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The Annual Scientific Meeting of College of Pathologists, Academy of Medicine of Malaysia: Opportunities and Challenges in Laboratory Medicine, was held at Riverside Majestic Hotel, Kuching, Sarawak on 27-28 June 2019. Abstracts of K. Prathap Memorial Lecture, plenary, symposium and paper (poster) presented are as follows:

K Prathap Memorial Lecture:
Opportunities and challenges for laboratory professional in patient safety

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Pathology has been the engine of healthcare system in understanding diseases and in the last few decades in monitoring therapy. However, the approach and technique we use remain very much the same. As we move into the future of the digital age and artificial intelligence, the challenge is should we continue doing the same or do we need to change and reinvent the discipline and the service we provide. To remain relevant, we have to embrace the change and move with the times. The digitization of pathology laboratories makes the specialty more efficient, specimen more reproducible and the work of pathologists less cumbersome. New technologies that produce biomedical "big data" (next generation sequencing, multiparameter / multiplex flow cytometry, high-throughput proteomics and metabolomics, systems biology analysis) have also caused us to rethink the best approach to diagnostics. While these opportunities and challenges seem daunting, we still have to grapple with old challenges of funding and leadership.

Plenary 1:
Challenges in diagnosis of monoclonal gammopathy

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The monoclonal gammopathies (MG) are a group of disorders characterised by the proliferation of clonal plasma cells to produce resulting in a detectable abnormality called monoclonal component or M-protein or paraprotein. Direct measurement of the M-protein spike by electrophoresis and immunochemical measurements of specific isotypes or free light chains pairs has provided useful information about the quantity of M-protein. Nonetheless, quantitation of M-protein by electrophoretic method gives suboptimal measurements on small M-proteins. In addition, measurements by electrophoresis of M-proteins migrating in the β- and α-regions are difficult due to the presence of normal serum proteins in those regions. The nephelometric quantitation of immunoglobulins (Igs) is a simple automated method that uses anti-human Ig antigen binding fragments (Fabs) that target the constant region of Ig. The method measures both monoclonal and polyclonal immunoglobulins, and therefore, its diagnostic use for identification of monoclonal proteins is not recommended and is also of no value for biclonal and triclonal gammopathies. Use of the serum free light chain (FLC) immunoassay, has led to improvements in the diagnosis and monitoring of patients with plasma cell dyscrasia and other monoclonal gammopathies. Not all MG secrete excess FLC. Abnormal serum FLC ratios have only been detected in 90–95% of intact Ig multiple myeloma and 40% of MGUS. Since these two patient groups can be easily diagnosed by serum M-proteins by protein electrophoresis, a combination of tests is needed to detect all MGs. Nephelometric methods using antisera specific for Ig heavy and light chain epitopes separately quantitate IgG kappa and IgG lambda, IgA kappa and IgA lambda, and IgM kappa and IgM lambda and may be useful for monitoring monoclonal proteins migrating in the beta fraction. The heavy-light, isotype-specific kappa to lambda ratio has been proposed as a potential monitoring method for IgA or IgM M-proteins migrating in the beta fraction. Although the assay is not sensitive enough to use as a routine screening method for MM, a 97% sensitivity observed in IgA MM and IgA MGUS indicates that almost all IgA MM patients can be monitored by HLC for both detection of the disease clone and quantitation using the IgA HLC assay. A 24-hour urine collection allows the quantitation of both the albumin and M-protein that has been rapidly cleared by the kidneys. The potential broad use of mass spectrometry for MG has been recently demonstrated by the application of matrix assisted laser desorption ionization – time of flight instruments (MALDI-TOF) for detecting monoclonal proteins. The Mayo Clinic group performed a large retrospective study in which patients with an assortment of plasma cell proliferative diseases had SPE, IFE, and FLC as well as urine protein electrophoresis and IFE performed at the time of diagnosis. The study shows patients would have had M-proteins detected by the various tests singly or in combination and if urine assays are removed from the diagnostic panel, there is no decrease in sensitivity. This and other studies have led the IMWG to recommend a panel of serum protein electrophoresis, immunofixation electrophoresis and FLC to screen for a MG; the inclusion of diagnostic urine testing is only recommended if amyloidosis is suspected, which simplifies collection for the patient and workflow for the laboratory and reduces costs as well.

