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The 8th Scientific Meeting of the College of Pathologists, Academy of Medicine Malaysia was held at the Renaissance Hotel, Kota Bahru, Kelantan from 6-7 June 2009. Abstracts of scientific presentations follow:

K PRATHAP MEMORIAL LECTURE

Update on stem cells – the stem cell niche

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The concept of a stem cell niche was first proposed by Dr Schofield in 1978, arising from an observation of a paradox: bone marrow cells from wild-type mice transplanted into mutated mice appeared to reconstitute haemopoiesis indefinitely, whilst murine CFU-S had limited serial passage capability. This led to the notion that the microenvironment (niche) where stem cells reside, matters in stem cell maintenance. This stem cell niche is thought to be a defined anatomic site where stem cells could be sustained and reproduce. It is also a place that limits the stem cell number and inhibits stem cell differentiation. Furthermore, it is a place where a more mature cell could revert to a stem cell phenotype. The hypothesis remained a dream until the year 1998, when experiments with Drosophila support this concept. Further validation of the concept came from experiments in invertebrates such as Caenorhabditis and mammalian haemopoietic stem cells. In recent years, with the advent of confocal (single-photon) microscope and two-photon video microscope, both fluorescence imaging devices, we now have some glimpses of the microstructure and function of the stem cell niche. Osteoblasts are the key niche cellular components that regulate stem cell numbers. They interact closely with a vascular niche to enable stem cell migration, homing and engraftment. The natural question that follows is whether such a niche is involved in blood disorders. Evidences from donor cell leukaemia post stem cell transplantation and experimental observations made from primary myelofibrosis appear to support that if the niche is defective, it may contribute to the pathogenesis of these clonal disorders. Besides, the niche design could be stolen by tumour stem cells and harm normal stem cells in the vicinity. It has been shown that leukaemic stem cells create tumour niche in the bone marrow. It disrupts the behaviour of normal progenitors cells, trapping them in an unfavourable microenvironment and making them not able to carry out their functions. The stolen niche design could also allow the tumour stem cells to hide against the onslaught of chemotherapeutic agents and their subsequent emergence from the sanctuary to cause relapse. Thus, understanding the operation of the normal stem cell niches or the tumour stem cell niches would lead us to identify potential therapeutic targets that may turn out to be clinically useful in the future.

SYMPOSIA PAPERS

SP1. Nodular hyperplasia – a precursor lesion of thyroid malignancy?

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Hyperplastic nodules seen in multinodular goitre is a very common histopathology finding in patients with long-standing goitre. It is due to low iodine content of the water and soil disease. Animal experiments have demonstrated a clear increase in incidence of thyroid epithelial cell carcinomas after prolonged iodine deficiency. Kelantan population has been exposed to chronic iodine deficiency. Data from 1984-2004 from HUSM study showed a steady rise in thyroid diseases. Nodular hyperplasia was the most common diagnosis made in 66.1% of 1486 thyroid specimens examined. Neoplastic diagnosis was made in 28.1% of cases of which papillary carcinoma was the commonest; 76.6%. 59.5% of the papillary thyroid carcinoma had nodular hyperplasia in the background or adjacent to malignant areas. This paper present several recent studies which support thyroid nodular hyperplasia has the potential to undergo malignant transformation. There are now several molecular markers which support this theory.

SP2. Bone tumour: approach for diagnosis

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Bone tumours have diverse morphological appearances and biological behaviour, making it critical to accurately diagnose them. Some of the problems in diagnosing these tumours include differentiating hyperplastic, reparative and pseudoneoplastic lesions from malignancy and differentiating low grade malignant lesion from a benign lesion. Patient may suffer irreparable consequences if the wrong diagnosis is made.

A practical step-wise approach for diagnosing these tumours is therefore important. It requires a close correlation of clinical, radiological and pathological findings. First of all, the relevant history must be available which also include any laboratory findings. Next, the radiological findings must be known and differential diagnoses based on imaging should be obtained from the radiologist. Pathologist must not make any diagnosis based on the tissue slides alone and no diagnosis should be given unless the radiological images have been seen. This means that a pathologist should have some basic knowledge on how to read radiological images especially plain radiographs. The radiological images are actually representing the gross description of the tumour. Any doubt about the histological features seen under the microscope must be referred back to the radiological and clinical findings. However, a confident radiological diagnosis may not outweigh the microscopic appearance of the lesion.

Lastly, approach for diagnosis should be a team work between pathologist, radiologist and the orthopaedic surgeon. The bone biopsy should be discussed together especially so for difficult cases including the best method to take the biopsy. Only then a reasonable diagnosis can be rendered after all the necessary steps mentioned have been considered.

SP3. Reactive lymphadenopathy - practical approach to diagnosis

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Lymph node excision for reactive lymphadenopathy has seen a decline with the increasing use of fine needle aspiration cytology as the initial investigative tool. Biopsies are performed only if the lymphadenopathy persists despite an FNAC impression of benign lesions or if the FNAC is inconclusive or suspicious of a malignancy. Once the initial question of reactive versus malignant has been resolved, then the major architectural pattern can give a clue as to some definitive differential diagnoses. In general, a specific diagnosis can be reached in 20-30% of all lymph node biopsies. Other than some infective forms which can be treated, there is no specific treatment available for most forms of reactive lymphadenopathy. The main aim in most cases is to exclude malignancy. Thus a diagnosis of 'non-specific' reactive lymphadenopathy is still helpful to the clinicians.

SP4. Updates on HIV infections

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AIDS has evolved from a rapidly fatal disease into a chronic condition. Complications previously not manifested, have emerged. Increased incidence of coronary heart disease to at least three-fold in HIV-infected patients as compared with the general population may be due to infection-induced chronic inflammation, even though long-term use of HAART is known to modify the lipid profile towards a proatherogenic pattern. Chronic immune activation itself plays an important role in progressive depletion of naive and central memory T cells rather than the direct cytopathic effect of the virus.

Diagnostic HIV testing and opt-out HIV screening has been recommended to be a part of routine clinical care in all health-care settings including emergency departments. The protection of susceptibles from the virus should be the main focus rather than safeguarding the rights of HIV infected persons to remain free from detection. However, false-positive misdiagnoses of screening tests and the limitations of peripheral measurements in what is really a central viral replication needs to been borne in mind.

Being an infectious disease that moves slowly from person to person by direct contact, HIV infections should be easy to prevent. However, the latter does not appear to be so in the result analysis of national preventive programmes. More priority should be given to low-cost intervention strategies rather than the traditional approaches that feature blood donation testing, harm reduction and the increasingly dim promise of future vaginal microbicides and vaccines.

SP5. Metabolic effects in HIV

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One of the commonest causes of acquired immune deficiency is by the retrovirus, Human Immunodeficiency Virus HIV-1 and HIV-2. They cause the destruction of CD4+ lymphocytes and impair cell-mediated immunity resulting in opportunistic infections, neurological disorders and cancers. Besides these renowned effects of HIV, they also result in metabolic alterations. Some of the complications related to this infection include dyslipidaemia, insulin resistance, lipoatrophy, bone disease, wasting disease, hypogonadism, chronic fatigue, nutrient metabolism disturbances,

hormonal resistance and hyperlactaemia. The complications may be related to either the infection or to the treatment of the disease. Other stressors to the immune system e.g. chemical, physical, biological, mental and nutritional may also alter the individuals' manifestations of the disease. Some of these metabolic complications will be reviewed here.

SP6. Standardisation of bone marrow trephine reporting

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Examination of the bone marrow aspirate and trephine biopsy is essential for the diagnosis of bone marrow disorders. The aspirate and trephine biopsy are complementary and they provide a comprehensive evaluation of the bone marrow. However current methods for processing and reporting of bone marrow specimens vary considerably between institutions, leading to inconsistencies in disease diagnosis or classification. Recently, the International Council for Standardisation in Haematology (ICSH) prepared guidelines[1] in an attempt to standardise the indications for bone marrow examination, specimens required and report format.

In the context of bone marrow trephine, the biopsy provides overall marrow architecture and cellularity, and gives greater sensitivity for assessment of focal lesions. In addition, it is useful for assessment of haemopoietic activity and cytological details. Trephine biopsy may be performed before or after the aspirate, and it is recommended that the core length should be at least 2 cm. Touch imprint may be made, especially if there is a dry tap, prior to fixation. The trephine biopsy report should contain adequate patient information, name of institution, specimen identifier and relevant clinical details. Percentage and pattern of cellularity, location of cellular composition, morphology and pattern of differentiation of cellular components should be described. Results of special stains, immunohistochemistry and other investigations (e.g. FISH) should be incorporated in the report. The conclusion should summarise the findings and diagnosis (or differential diagnosis) and be correlated with the aspirate findings. The final interpretation requires integration of various diagnostic approaches including peripheral blood and results of supplementary tests, in the context of the clinical findings.

SP7. Assuring quality in haemostasis lab

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Medical laboratories services are essential to patient care and therefore required to meet the needs of all patients and the clinician requirement for the care of their patients. Measures are taken to ensure the reliability of the laboratory testing and reporting. These requirements include requisition, patient preparation, patient identification, collection of samples, transportation, storage, processing and examination of the clinical samples, together with the work of validation, interpretation, reporting and advice. Staff training, safety and ethics in the medical laboratory are essential part of requirements needed. Internal quality control (IQC) and external quality assessment (EQA) or proficiency testing are also components of the laboratory quality assurance programme. IQC is used to establish whether or not a series of techniques and procedures are performing consistently over a period of time and this is to ensure day to day laboratory consistency, whereas EQA is used to identify the degree of agreement between one laboratory to another.

SP8. Tuberculosis meningitis

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Tuberculous meningitis (TM) diagnosis and management is a challenge to most physicians, because, unlike pulmonary tuberculosis, the pathogenesis, diagnosis and treatment of TM have received little attention. The common symptoms of TM are, headache (70%), loss of appetite (70%), fever (80%), vomiting (50%), and photophobia (10%). These symptoms are also seen in other meningitis, thus making clinical diagnosis very difficult. The clinical signs too are not specific to TM (neck stiffness, confusion, coma, cranial nerve palsy, hemi paresis, seizures). History of recent exposure to active tuberculosis can be helpful, so is presence of extra cranial tuberculosis on clinical assessment. Chest radiograph finding of active TB or presence of miliary changes will be helpful in some cases. The performance of Mantoux test is also of limited value, except in children.

