP4: Anaphylaxis at Autopsy: Unveiling the Lethal Cascade

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Anaphylaxis is a severe, acute, and potentially fatal hypersensitivity reaction that manifests as a rapidly progressing, multisystem allergic response. Clinical presentations vary from mild symptoms such as cutaneous flushing and pruritus to life-threatening respiratory compromise. Diagnosing anaphylaxis post-mortem poses a significant challenge due to the often-non-specific nature