AP-12. Pseudomyogenic haemangioendothelioma of the lower extremity

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Introduction: Pseudomyogenic haemangioendothelioma is a rare vascular tumour of intermediate malignant potential with propensity for local recurrence. It typically affects young adult male with a predilection the lower extremity, characterized by multifocality in different tissue planes. Despite of its multifocality presentation, this tumour has a relatively favourable long term prognosis. *Case Report:* We present a case of pseudomyogenic haemangioendothelioma in a young adult male, who has suffered from a local recurrence in the thigh four months after the primary tumour excision. The excised left thigh specimen showed two solid, circumscribed subcutaneous nodules with ill-defined margins. Histologically, the nodules are composed of plump spindled cells with abundant bright eosinophilic cytoplasm arranged in sheets and loose fascicles. They display ovoid-spindled mildly pleomorphic vesicular nuclei with small nucleoli resembling rhabdomyoblasts in areas. Prominent stromal neutrophil, lymphocyte and eosinophil infiltration is present. Mitotic activity is low with no area of necrosis observed. Most of the lesional cells showed positivity for CKAE1/AE3, FLI-1, ERG and CD31, and they are negative for EMA, CD34, D240, Myogenin, Desmin, S100 and CD117. The most important differential diagnosis is epithelioid sarcoma as both share several features - affects young adults, predilection for soft tissue in the distal extremities and showed spindled and epithelioid morphology. *Learning Points:* In summary, pseudomyogenic haemangioendothelioma is a distinctive locally recurrent, rarely metastasizing vascular tumour which occurs in young adult with a striking male predominance. Although sharing some features with epithelioid sarcoma, it differs by having predominant myoid appearing spindled cell morphology with the expression of FLI1 and CD31, and lack of EMA and CD34 expression. In the absence of morphological evidence of a vascular neoplasm, this tumour can be challenging and broad immunohistochemical panel with clinico-radiological correlation is rendered the correct diagnosis. Treatment options include surgery, chemotherapy and radiotherapy. Long-term follow up is recommended.

AP-13. Squamous cell carcinoma arising from an epidermal cyst: A case report

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Introduction: Epidermal cysts and squamous cell carcinoma are two common entities encountered in practice. Malignant transformation of this benign lesion is a rare occurrence. There are few case reports concerning malignant transformation of an epidermal cyst into squamous cell carcinoma. *Case Report:* We report a case of squamous cell carcinoma arising from a 30-year epidermal cyst in the left thigh of a 76-year-old man. The epidermal cyst had progressively increased in size for the past three months prior to presentation. The enlarging mass subsequently affected his daily activities. He was planned for elective surgery. Initial investigations of full blood count, coagulation test and chest X-ray were unremarkable. Intra-operatively, a large cystic mass containing thick whitish fluid were drained, compatible with an epidermal cyst. Gross examination of the cystic mass showed focal solid area. A diagnosis of squamous cell carcinoma arising from an epidermal cyst was confirmed histologically. He was referred to oncology unit for chemotherapy. Staging CT thorax revealed multiple lung nodules suggestive of metastasis. However, due to his weakened condition and lung progression, palliative care was opted. He expired nine months after his diagnosis. *Discussion:* Epidermal cyst is the commonest cutaneous cyst of the skin. Malignant transformation arising from this cyst is extremely rare. The commonest location of malignant transformation is the head and neck followed by the trunk and limb. There is male preponderance. The commonest malignant transformation is squamous cell carcinoma followed by basal cell carcinoma. The aetiology of this malignant transformation remains uncertain. Chronic irritation is suggested as a possible factor. *Learning Points:* Despite the rarity of malignant transformation of epidermal cysts, malignant change should be suspected in cases with rapid growth, ulceration or frequent recurrence. Hence, we suggest that all cutaneous cystic lesion to be completely excised and subjected for detailed histopathological evaluation.

AP-14. Renal presentation of Boeck's disease: The great imitator

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Introduction: Sarcoidosis, known previously as Mortimer's Malady or Boeck's disease is a chronic multisystem inflammatory disease of unknown etiology. It is characterized by non-caseating epithelioid granuloma in multiple organs, mainly involving the lungs and lymph nodes. Renal involvement of sarcoidosis is rare. *Case Report:* We report a case of a 38-year-old gentleman who presented with vague symptoms of abdominal pain and acute kidney injury. Examination on him revealed that he had multiple generalized lymphadenopathy with unexplained hypercalcemia. During his 2 years of follow up, his creatinine level steadily increased from 1.6 mg/dL to 4.9 mg/dL and subsequently he developed proteinuria. His serum angiotensin converting enzyme was raised. The patient was finally diagnosed as systemic sarcoidosis with renal involvement after exclusion of all other causes. Interestingly, his renal biopsy showed chronic granulomatous interstitial nephritis (GIN) with non-caseating naked epithelioid cells granuloma, similarly seen in his previous lymph nodes biopsy. Patient responded well to treatment with prednisolone. His serum creatinine level normalized to baseline within 1 year of commencement of therapy. Repeat renal biopsy showed mark