Two large studies gave relatively acceptable results in the diagnosis of TM, by using clinical and CSF findings. The Indian study on 110 children, includes features like, symptoms of longer than 6 days, optic atrophy, focal neurological deficit, abnormal movements and a CSF neutrophil count of less than the total leucocytes. This study has a diagnostic sensitivity of 98% and a specificity of only 44%. The Vietnamese study on 108 adults, includes variables such as age, blood counts, history of illness, CSF cell counts and CSF percentage neutrophils. A score of more than 4 is suggestive of TM. This study has a sensitivity of 86% and a specificity of 79%.

However in the era of HIV co-infection, these rules cannot be applied as the patient may have other CNS infection, like cryptococcal meningitis, toxoplasma, herpes simplex infection and cytomegalovirus infections.

Radiological assessment using CT and MRI can be helpful in some cases. Basal meningeal enhancement and the presence of tuberculomas in CT were 89% sensitive and 100% specific for the diagnosis of TM. However, like the clinical presentation, radiographic presentation of viral encephalitis, sarcoidosis, meningeal metastasis and lymphoma, may be similar.

In summary, a high index of clinical suspicion is needed to diagnose TM. Empirical therapy with anti tuberculous drugs is initiated in the setting of compatible clinical, radiological and laboratory findings. The use of adjunctive corticosteroids in all cases of TM is very beneficial, in reducing inflammation and CNS complications. In some cases neurosurgical intervention is required to prevent hydrocephalus.

SP9. Laboratory diagnosis of TB meningitis : microbiology aspect

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Presently, more than 2 billion people in the world are infected with TB (i.e, one third of the world's population), of which approximately 10% will develop clinical disease. The incidence of CNS TB is related to the prevalence of TB in the community, and it is still the most common type of chronic CNS infection in developing countries.

TB is the seventh leading cause of death and disability worldwide. In 1997, TBM was the fifth most common form of extrapulmonary TB. TBM accounted for 5.2% (186) of all cases of exclusively extrapulmonary disease and 0.7% of all reported cases of TB.

More recent data suggest that TBM accounts for 2.1% of paediatric cases and 9.1% of extrapulmonary TB cases.[6] Tuberculous meningitis (TBM) is difficult to diagnose, and a high index of suspicion is needed to make an early diagnosis.

Laboratory Studies
- *CSF analysis*
  - Cell counts, differential count, cytology
  - Glucose level, with a simultaneous blood glucose level
  - Protein level
  - Acid-fast stain, Gram stain, appropriate bacteriologic culture and sensitivity, India ink stain
  - Cryptococcal antigen and herpes antigen testing
  - Culture for *M tuberculosis* (50-80% of known cases of TBM yield positive results)
  - Polymerase chain reaction (PCR): Results imply that PCR can provide a rapid and reliable diagnosis of TBM, although false-negative results potentially occur in samples containing very few organisms (<2 colony forming units per ml).

SP10. Laboratory diagnosis of TB meningitis – chemical pathology aspect

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Cerebrospinal fluid (CSF) is an invaluable body fluid in diagnosing a variety of diseases. Cultures of cerebrospinal fluid are still the gold standard for confirming the diagnosis of bacterial meningitis. However this method has some drawbacks especially in the isolation of Mycobacterium tuberculosis which takes a long time. One has to look for other modalities to support the etiological diagnosis of tuberculosis meningitis (TBM).

Besides the routine CSF laboratory parameters which may be not helpful in differentiating between TBM from other meningitis, levels of enzyme adenosine deaminase (ADA), tumour necrosis factor alpha (TNF) and Nitric oxide (NO) levels were also considered in the diagnosis of TBM.

SP11. Guidelines on stem cell banking

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Stem cells are found in most multicellular organisms. They are characterized by their ability to self renew and to differentiate into a diverse range of specialized cell types. Haemopoietic stem cells are the commonest adult stem cells in use and it has offered promising therapies for many malignant and non-malignant haematological diseases.

In view of the increasing complexity of laboratory processes used to manipulate the graft, the rising awareness of infectious disease transmission by biological products and also issues pertaining to the quality of the graft. These have created need for standards setting to regulate the whole process of HSC therapy. A few professional organizations have developed standards or guidelines to promote quality medical and laboratory practices in hematopoietic stem cell transplantation which include other therapies using cellular products. The few well established standards or guidelines available nowadays include "AABB HSC standards"; "*FACT-JACIE International Standards for Cellular Therapy Product Collection, Processing, and Administration"; "NPAAC Guidelines for laboratory procedures Related To The Processing, Storage and Infusion of Cells For Transplantation or Cell Therapy.*" etc.

In 2007, a Malaysia National Stem Cell Transplantation Committee has been set up to draft various standards/guidelines pertaining to Haemopoietic Stem Cell Transplantation and other cellular Therapies. A brief presentation on the National Standards for Collection, Processing, Storage and Infusion of Haemopoietic Stem Cells and Therapeutic Cells particularly the Storage of HSC will be highlighted.

SP12. Role of genetic testing in pathology diseases

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The translation of human genome project into clinical practice has resulted in a rapid development of genetic testing for a wide range of heritable conditions and also markers for diseases. Genetic testing plays a vital role in the diagnosis and treatment of diseases as well as for genetic screening and patient management. Genetic testing is however a complex process, and the results depend both on reliable laboratory procedures and accurate interpretation of results. It is essential that there is good communication and interaction between the laboratory professionals, clinician and the patient. Equally important is the need to develop tools to standardize reporting and interpretation of the genetic test results. The test results should be reported in a manner that is easily understood by clinicians while at the same time be sufficiently comprehensive to provide a meaningful assessment of the findings. A failure in clinician-laboratory communication could result in sample misidentification, incomplete information, prolonged turnaround times and other factors that can lead to incorrect test performance.

Genetic testing is always accompanied by genetic counseling as genetic testing may open up ethical or psychological problems. Genetic counselors can help the patients and their family members to make life decisions by providing information on the risk of occurrence of the disease, probability of disease recurrence and possibility of passing on the disease to their offsprings. Genetic testing has its limitations as well. The result of a test often does not provide sufficient information on the occurrence of symptoms, its severity and the treatment strategies for the genetic disorder (most of which has no cure). Apart from that, the cost of genetic test can be expensive. All of these factors must be taken into account when genetic testing is carried out to protect the public health.

SP13. Improving laboratory practice with automation

Aw TC

The current practice of laboratory medicine is becoming increasingly complex as pathologists have to deal with more sick patients, increasing physician demands, demanding patients and relatives, and budgetary concerns. Laboratory costs are a major component of a hospital's budget. What our customers value most are rapid and reliable results available most of the time. Increasing workload and demands necessitate more resources particularly automation and improved processes.

The bulk of any lab output is chemical pathology, an area most amenable to total automation. Total lab automation (TLA) is the complete integration of all pre-analytical, analytical and post-analytical testing in a single platform. With TLA labs will experience fewer errors and more rapid processing of test samples. However, the high cost is a major constraint, though innovative initiatives from vendors have made this a reality for several centers. This development is a boon to those facing shortages of lab staff.

There are several options available to pathologists to maximize their returns on TLA or to survive without TLA. They can simplify or enhance the Test request forms to facilitate easier test ordering. Thereafter, the samples and forms have to be transported to the lab. Automated delivery of samples via a pneumatic tube system is a crucial enabler for the lab. On arrival to the lab, samples should be processed as soon as received to avoid creating any bottlenecks. Such a policy can obviate the need for STAT or Urgent processes. The most commonly requested chemical pathology items (renal panel, liver panel, glucose, electrolytes, lipids) should be grouped together on the same analyzer. Two identical mid-range instruments are preferred over a large throughput analyzer and a small back-up device. For tests requiring centrifugation, several small high-speed (3000g) centrifuges can complete the task in 5 minutes as compared to large fuges needing 15-20 minutes. Analyzers which obviate de-capping are preferred. Rapid testing (e.g. HbA1c, hormones, tumor markers) on some

immunoassay platforms (e.g. electrochemiluminescence) have enabled patients and doctors to clarify issues at the same clinic session. Instrument layout in the lab can be optimized to need minimum walking distance. Staffing should be adequate to ensure that demands can be met throughout the day. Automated analyses of the more manual procedures (blood grouping, body fluid cell counting, urinalysis, stool occult blood) are now available. Auto-validation of common test results can provide more rapid availability of such reports. Printing of reports at the wards and clinics could also be instituted. Targeted communication of critical results will help improve productivity. Keeping constant tab of key performance indicators (e.g. turn-around time, performance of external quality assurance programs) is needed. The lab should have oversight of point of care testing e.g. glucose.

Continuous improvement of key processes requires constant dialog and feedback with all stakeholders (lab staff, nurses, and doctors). Efforts should also be directed at maintaining core competencies through continuing education, knowledge creation, attending scientific meetings, and attachments at key institutions. Another useful initiative is to engage in cost per patient report rather than outright purchases of reagents.

All labs can improve their services. The status quo is not an option. In their quest, pathologists and labs should take calculated risks.

POSTER PRESENTATIONS

P01. A case report of anaphylaxis post wasp sting

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Introduction: Anaphylaxis to animal stings poses a significant medical risk of vascular or respiratory reactions that vary according to the patient's response and nature of the insult. In Malaysia, emergency physicians frequently see patients who complain of an allergic reaction to bees and hornets but rarely to wasp sting. We present a rare case of anaphylaxis due to wasp sting. ***Case report*****:** An 8 year old boy presented to emergency unit with periorbital swelling at left upper eyelid and left middle finger post wasp sting. This was subsequently associated with facial congestion and urticarial rash involving face, upper limb and body. He also had difficulty in breathing, sweating and discomfort of the throat. Patient was tachypnoeic. Vital sign was stable. ABG showed metabolic acidosis. He was then intubated and transferred to ICU following the diagnosis of anaphylaxis post wasp sting. ***Conclusion*****:** Anaphylaxis post wasp sting is rarely seen in our community but yet can be fatal.

P02. Alpha-fetoprotein (AFP) in adults

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Introduction**:** Alpha-fetoprotein (AFP) was first described as a human tumor-associated protein. It has been shown that elevation of serum AFP above values typically found in healthy individuals occurs in several malignant diseases. ***Method*****:** Medical records of one hundred forty two patients from 2007 to 2008 were reviewed. Distribution of tumour types and serum AFP levels in patients were recorded. Data entry and analysis were done using SPSS version 12.0 and variables of interest were measured. ***Results*****:** From the analyzed data the malignant diseases occur more commonly in men 68% compared to women 32%**.** The mean (SD) age was 50.8 (1.29) years. The most common diagnosis in this group was hepatitis which constituted 35%. The second most common was chronic liver disease (CLD) 28% followed by other malignancies such as hepatoma 17%, others 14%,

hepatocellular carcinoma (HCC) 4%, and liver cirrhosis 2%. In this group, however, liver cirrhosis patient has the highest serum AFP concentration 98% followed by HCC 80%, hepatoma 79%, CLD 56%, others 44%, and hepatitis 24%. ***Conclusion*:** Elevated AFP levels have been observed in patients diagnosed with various malignant diseases. The concentration of AFP (> 200ng/ml) in serum is raised in 98% of patients with liver cirrhosis and 80% of patients with hepatocellular carcinoma. Liver cirrhosis and HCC are the most common tumours in adult patients in HUSM. An increase in serial AFP (even if <200ng/ml) is virtually diagnostic. Thus, any patient with cirrhosis and an elevated AFP, particularly with steadily rising blood levels, will either most likely develop HCC or actually already have an undiscovered HCC. However, AFP testing is not recommended as a screening procedure to detect cancer in the general population.

P03. Anti-cyclic citrullinated peptide (anti-CCP) as a useful diagnostic test for the diagnosis of rheumatoid arthritis

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Introduction*:** Rheumatoid factors (RF) are currently used in the diagnosis of rheumatoid arthritis (RA) and constitute one of the classification criteria proposed by the American college of Rheumatology (ACR). However, RF positivity shows low diagnostic specificity because RF are also present in patients with other autoimmune and infectious diseases and even in a proportion of normal healthy individuals. Recently, another test of interest in the diagnosis of RA is the assay for anti-cyclic citrullinated peptide (anti-CCP) antibody. ***Objective: To determine the sensitivity and specificity of anti-cyclic citrullinated peptide antibodies in rheumatoid arthritis patients attending HUSM using American College of Rheumatology (ACR) criteria as a gold standard. ***Materials and Methods*:** A cross sectional study was conducted from January 2008 to December 2008 on 253 patients: rheumatoid arthritis (n = 100), patients with arthritis or arthralgia but not fulfilled ACR criteria for rheumatoid arthritis (n = 153). Serum from each subject was tested for anti-CCP and IgM rheumatoid factor (IgM RF) by enzyme linked immunosorbent assay (ELISA). Sensitivity and specificity of the test were evaluated using the clinical diagnosis as the gold standard. ***Results*:** The sensitivity of anti-CCP was 71% with 94.8% of specificity. For rheumatoid factor the sensitivity was 85% and the specificity was 74.5%. Positive predictive value for anti-CCP was 89.9% whereas for rheumatoid factor was 68.5%. ***Conclusion*:** Anti-CCP antibody has a higher diagnostic specificity and positive predictive value than RF. Anti-CCP is a useful laboratory marker to confirm the diagnosis of rheumatoid arthritis and it seems to be very important to differentiate patients with rheumatoid arthritis from rheumatoid arthritis-like symptoms.

P04. Association between specific IgE levels and severity of symptoms among allergic rhinitis patients

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Introduction: Allergic rhinitis is a symptomatic disorder of the nose induced by an immunoglobulin E mediated inflammation following allergen exposure. Typical symptoms include sneezing, nasal itchiness, nasal congestion and rhinorrhoea. This study was carried out to evaluate the association between the specific IgE levels and the severity of symptoms among allergic rhinitis patients in Hospital Universiti Sains Malaysia (HUSM). ***Method***: Blood samples were collected from 128 allergic rhinitis patients who attended Otorhinolaryngology – Head & Neck Surgery (HNS) Clinic,

HUSM from January to December 2007. Serum total and specific IgE levels were analyzed for 28 allergens using Chemiluminescence assay (CLA). The interviewer guided questionnaire was used to evaluate the severity of symptoms. The data was analyzed using SPSS version 12.0. ***Results***: This study showed that there was a significant association between the specific IgE levels and the severity of allergic rhinitis symptoms for house dust mites, cockroach, cat and latex with $p < 0.05$. However, there was no significant association ($p > 0.05$) between the two parameters for other allergens. ***Conclusion***: The results showed that there was a significant association between the specific IgE levels and the severity of symptoms for house dust mites, cockroach, cat and latex.

P05. The correlation between grading of acid-fast bacilli sputum smears positivity and mycobacterium culture yield in microbiology laboratory of Sungai Buloh Hospital

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***Background*:** Direct microscopy for acid-fast bacilli with grading of sputum positivity and cultures remain the standard diagnostic procedures for the diagnosis of tuberculosis. Higher grades of positivity might be expected to be related to a positive culture. This study was done to evaluate the relationship between grading of acid-fast bacilli smear positive and *Mycobacterium tuberculosis* culture yield from sputum samples in our laboratory. ***Methodology*:** 105 sputum smears positive for acid-fast bacilli from January to December 2008 were evaluated retrospectively. Their culture yield in correlation with smears graded according to WHO standard was analyzed. ***Results*:** 80 (76.2%) sputum were positive for both acid-fast bacilli smear and *Mycobacterium tuberculosis* cultures. 25 (23.8%) sputum were positive for acid-fast bacilli smear but culture negative. In the group where both sputum smears and cultures were positive for *Mycobacterium tuberculosis*, the sputum smear grades were: 23 (28.8%) demonstrated grade 1, 3 (3.8%) grade 2, 7 (8.9%) grade 3 and 47 (58.9%) grade 4. In the group where sputum smears were positive for acid-fast bacilli and culture negative, the sputum smear grades were: 14 (56%) demonstrated grade 1, 1 (4%) grade 2, 2 (8%) grade 3 and 8 (32%) grade 4. A higher grade of smear positivity i.e. grades 3 and 4 was significant predictors of *Mycobacterium tuberculosis* culture yield (p = 0.014 and OR 3.15, 95% CI 1.23-7.87). ***Conclusion*:** This study demonstrates an association between the higher grading of acid fast bacilli sputum smear positivity and the culture yield of *Mycobacterium tuberculosis*.

P06. The usefulness of neutrophil CD64 expression in diagnosis of neonatal sepsis

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***Background*:** Neonatal sepsis is a significant cause of neonatal morbidity and mortality. It is well known that the signs of neonatal bacterial sepsis are often non-specific and may be clinically indistinguishable from those non-infectious conditions. The diagnosis of neonatal sepsis using blood culture would cause delayed in starting antibiotic therapy. Neutrophil CD64 up regulation is induced by inflammatory-related cytokines. The aim of this study was to study the usefulness of neutrophil CD 64 expression in the diagnosis of neonatal sepsis in our hospital population. ***Materials and Method*:** Peripheral blood samples from 39 term and preterm neonates admitted in the Special Care Nursery in Maternity Hospital HKL, which were suspected for sepsis, were recruited to this study. In addition to routine septic workout, 50-100 μl of blood was collected in EDTA tube to determine CD64 expression by flow cytometry. The suspected neonates were classified into two groups; septic

group (n=6), neonates who had positive blood culture with clinical signs and symptoms, and in non-septic group (n=33), the neonates had clinical symptoms and signs but negative blood culture. Additional 18 neonates who were admitted for jaundice, which were monitored without evidence of sepsis were classified as control group. ***Results*:** Results showed increased CD64 expression in septic group. The differences of CD64 expression among three groups were statistically significant (P<0.001). We were able to determine the cut off value of >5628 antibody-PE molecules per cell from ROC curve. This study exhibited moderate sensitivity (83%) with high negative predictive value (95%). However, CD64 expression had an intermediate specificity (61%) for neonatal sepsis and low positive predictive (28%) value. There was also an increased CD64 expression in clinical pneumonia. However, there was poor correlation between neutrophil CD64 and absolute neutrophil count (r=0.009). ***Conclusion*:** In conclusion, CD64 appear to be a sensitive marker in neonatal sepsis. The rapidly availability of the laboratory results would help neonatologist in the management of the neonates with sepsis.

P07. Nitric oxide, glutamine synthetase and oxidative status in different regions of brain in rat subjected to anoxia (hypobaric hypoxia)

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***Introduction*:** Reactive oxygen species (ROS) have been implicated in pathophysiology of many neurological disorders and brain function. Nitric oxide is postulated to be involved in the pathophysiology of neurological disorder due to hypoxia/ anoxia generated ischemia in brain due to increased release of glutamate and activation of N-methyl-D-aspartate receptors (NMDA receptors). To understand the NO production and its involvement in modulation of glutamine synthetase (GS) activity along with oxidative status in anoxia, nitrate /nitrite (NOx), GS, lipid peroxidation products as Thiobarbituricacid reactive substances (TBARS) and Total Antioxidant Status (TAS) were analyzed in cerebral cortex (CC), cerebellum (CB) and brain stem (BS) of rats subjected to anoxia. ***Methodology*:** Anoxia was induced in adult male Sprague-Dawley rat (test group) by keeping in a desiccator connected to a vacuum pump and the air was removed producing hypobaric conditions as per the procedure of Sadasivudu & Swamy. The rats were killed by decapitation. Control group of rats were free access to food and water and killed by decapitation. From both groups of rats, the brain regions (CC, CB and BS) were separated and homogenized. In the homogenates, Nitrate/Nitrite, GS, TBARS and TAS were assayed colorimetrically. Statistical analysis was done by using independent student t-test. ***Results*:** NOx and TBARS concentrations were increased and GS activity and TAS were decreased significantly in all the brain regions tested in rat subjected to anoxia compared to control group. ***Conclusion*:** The results of this study clearly demonstrated the involvement of NO in the pathophysiology of anoxia as well as in the decreased activity of GS. The decreased activity of GS may favor the prolonged availability of glutamic acid for excitotoxicity which leads to neuronal damage in anoxia. The increased formation of TBARS and decreased TAS indicates the presence of oxidative stress in anoxia (Hypobaric hypoxia).

P08. A case of high CK-MB levels exceeding total CK in a patient with adenocarcinoma

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***Introduction*:** Creatine kinase (CK) is a widely used cardiac marker together with the determination of activity of creatine kinase isoenzyme MB (CK-MB). The commonest presentation of its usage would be in a patient complaining of acute chest pain with high index of suspicion of an acute myocardial infarction (AMI). Various methods are available for determination of isoenzymes but immunoinhibition method is commonly used to measure CK-MB for its rapidity and easily adapted for automation. However increased CK-MB has been found in the absence of myocardial injury when macro-creatine kinase (macro-CK) is present in the plasma. We present a patient with high levels of CK-MB greater than the total CK activity itself. ***Case Report*:** A 60-year old gentleman presented to the casualty with complaints of left-sided chest pain associated with difficulty in breathing. He had been unwell for the last 2 weeks prior to this admission. Electrocardiogram on admission showed ventricular fibrillation that was successfully reverted with the use of amiodarone. Blood samples were sent for determination of cardiac enzymes and result showed elevated CKMB value more than total CK activity. The sample was further subjected to electrophoresis of CK isoenzymes and showed 87% of total CK activity were of CK-MM. Further history revealed that the patient was previously diagnosed as prostatic adenocarcinoma, a few months before this admission. ***Conclusion*:** Spuriously high CK-MB values using immunoinhibition method maybe falsely elevated due to interference by macro-CK. In this patient, malignancy is the most possible cause for the presence of macro-CK in the blood.

P09. Neoangiogenesis and cyclin D1 expression in colorectal carcinoma

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Introduction: Colorectal carcinoma is common among men and is one among the top ten cancers in Malaysia. Its clinical course is determined by prognostic parameters which include tumor size, site, histological grade and stage. Many patients have recurrences despite being diagnosed as a local disease. Cyclin D1 which is involved in the cell cycle regulation and micro vessel density [MDV] has been shown to influence tumor progression in other malignancies. To our knowledge no studies has been done looking at these parameters and their influence on colorectal carcinoma. The aim is to determine cyclin D1 expression and its relationship with Modified Dukes staging and to asses micro vessel density in peritumoural and intratumoural areas using endothelial marker CD34 and it's relationship with Modified Dukes staging. ***Method*:** This is a cross sectional study involving 61 patients reported in the Department of Pathology, HUSM. Immunohistochemical method was used for the Cyclin D1expression and identification of tumor blood vessel was done using CD 34 immuno stain. ***Results***: Cyclin D1 expression was evaluated for intensity and percentage of positive nuclei. Positive nuclear staining was found in majority of the cases (93.4%). Univariate analysis found significant correlation between percentage of positive nuclei with sex, race, lymph node metastasis and stage of tumor. Multivariate analysis showed percentage of positive nuclei have significant correlation with lymph node metastasis and stage with a P value of <0.05. Peritumoural MVD did show some correlation with parameters like size, histological grade, stage and lymph node metastasis but was not statistically significant. Intratumoural MVD showed an equivocal finding. ***Conclusion***: Percentage of positive nuclei is the most useful way to evaluate cyclin D1 expression. It was found to be an independent variable in predicting lymph node metastasis and tumour stage. Micro vessel density shows some correlation, especially the peritumoural MVD with the clinicopathological parameters.

P10. Expressions of BCL-2 and Bax in breast cancer cell and its blood vessels

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Introduction*:** Breast cancer development and progression have been associated with apoptosis. However, no study has been done to look at this activity in the blood vessels supplying the breast cancer cells. In relation to that, this study was designed to compare the expression of anti-apoptotic Bcl-2 and pro-apoptotic Bax protein on the endothelial cells of blood vessel supplying the tumour and the tumour cells of invasive ductal carcinoma. Method*:** A cross sectional study was conducted from December 2007 to October 2008. 96 cases of invasive ductal carcinoma of breast were included in the study. Tissue sections that were retrieved from archived tissue blocks were stained with immunohistochemistry stain for Bcl-2 and Bax expressions to assess for apoptotic activity. The intensity and percentage of the Bcl-2 and Bax immunostaning was used and evaluated by dividing the cytoplasmic staining reactions in four score groups. A combined score for Bcl-2 and Bax immunostaining, was obtained by adding the qualitative and semi-quantitative scores in three group. ***Results*:** Higher expression of Bax in tumour cells (93%) was seen compared to expression of Bcl-2 (66%) though statistically not significant. There was significant association ($p<0.001$) between expression of Bax of the endothelial cells with expression of Bax of tumor cells whereas expression of Bcl-2 of the endothelial cells was inversely associated with expression of Bcl-2 of tumor cells ($p<0.001$). ***Conclusion*:** This study suggested that anti-apoptotic activity played important role in breast cancer development. The large portion of cancer cells undergoing apoptosis was directly associated with the number of endothelial cells undergoing apoptosis.

P11. A case of Strongyloides stercoralis induced bilateral blood stained pleural effusion in patient with recurrent Non-Hodgkin lymphoma

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Introduction*:** Infections and malignancies are common causes of pleural effusion. Among infectious causes, hyper infection syndrome of *Strongyloides stercoralis* may occur in immunosuppressive patient. We reported rhabditiform larvae of *Strongyloides stercoralis* in pleural fluid of a patient with recurrent Non-Hodgkin Lymphoma (Diffuse large B-cell lymphoma). ***Case Report: A 62 year old man, known case of NHL was admitted to Hospital USM in March, 2008 with recurrent cervical lymphadenopathy. He was diagnosed as Non-Hodgkin lymphoma (Diffuse large B-cell lymphoma) in June, 2007 and completed chemotherapy regimen of *CHOP* for 6 cycles. Six months after completing chemotherapy, patient redeveloped cervical lymphadenopathy. At the time of admission, patient was febrile, dyspnoeic and bilateral crepitations on both lungs were present. Full blood picture show anaemia with eosinophilia (15.4%). Excisional biopsy of cervical lymph node revealed Non-Hodgkin lymphoma (Diffuse large B-cell lymphoma), diagnosed as recurrent NHL stage IV and gave salvage chemotherapy of *R-DHAC*. Patient subsequently developed pneumonia with bilateral pleural effusion and ascites. Pleural aspiration was done to relieve dyspnoea, it was blood stained and sent for cytology to exclude lymphoma infiltration to pleura cavity. Cytology of pleural fluid revealed few mesothelial cells, few lymphocytes, neutrophils and eosinophils. However, lymphoma cells were not seen. Accidentally, two coiled shaped rhabditiform larvae of *Strongyloides stercoralis* were found in Giemsa stained smear. Stool for microscopic examination also revealed rhabditiform larvae of *Strongyloides stercoralis*. ***Conclusion*:** This patient was a known case of NHL receiving chemotherapy resulting immunosuppression. Although *Strongyloides stercoralis* infection is not very

common in compare to other parasitic infection, it is common in immunosuppressive patient and present with hyperinfection and severe complications. Therefore, awareness of this parasite should be kept in mind in immunosuppressive patients.

P12. Flow cytometric analysis of lymph node tissue biopsies in lymphoma

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Introduction*:** Flow cytometry (FCM) has a broad application in medicine and has become an important tool in the diagnosis and characterization of haematologic and lymphoid disorders. Its applications include the detection of clonal cells in B-cell lymphoma, recognition of antigenic expression anomalies in B- or T-cell malignancies and the rapid measurement of cell cycle fractions. The advantages of FCM are largely based on its ability to analyze very rapidly, even in small samples, multiple cell properties simultaneously, intracellular antigens and DNA content. Although FCM is ideal for fluids, it can also be useful in lymphoid tissues, where single-cell suspensions can be obtained. In developed countries FCM has been readily performed on tissue biopsies such as lymph nodes for diagnostic purposes. Our preliminary study had utilized this technique in diagnosing lymphoma using lymph node tissue biopsies. ***Method: From September 2007 to October 2008, lymph node tissue specimens from eleven cases were obtained for flow cytometric analysis. The specimens (0.5 cm to 2.0 cm) were processed and incubated with selected panels of monoclonal antibodies. Analysis was performed by FACSCalibur (Becton Dickinson, USA). The specimens were also sent to the Histopathology Laboratory for histological diagnosis. ***Results*:** The diagnoses of seven (64%) cases by FCM were in concordance with the histological diagnosis. One case was chronic lymphocytic leukemia, two cases were follicular lymphomas, two cases were diffuse large B-cell lymphomas and two cases were T-non Hodgkin's lymphoma. Two cases of metastatic carcinoma were diagnosed as non-haemopoietic neoplasm and two cases of Hodgkin's lymphoma (18%) were rendered inconclusive by FCM. ***Conclusion*:** Our findings showed that flow cytometric analysis of the lymph node tissues can be readily performed to diagnose non-Hodgkin's lymphoma. However, its use in the diagnosis of Hodgkin's lymphoma remained difficult.

P13. Correlation of estrogen receptor and histopathologic characteristics of primary breast cancer in women in Sabah

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***Introduction*:** Certain human breast tumours contain Estrogen Receptor (ER)and the objective response to various endocrine therapies in this tumour is about 60%.ER negative tumours rarely respond to endocrine treatment.ER also associates with several histologic variables that relates with breast tumour differentiation and the patient prognosis. ***Method*:** This study is cross sectional hospital and laboratory based study that was performed on 158 tissue samples of patients with breast cancer admitted in Hospital Queen Elizabeth during one year period from 1st of August 2006 to 31st of July 2007 . All patients histologically diagnosed as primary breast cancer are included. Fine needle aspiration biopsy , core and tru cut biopsy specimens were excluded. We determined the histologic type and grade of tumour by H&E and immunohistologic technique using monoclonal antibodies for ER .The intensity and percentage of nuclear immunostaining is used and evaluated. ***Results*:** Among 138 infiltrating duct carcinoma of NOS type , 95 gave positivity to ER(72%) and the remaining 43 cases (28%) gave negative reactivity. All tumours with histologic grade 1 or nuclear

grade 1 were ER positive or border line positive . Ninety two percent of ER negative tumours were histologic grade 3 and 86 % were nuclear grade 3.There is no relationship between ER and other morphologic types of breast cancer. ***Conclusion*:** The evaluation of Estrogen Receptor is valuable to predict response to therapy. In our study72% of Infiltrating duct carcinomas showed ER positivity and 28 % gave negative reactivity. Tumours in all grade showed ER positivity .However the ER determination used in connection with histologic evaluation of nuclear grading are of definite value in dividing the breast cancer patient into groups of different expectancy of the future outcome of their disease.

P14. Screening for large genomic rearrangements (LGR) in the BRCA1 and BRCA2 genes in Malaysian patients with breast cancer

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Introduction: Mutation screening for the breast cancer predisposing gene, *BRCA1* and *BRCA2* has increased our understanding of the etiology of breast cancer in the Malaysian population. The identification of mutations in these genes have important implications for the clinical management of patients. This is the first study and report on detecting LGR in Malaysian patients with breast cancer. ***Method***: Seventy three high risk breast cancer patients and 41 patients with sporadic breast cancer were recruited from Universiti Kebangsaan Malaysia Medical Centre (UKMMC), Hospital Kuala Lumpur (HKL) and Hospital Putrajaya (HPJ). Twenty ml of blood was collected after informed consent was taken and screening of *BRCA* LGR was performed by multiplex ligation-dependent probe amplification (MLPA), followed by quantitative PCR (QPCR) for confirmation of positive cases. ***Results***: Two novel *BRCA1* rearrangements were detected in patients with sporadic breast cancer, and both were confirmed by QPCR. There were no LGR found in *BRCA1* among high risk breast cancer patients. The two *BRCA1* LGRs found were amplification of exon 3 and exon 10. No *BRCA2* LGR was found in both high risk and sporadic breast cancer patients. ***Conclusion***: The two novel mutations found in this study suggest that *BRCA* LGR may be more common in sporadic breast cancer. However, studies on a larger number of cases are needed to better understand of the role of genomic rearrangements in the *BRCA* gene of both high risk and sporadic breast cancer.

P15. Sentinel lymph node biopsy – experience in Prince Court Medical Centre

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Introduction*:** Prince Court Medical Centre (PCMC) officially started its service in July 2008 and soon after sentinel lymph node biopsy (SLNB) was offered to patients with clinically node negative stage 1 or 2 breast cancer. It is the first and only centre in Malaysia to offer such a service. ***Method: Patients with confirmed diagnosis of breast carcinoma are selected by the surgeon based on tumour size of less than 3.0 cm in diameter and no clinically palpable or radiologically detected axillary lymph nodes. Sentinel lymph node is located by lymphoscintigraphy using technetium-99 and patent blue dye. The hot and blue node(s) is(are) identified, removed and sent for frozen biopsy. After frozen biopsy the remaining node is processed for paraffin embedding. When a frozen is considered negative, the paraffin block is step sectioned completely, taking two sections every 250μ, for H&E and immunohistochemistry (cytokeratin) stains. ***Results*:** In a period of seven months we had a

total of 5 cases. The number of sentinel lymph nodes range from 1 to 3. All the nodes on frozen, paraffin and immunohistochemistry are free of metastases. ***Conclusion*:** SLNB is an alternative form of management to axillary node dissection for patients with clinically node negative stage 1 or 2 breast cancer. It has less morbidity with less arm and axillary pain, improved range of motion, and less lymphoedema. The only disadvantage is the possibility of underestimating nodal metastases, leading to incorrect prognostic information and suboptimal treatment. False negative rate of SLNB has been reported to be about 10%. We have yet to establish our own rate.

P16. A case of massive localised lymphoedema

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We received an ovoid mass measuring 36x32x14cm and weighing about 9kg. The clinical diagnosis was liposarcoma of the inner left thigh, with a previous biopsy diagnosis of fibro-connective tissue. The convex surface of the mass was covered by corrugated skin with underlying fibro fatty tissue and fascia. On sectioning of the mass, clear fluid oozed out from the fibro fatty tissue. Cross section showed lobules of fatty tissue separated by prominent fibrous septae. A few foci of gelatinous material and calcification spots were seen. Microscopic examination, showed irregular lobules of fat, separated by thin edematous fibrous septae to dense hyalinised collagen. The densely fibrotic septae showed prominent venules and some plump fibroblasts with mild atypia. The fat lobules were hypovascular. No giant cell or floret-like cell was identified. There were cystic spaces with indistinct epithelial linings. The overlying skin displayed hyperkeratosis and papillomatosis, with focal underlying dermis containing several thin-walled blood vessels with perivascular lymphoid collections. A few foci of calcification were also present. No obvious pleomorphism, mitotic figures or lipoblasts were seen. Histologically, atypical lipoma was considered as a differential diagnosis. However, the histological findings combined with subsequent clinical information of a morbidly obese patient, led to the diagnosis of massive localized lymphoedema. Awareness of this pathological entity will make the diagnosis easier.

P17. Prevalence of BRCA1 & BRCA2 deleterious mutations in Malaysian patients with early onset breast cancer

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Introduction: Mutations in the *BRCA1* and *BRCA2* genes have been extensively studied among breast cancer patients in Caucasian population. Inherited mutations in both *BRCA1* and *BRCA2* genes accounted for approximately 10% of early onset breast cancer in most Caucasians. In Peninsular Malaysia, breast cancer was recorded as the most frequent cancer across all major ethnic groups. In addition, the knowledge of *BRCA1* and *BRCA2* mutations among young Malaysian breast cancer patients is limited and poorly understood. We undertook this study to investigate the prevalence of *BRCA1* and *BRCA2* deleterious mutations in young Malaysian breast cancer patients. ***Method*:** Thirty-eight early onset breast cancer patients, regardless of family history and bilateral breast disease were recruited from three breast clinics (UKMMC, HKL and Hospital Putrajaya). Ten mls of peripheral blood were collected from each of these patients. Extraction of genomic DNA was

done by using standard procedure. Full DNA sequencing was carried out to detect the presence of *BRCA1* and *BRCA2* mutations in these patients. ***Results:*** Mutational analysis revealed five deleterious mutations in five patients (5/38; 13%) of which three mutations were detected in the *BRCA1* (3/38; 7.9%) gene and two mutations in the *BRCA2* (2/38; 5.3%) gene. Two Malay patients were found to exhibit 1323G>T and 2845insA mutations in the *BRCA1* gene. One Chinese patient was found to have 5454delC mutation in the *BRCA1* gene. Two *BRCA2* deleterious mutations; 3337C>T and 8462delTGAC were identified in two Chinese patients. According to Breast Cancer Information Core (BIC), all of these deleterious mutations are clinically important and were previously described in only the Asian population except for 8462delTGAC. ***Conclusion:*** Our results show that the prevalence of *BRCA1* and *BRCA2* genes mutations among young Malaysian patients with breast cancer is 13%. The results are comparable with other studies.

P18. Quantitative expression of OCT-4, SOX-2, FGF-4, and REX-1 in early passage fetal stem cells isolated from human term placenta

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Introduction: The discovery of potential multipotent stem cells from various part of the placenta especially in the fetal tissues has been reported in previous study. We aimed to compare the expression of oct-4, sox-2, FGF4 and rex-1 in cells isolated from three different fetal tissues. ***Method***: Chorion, chorionic villi and umbilical cord matrix cells were obtained from human term placenta and maintained in F12/DMEM medium supplemented with 10% FBS, 1% Glutamax, 1% Vitamin C and 1% Antibiotic antimycotic. Cells at passage 0 were harvested and lyzed in Tri-Reagent. Total RNA was extracted according to the method recommended by the manufacturer. The stemness genes; oct-4, sox-2, rex-1 and FGF4 expression level were measured with two-step quantitative RT-PCR. PCR products were separated by electrophoresis on 2% agarose gels and stained with ethidium bromide. Expression level of each gene was then normalized to GAPDH. ***Results*:** The results confirmed expression of oct-4, sox-2, FGF4 and rex-1 in chorion, chorionic villi and umbilical cord matrix cells. Fetal cells from chorion showed the highest expression of all the markers with significantly higher expression of oct-4 and sox-2.
Conclusion: In conclusion, placenta tissue is rich in stem cell with chorion as the most potential source of stem cells from placenta for cell therapy in clinical application.

P19. ALK-positive anaplastic large cell lymphoma: A single disease with many faces

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Background: Anaplastic large cell lymphoma (ALCL) is now a well-recognized clinicopathological entity accounting for 2% of all adult Non-Hodgkin's lymphomas (NHL) and about 13% of pediatric NHL. Defining features consist of a proliferation of predominantly large lymphoid cells with strong expression of the cytokine receptor CD30 and a characteristic growth pattern. ***Patients and Method:*** We report a series of three cases of ALK positive ALCL, recently diagnosed in our department, who presented with different clinical and histomorphological features. ***Results:*** They consisted of small cell pattern, lymphohistiocytic pattern and Hodgkin-like pattern. All three cases expressed ALK protein and CD30; characteristically highlighted the tumour cells surrounding the blood vessels.

They were also LCA and EMA positive. However, one out of three cases showed null cell type, but the remaining was T cell positive. CD15 was negative in the Reed Sternberg - like cells. Hallmark cells were present in all morphologic variants of ALCL. However, all three patients had passed away. One of them died after 4th cycle of chemotherapy, whereas the other two patients came in at advanced stage of disease and were too ill for chemotherapy and died in the ICU. ***Conclusion:*** The finding of ALK protein had shown its importance in the evaluation of lymphomas. It appears to define a clinicopathological entity (ALK lymphomas) which in the past showed much wider spectrum of morphological patterns creating problems and dilemma in the diagnosis and classification of lymphoma. The knowledge of the existence of these variants is essential in establishing the correct diagnosis. Misdiagnosis could occur due to its resemblance many other reactive cells like histiocytes and metastatic deposits. Correlation with clinical findings, radiology and histology with support from immunophenotyping by a panel of antibodies are important tools to a correct diagnosis.

P20. Prevalence of HPV genotypes in cervical samples among Malaysian women: a multicentre study

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Introduction: Human papillomavirus (HPV) is one of the most common sexually transmitted viruses. It is also believed to be the causal factor of cervical cancer. Although most infections are transient, the potential health implications are obvious. HPV type 16 and 18 are considered carcinogenic and other types (for example, 31, 33, 35, 39, 45, 52, 56, 58 and 59) also play an important role in cervical carcinogenesis. The aim of this study is to determine the prevalence of HPV genotypes in cervical samples among Malaysian women. ***Method:*** A total of 535 cytological samples have been collected from three participating hospitals (Universiti Kebangsaan Malaysia Medical Centre (UKMMC), Hospital Tengku Ampuan Rahimah, Klang and Hospital Sultanah Bahiyah, Alor Setar. Samples collected were sent to the cytopathology laboratory, UKMMC for processing and screening. HPV genotyping is done using the technology of Real-Time PCR, which can detect up to 12 HPV genotypes. Based on the cytological diagnoses, 459 (9.1%) samples were negative for intraepithelial lesion, 45 (8.9%) were positive (ASC-US, ASC-H, AGUS, LSIL, HSIL, adenocarcinoma and squamous cell carcinoma) and 31 were unsatisfactory for cytological evaluation. ***Results:*** Our results showed that 24.3% were positive for HPV. Infections with HR-HPV were found in 73.3% positive cases, 19.0% sample reported as negative for intraepithelial lesions, and 32.3% in unsatisfactory samples. Multiple HPV infections were detected in 22(4.11%) of 535 (19 (3.55%) with two genotypes and 3 (0.56%) with three genotypes). The most prevalent HPV types seen were, HPV 16(26.0%), 52(18.2%), 58(9.1%), 18(7.15%), 51(5.85%), 59(4.55%), 39(3.9%), 31(3.25%), 33(2.6%) 45(1.95%) and 35(1.3%). The distributions of HPV genotype also vary among the different cervical abnormalities and the cytologically normal samples. ***Conclusion:*** Our findings demonstrate the importance of primary screening for early detection of HPV infections in order to prevent and reduce the incidence of cervical cancer in Malaysia.

P21. Histological variations of the transition zone in Hirschsprung's disease

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Introduction: Hirschsprung's disease (HD) is a disease of the large intestine due to abnormal migration of the ganglion cells. It manifests clinically as abdominal pain and distension, chronic constipation, bowel obstruction as well as diarrhoea. Surgery is frequently done to remove the affected bowel. Assessment of the proximal margin is important to avoid inadequate resection. The transition zone (TZ) is the area of subtle innervations in between the ganglionic and aganglionic bowel. Complete characteristic of the TZ is rarely described in histological reports. Therefore the significance of the different features in the TZ to the functional outcome of the bowel is not known. The objective of this study is to better document the features of the transition zone so as to better understand the neurological abnormalities and consequently leading to enhanced evaluation of resected bowel of HD. ***Method:*** Six cases of HD were retrieved from the files of Hospital Kuala Lumpur Pathology Department. Microscopic features of the TZ were scrutinised by one histopathologist. TZ is defined as the zone between the ganglionic and aganglionic bowel. The results were recorded and analysed. ***Results:*** The morphological changes seen in the TZ include hypoganglionosis with hypertrophied nerve bundle (n=6), immature ganglion (n=1), hyperganglionosis (n=2) and ectopic ganglion (n=1). ***Conclusion:*** The microscopic features of the TZ are varied, this is important to realize especially in assessment of the proximal margins.

P22. Hirschsprung's disease with late presentation: a series of ten cases

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Introduction: Hirschsprung's disease is a congenital disorder affecting 1 in 5000 live births. There is functional bowel obstruction due to absence of ganglion in the involved bowel, resulting in a paralytic segment with accompanying dilation of the bowel proximal to it. The patients usually present in the neonatal period or in infancy with symptoms of constipation, abdominal distension and obstruction. Presentation after the infancy period is unusual. ***Method:*** Ten cases of Hirschsprung's disease presenting after the age of five years old were studied. All the patients were diagnosed as Hirschsprung's disease by histopathological examination of resected bowel segments. The clinical information, histopathological findings and treatment data were collected and analysed. ***Results:*** The patients were aged between 5 to 34 years; eight were Malays and two were Chinese; eight were males. One adult patient (34 years old), presented with acute-on-chronic abdominal obstruction, while younger patients (ages 7 to 11 years) presented with chronic constipation and subacute abdominal obstruction. Morphologically, all are short segment Hirschsprung's disease. ***Conclusion:*** Hirschsprung's disease in older children and adults, although rare, is an important entity to recognize.

P23. Paediatric intestinal pseudo-obstruction with hyperganglionosis: a report of three cases

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Introduction: Hirschsprung's disease (HD) is the most common cause of intestinal pseudo-obstruction in children. It is characterised by absence of ganglion in the affected segment of bowel. Hyperganglionosis is one of the features suggested by Meier-Ruge in 1971 to denote intestinal neuronal dysplasia (IND). IND is not a widely accepted entity mainly because of the poor reproducibility of the description by Meier-Ruge which included identification of giant ganglions and hypoganglionosis. While we believe that the latter feature is subjective and requires tedious method of assessment, hyperganglionosis is relatively easy to detect. The significance of this histological feature to the functional outcome of the patient remains un-investigated. ***Method:*** Twenty-six resected bowel specimens for HD were reviewed for hyperganglionosis. This is defined by presence of ganglions almost in a continuous line with over long segments within the myenteric plexus. ***Results:*** Three cases of hyperganglionosis were found. Two present after the infancy stage (at ages 3 and 8 years). All patients have chronic constipation and abdominal distension. One case has total hyperganglionosis, while the other two cases have concurrent HD. Resection of affected bowel and pull through were done in all cases. Two of the cases has no residual symptoms post surgery, whereas one case had constipation for 1 year post surgery which resolved after that. ***Conclusion:*** Hyperganglionosis can occur alone or with HD, and the cases have similar presentation with HD.

P24. Cervical thymoma – mimicking a thyroid mass

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Introduction: Ectopic cervical thymoma is a rare, benign tumour arising from the thymic tissue trapped during the migration of the thymus into the mediastinum from the 3rd and 4th pharyngeal pouches. As it rests in the region of the thyroid gland, it is easily misinterpreted as a thyroid lesion by clinician, sonologists and cytologists. We are reporting a case of a 36 year old lady who had a multinodular anterior neck swelling progressively increasing in size measuring 12x8cm associated with thyrotoxicosis. ***Method:*** Initial fine needle aspiration cytology (FNAC) was done on the prominent nodule of the anterior neck swelling in 2006. Subsequent total thyroidectomy was done in 2008. The following markers were used in the immunohistochemical evaluation: CK, EMA, CEA, calcitonin, thyroglobulin, chromogranin, S100 protein, CD3. ***Result:*** FNAC was interpreted as follicular cells seen suggestive of thyroiditis. The thyroidectomy specimen consisted of 3 nodules of which the largest nodules showed a mixture of neoplastic epithelial cells and lymphocytes. There was no histologic evidence of capsular invasion. The neoplastic cells were positive for CK ; focally positive for EMA and CEA. No positive result was identified for calcitonin, chromogranin, thyroglobulin and S100 protein. The lymphocytes mainly stained for CD3. No thyroid tissue seen in the largest nodule. The smaller nodules show thyroid follicles containing colloid material. ***Discussion:*** Ectopic cervical thymoma is increasingly being recognized and reported in literature. It is important to emphasize the need of keeping cervical thymoma as a differential diagnosis of anterior neck masses.

P25. P27 KiP1 expression in prostatic adenocarcinoma by immunohistochemistry and array comparative genomic hybridization (ACGH) techniques

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Introduction: 27^{Kip1} is one of the cyclin-dependent kinases inhibitor (cdki), which acts as a negative regulator in cell cycle. P27 is encoded by CDKN1B gene, which is located on the chromosome 12p13.1-p12 region. Low expression level of p27 protein has been associated with worse prognosis of many tumor types including prostate tumor. Majority of the studies published to date showed p27 expression progressively decreases with increased tumor grade and stage in prostate cancer. This study was carried out to evaluate the expression of p27 in prostatic adenocarcinoma and correlate the results with the tumor grade. ***Materials & Method:*** Fourteen prostatic adenocarcinoma specimens, retrieved from Histopathology Unit, Pusat Perubatan UKM (PPUKM) were examined by immunohistochemistry (IHC) technique. The formalin-fixed paraffin embedded (FFPE) tissues were stained with monoclonal antibody $p27^{Kip1}$ (clone SX53G8) using standard streptavidin-biotin complex immunohistochemistry (IHC) after microwave antigen retrieval. Three of 14 cases were done for array Comparative Genomic Hybridization (aCGH). Tumors were graded according to Gleason score: low grade = score 2-4, intermediate grade = score 5-7, high grade = 8-10. P27 nuclear staining was considered positive if >5% of the cancer cells showed strong staining. ***Results:*** p27 expression was not detected in low grade tumor. The expression of p27 was seen in all cases of intermediate and high grade tumor. Faint cytoplasmic was also observed. The aCGH result of the three cases showed no deletion of CDKN1B gene. P27 expression showed statistically significant correlation with the different grades of prostatic adenocarcinoma (p=0.006). ***Conclusion:*** Our finding demonstrated that P27 expression showed a trend with high Gleason grade, which was contrary with previous studies. Further analysis on more samples will be carried out.

P26. Classification of bladder cancer by microarray expression profiling

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Objectives: Critical aspects of the biology and molecular basis for bladder carcinoma remain poorly understood. To reveal fundamental differences between cancerous and non-cancerous bladder epithelium, gene expression profiling of bladder tumors representing TCC WHO Grade I, II and III was performed. ***Method:*** Single suspension was prepared from bladder biopsies. Pools of cells were made from normal urothelial. From these suspensions, labeled cRNA were hybridized to oligonucleotide microarray consisting 1,853 cancer-related genes. The obtained expression data were sorted according to Cy3/Cy5 dyes ratios and revealed 119, 235 and 183 differentially expressed genes in these different grades of tumor. Data was subjected to unsupervised hierarchical gene clustering analysis to identify co-expressed patterns of genes. Real-Time PCR-based SYBR Green1 dye detection was used to verify the microarray data. ***Results:*** Hierarchical clustering was able to segregate TCC WHO Grades II and III from TCC WHO Grade I. Based on gene functions, nine clusters of genes were identified which are associated with cell adhesion molecules, protein synthesis, oncogenes, apoptosis markers, growth factors, immunology, cell cycle regulators, transcription factors and angiogenesis. Real-Time PCR results correlate well with the microarray data where 75% of the

microarray data confirmed. ***Conclusion:*** The study indicates that gene expression patterns may be identified in bladder cancer by combining oligonucleotide microarray, hierarchical gene clustering and Real-Time PCR. These patterns give new insight and may form a basis for the construction of molecular classifiers and for developing new therapy for bladder cancer.

P27. Giant cell carcinoma of the lung: a case report

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Introduction: It may be difficult to differentiate a malignant neoplasm in a biopsy specimen when the lesion is poorly differentiated. History, physical examination, and radiological detail are substantially important for a meaningful correlation for the best of patient care. We present a case of non-small cell lung carcinoma with features suggestive of giant cell carcinoma. ***Case Presentation:*** An 82-year old male was admitted with a complaint of on and off difficulty in breathing for the past 2 months. He also had a significant weight lost since the last 2 months. He was a chronic smoker for about 60 years and stop smoking in a few months back. He has no haemoptysis or chest pain. Physical examination reveals no evidence of heart failure. Chest X-ray showed haziness in the left upper lobe. CT showed both upper and lower lobe masses in his left lung. Multiple lymph nodes were also noted. ***Conclusion:*** Giant cell carcinoma is a rare histological type of the lung tumour. It is classified as a subtype of large cell undifferentiated carcinoma by the World Health Organization. The tumour contains highly pleomorphic, often multinucleated, tumor giant cells. However, the diagnosis of giant cell carcinoma is problematic as giant cell production in lung tumours is well recognized in a variety of other types of primary carcinoma, as well as many metastatic tumours. We report a case of non small cell carcinoma which is poorly differentiated, exhibiting numerous giant cells with evidence of emperipolesis. In addition to sharing this rare case with the rest, we would like to highlight that it is important to communicate with clinical colleagues in order to get adequate information about the patient as well as to deliver messages to the clinicians about any difficulties and possibilities of a difficult case.

P28. Taqman MGB SNPs genotyping assay of Malay G6PD variants for detection of female heterozygotes – a potentially useful screening method

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Introduction: G6PD deficiency is an important cause of severe neonatal jaundice. The routine semiquantitative and quantititative methods used to diagnose G6PD deficiency fail to detect partial deficiency and female carriers respectively. Accurate diagnosis can be achieved by DNA analysis. We developed a molecular G6PD genotyping assay and evaluated its usefulness for the diagnosis of G6PD status. ***Method:*** DNA extracted from cord blood samples of 254 female Malay newborns was subjected to G6PD mutations analysis by the Duplex Taqman MGB SNP genotyping assay. Multiple sample realtime PCR amplification was performed using single reaction mix ,containing primers and probes for both wild and mutant alleles for the 3 common Malay G6PD variants in a single 96 well plate on the ABI SDS7000 (Applied Biosystem). All samples were subjected to DNA sequencing of exon 2 to exon 13 of the G6PD gene. ***Results:*** Sixteen babies were heterozygous for a G6PD deficient allele, 14/16 with G871A and 2/16 with C487T. Fourteen heterozygous babies were normal by routine fluosrescent spot test and two showed minimal activity. Red cell G6PD

activity were normal in all except 4 cases which showed partial deficiency. The Taqman MGB assay results were in concordance with DNA sequencing findings. ***Conclusion:*** The Taqman MGB multiple G6PD SNPs assay is sensitive, accurate and has the advantage of being simple, rapid and robust. We believe that this assay has a potential to become a frontline assay in the genetic screening of G6PD variants for identification of risk factors of severe neonatal jaundice.

P29. A simple molecular detection of HbS mutation in a Malay family

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Introduction: Sickle cell disease (SCD) is the commonest haemoglobinopathy in the world. It is the result of valine for glutamic acid substitution at position 6 of the β chain. Conventional detection of haemoglobin S (HbS) is by haemoglobin electrophoresis and sickling tests, both of which only provide a presumptive diagnosis of sickle cell anaemia or its carrier state. Molecular diagnosis has been the mainstay of detection method when confirmation is required. Previously a polymerase chain reaction (PCR)-based restriction enzyme analysis was used for this purpose. Recently, a simple bidirectional allele-specific amplification as described by Waterfall in 2001 was used to detect the GAG -> GTG mutation on codon 6 of the β globin gene. ***Method:*** Two sets of primers for the mutant and the wild type alleles were used in a single PCR reaction to amplify the regions of interest that result in 517 and 267 base pair (bp) fragments respectively. This method was applied to DNA samples of a family of five where the index case was affected by SCD. The patient presented with a non-resolving leg ulcer and anaemia, while the other family members were asymptomatic. Her haemoglobin electrophoresis at an alkaline pH showed dense bands at the HbS and HbF regions, while her father and two sisters had bands at HbS, HbF and HbA. The youngest sister was normal. ***Results:*** The patient was homozygous for the mutation by the presence of only one band at 267 bp fragment, while the father and her two sisters were heterozygotes, with the presence of two bands at 267 as well as 517 bp fragments. DNA sequencing of the sample confirmed the mutation. ***Conclusion:*** This case highlighted the simple and cheap yet practical method for molecular confirmation of the presence of HbS gene in subjects with homozygous or heterozygous state of the condition.

P30. A comparison of CD34+ enumeration in cord blood determined by sysmex hematology analyzer and standard flow cytometry

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Introduction: Currently, flow cytometry assays have been used as a standard method for CD34 enumeration in leukapheresis products before peripheral stem cell collection. However, flow cytometry techniques are time consuming, complex and expensive. Recently, technology has become available on a routine haematology analyser that enables the detection of human progenitor cells. Detection and enumeration of HPC by Sysmex hematology analyzer could provide a standard, cost effective and rapid alternative for predicting the yield of stem cells. The aim of this study was to analyze the number of $CD34^+$ cells measured using Flow cytometry with the Human Progenitor Cells by hematology analyzer. ***Method:*** A cross sectional study was done in Stem Cell laboratory at HUSM from November 2008 to February 2009. 3mls of EDTA anticoagulated blood from cord blood of 56 newborns were collected. Progenitor cell quantification was performed measuring HPC counts provided by the Sysmex XE-2100 hematology analyzer and $CD34^+$ counts obtained in

parallel by flow cytometry. Data were analyzed using the Statistical Packages for Social Sciences (SPSS) software version 12.0. ***Results:*** There is significant linear correlation between the number of $CD34^+$ cells measured using flow cytometry with the Human Progenitor Cells by hematology analyze ($p<0.001$). Mean for HPC measured by Hematology analyzer is 0.030 ± 0.70 and mean for CD34 count measured by Hematology analyzer is 34 ± 58.4 ***Conclusion:*** In this preliminary study , we found that there is good correlation between the number of $CD34^+$ cells measured using flow cytometry with the Human Progenitor Cells by Sysmex XE-2100 hematology analyzer.

P31. A study of hematological factors that can determine CD34+ enumeration before peripheral blood stem cells harvesting

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Introduction: The CD34 antigen is present on immature hematopoietic precursor cells and all hematopoietic colony-forming cells in bone marrow and blood. The administration of recombinant human granulocyte colony-stimulating factor (rhG-CSF) has emerged as an efficient way to accomplish mobilization peripheral blood stem cells (PBSCs). The decision to harvest PBSC is based on the enumeration of CD 34^+ cells by flow cytometry in which require daily CD34 monitoring. Currently, CD34 numeration will be initiate when the white blood cell (WBC) count is more than 1×10^3 /μL. The aim of this study was to correlate the number of $CD34^+$ cells measured using flow cytometry with the number of human progenitor cells (HPC), total white blood cells (TWBC) count, immature platelet fraction(IPF) and immature reticulocyte fraction(IRF) in patient on Granulocyte colony stimulating factor by hematology analyzer. ***Method:*** A cross sectional study was done in Stem Cell laboratory at HUSM from June 2008 to February 2009. 37 samples of 3mls EDTA anticoagulated blood were collected from patients with hematological malignancies from HUSM who had received chemotherapy and G-CSF. Data were analyzed using the Statistical Packages for Social Sciences (SPSS) software version 12.0 ***Result*:** There is significant linear correlation between the number of $CD34^+$ cells measured using flow cytometry with the Human Progenitor Cells by hematology analyzer ($p<0.001$). However, WBC, IPF and IRF were poor predictors of CD34 enumeration. ***Conclusion:*** We conclude that HPC counting can be used as screening test to guide the timing peripheral blood stem cells harvest.

P32. Preliminary results on study of factor XIII levels in neurosurgical patients and its correlation with post surgical haematoma

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Introduction: The role of Factor XIII in haemostasis is to catalyze the enzymatic cross-linking of fibrin monomers into stable polymers in the final step of the clotting cascade. Factor XIII also protects the clot against plasmatic degradation. Postoperative hemorrhage due to Factor XIII deficiency is described in various case reports in surgical fields. However, Factor XIII testing is not included in routine perioperative coagulation tests and there are not much clinical data about the significance of decreased Factor XIII levels for neurosurgical procedures. Significant post surgical haematoma after brain surgery is disastrous and often associated with severe neurological impairment or even death. Therefore, the aim of our study was to investigate the association between low factor XIII level and postsurgical haematoma after intracranial surgery. ***Method:*** All included neurosurgical patients had their blood taken pre and post surgery for factor XIII and other blood parameters. The

tests were performed using ACL 9000 analyzer. The CT brain was done for all patients within 24 hours after the surgery. The findings divided into significant haematoma, insignificant haematoma and no haematoma. The levels of factor XIII were studied in relevant to the haematoma features. ***Results:*** Fifty four patients were included for factor XIII analysis. There is significant different of mean factor XIII level before and after surgical intervention ($p<0.001$). The mean factor XIII level presurgical is higher (74.98) than the mean factor XIII level post surgical (60.75). However there was no significant correlation between factor XIII with post-surgical haematoma. Interestingly, 4 out of 5 patients with significant haematoma did have low level of factor XIII. ***Conclusions:*** Our preliminary results indicated that plasma factor XIII activity is not associated with an increased risk for post surgical haematoma in neurosurgical patients. However there is significant reduction in postoperative factor XIII likely to be due to blood loss or consumption which can lead to postsurgical haematoma.

P33. Analysis of acute transfusion reaction in Universiti Kebangsaan Malaysia Medical Centre

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Introduction: Although the blood supply now has become increasingly safer through improved donor selection and infectious disease testing, but there are still a variety of transfusion reactions that cannot be entirely eliminated. The objective of this study was to analyze all reported transfusion reactions of year 2008 in Blood Bank Unit of Universiti Kebangsaan Malaysia Medical Centre (UKMMC). ***Method:*** This was a retrospective study done on all reported cases of transfusion reaction in the Blood Bank Unit of Department of Laboratory Diagnostic Services of UKMMC for the year 2008. A total 149 cases of transfusion reactions were recorded out of total 25,824 transfusions. Incidence and type of different transfusion reactions were find out. Number and percentages of red cells, platelets, and fresh frozen plasma (FFP) involved in transfusion reaction were also detected. ***Results:*** A total of 25,824 transfusions were given and reported total transfusion reactions were 149. The incidence rate of transfusion reaction is 1 in 173. Among the total 149 reactions, 69(46.30%) were allergic reaction and 61(40.94%) were febrile non haemolytic transfusion reaction (FNHTR). Hypotensive reactions were identified among 5 (3.36%) patients. Among the paediatric patients, 9 (6.04%) cases were reported due to haematuria where no serological evidence of haemolytic transfusion reaction (HTR) was found. One (0.06%) HTR identified which was due to error in identification of the patient. There were 4 (2.69%) cases which were identified as not likely due to transfusion reaction. Other reactions like Transfusion related acute lung injury, fluid overload, bacterial infections, Graft verses host disease etc were not reported. Majority of the reactions belonged to the red cell transfusion which accounts 111(74.50%) cases. ***Conclusion:*** The overall incidence of acute transfusion reaction was minimal. Further study is required to find out the cause of haematuria in paediatric patients and thereby to take further steps for the prevention of this complication. No fatal outcome was reported due to transfusion reactions.

P34. Karyotypic and immunocytochemical analysis of the human embryonic stem cell line BG01

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Introduction: The BG01 hESC line was established and characterized in 2001 and is listed on the NIH Stem Cell Registry. This cell line reveals normal 46, XY chromosomal complement, maintains in culture from frozen storage and exhibits a passage time of 5 to 7 days. We are using the BG01 line to elucidate a characterization scheme for hESC lines for the following properties; (1) stability (karyotype) and (2) maintenance of the undifferentiated state (antibody staining). ***Method:*** i*n vitro* propagation of BG01 hES cells were conducted in culture dishes containing mouse embryonic fibroblasts. Cells were cultured in DMEM/F12, supplemented with FBS, knockout serum replacement, L-glutamine, nonessential amino acids, b-mercaptoethanol, penicillin/streptomycin, and bFGF at 37°C, 5% CO_2. Colony formation was visible within 2-3 days. Cells were passaged using collagenase type IV every 4-5 days. The karyotype analysis was performed using a standard G-banding technique; alternatively FISH analysis was done on metaphase spreads and interphase nuclei. Immunocytochemical staining for the following specific embryonic markers was done: NANOG, Brachyury, OCT3/4, GATA4, SOX2, SMA, MAP2, Nestin, SSEA1, SSEA4, Tra-1-81and Troponin. Positively stained cells were visualized using an epifluorescence microscope. ***Results:*** **The visual assessment** of the embryoid bodies displays the appearance and growth patterns typical for embryonic stem cells. Its karyotype verifies the stability of the cells after the derivation process or long-term growth in culture. BG01 cells express the protein markers of undifferentiated hESC: NANOG, OCT3/4, SSEA4, and Tra-1-81, and negative for early differentiation markers: Brachyury, GATA4, SOX2, SSEA1, SMA, MAP2, Nestin and Troponin. ***Conclusion:*** BG01 is stable at the level of resolution provided by G-banding and the undifferentiated state of the cells exhibited by immunostaining. The adoption of qPCR, transfection and FACs analysis for a comprehensive characterization scheme for hESC will improve the reliability of the lines and related scientific results, and will provide *in vitro* model for genetic studies on cell proliferation and differentiation.

P35. Acquired hemophilia: an unrecognized and unusual cause of bleeding diathesis

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Introduction: Acquired Hemophilia A (AHA) is a rare bleeding disorder due to the spontaneous development of auto antibodies directed against Factor VIII (FVIII). Majority of AHA cases remain idiopathic while the remaining is associated with postpartum period, autoimmune disease, malignancy and medication. The diagnosis of AHA is difficult because of lack of bleeding history and atypical bleeding pattern. It is associated with high morbidity and mortality. We report two cases of AHA. ***Results:*** **Case (1)** A 28 year old Chinese lady was referred from private clinic due to incidental finding of prolonged APTT after delivery. Prolonged gum bleeding was present. No personal or family history of bleeding was documented. Laboratory investigation revealed prolonged APTT, reduced FVIII and high FVIII inhibitor. Combined prednisolone and azathioprine treatment was successful. Coagulation profile in second pregnancy was normal. **Case (2)** A single 23 year old Chinese lady came to hematology clinic with bilateral leg swelling. History and examination revealed no significant abnormality. Her APTT was prolonged with low FVIII, increased FVIII inhibitor and falsely low levels of other clotting factors. Other laboratory results were normal. She is responding to prednisolone. ***Discussion:*** The postpartum factor VIII inhibitor formation is a rare but serious complication of pregnancy. The fact that AHA occurs after first delivery and does

not recur in subsequent pregnancies is consistent with our case. The potency of postpartum FVIII inhibitor is usually low but it was markedly increased in case 1. She responded to prednisolone and azathioprine. Investigations for autoimmune disorders were negative for case 2. No other concomitant condition was identified. ***Conclusion:*** The actual incidence of AHA may be underestimated because of difficulty in making a diagnosis. Early recognition and appropriate treatment can reduce serious consequences. AHA should be suspected in patients presenting with coagulation abnormality without personal or family history of bleeding.

P36. Evaluation of the quality of extended life random donor platelet concentrates

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Introduction: Storage of platelet concentrates may be extended beyond 5 days, provided the *in vitro* and *in vivo* analyses of the platelets showed no potential harm to the patients. This study is aimed to evaluate the quality of extended life random donor platelet concentrates by assessing the platelet function and metabolism *in vitro*. ***Method:*** 30 paired samples of unused day 5 platelet units were included. Platelets quantitation and the manual swirling assessment were performed. Metabolic activity was assessed by measuring the pH, pO_2, pCO_2, glucose and lactate concentration. The degree of platelet activation was measured by the percentage of positive platelets expression for CD62P and PAC-1 by flow cytometry method. Bacterial and fungal culture was done to confirm sterility. All tests were performed on day 5 and day 7 of stored platelet. ***Results:*** Comparing the day 5 and day 7 platelet, the extended day 7 platelet showed a significantly lower platelet counts, higher pH and lactate levels but lower glucose levels. However, all the parameters remained within the minimum specification for platelet concentrates for transfusion. The swirling pattern was observed in all platelet concentrates stored up to 7 days. The median percentage of CD62P was increased during day 7 of storage indicating that the platelet activation was increased in extended storage platelets but the implication remained unclear. There was no bacterial or fungal contamination observed. ***Conclusion:*** Despite the significant differences in some of the parameters of day 5 and day 7 platelet, the quality of extended life random donor platelet concentrates was within acceptable range for platelet transfusion. Therefore, in this study, we believed that random donor platelets concentrates may be extended the shelf-life up to 7 days. However, a further study on the *in vivo* recovery and survival of extended life platelet concentrate is required to consolidate the findings.

P37. Study of time effect and stability of sample for time dependent test (PT/APTT) in Pathology Department, Hospital Pulau Pinang, 2008

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Introduction: PT/APTT is a time dependent test. It is very important that precautions are taken to prevent or at least minimize in vitro changes that could affect the tests results. Samples need to be delivered as quickly as possible to the laboratory to prevent deterioration of the labile clotting factors. The testing should preferably be completed within 2 hours of collection. Patient samples are taken as whole blood in a Sodium citrate anticoagulant. Most of the time the requester did not state the time of sample collection which is a very important information for this time dependent tests. ***Method:*** In this study we would like to see the time effect on PT/ APTT tests and the stability of whole blood sample as we serially tests the PT/APTT at 1 hour interval for 6 hours. Pre donation samples were taken from 30 voluntary donors. The PT/APTT were run on the samples hourly for a total of 6 hours. Percentage differences between subsequent hours were compared with first hour PT/APTT for every sample. ***Results:*** In this study it is found that the samples are still stable at 6

hours. No sample showed >10% difference from the first hour PT/APTT. ***Conclusion:*** Although the samples for PT/APTT tests are still stable at 6 hours, measures should be taken to ensure that samples reach the lab as quickly as possible and to document the time sample taken for reference to the lab and to help with interpretation of results.

P38. Evaluation of different methods and media in culturing limbal epithelial stem cells

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Introduction: In a severely injured cornea that is caused by chemical, thermal or Stevens Johnson syndrome (SJS), there is destruction of limbal and corneal epithelium resulting in limbal stem cell deficiency (LSCD) which may cause blindness. Successful treatments of LSCD with bioengineered ocular surface tissue called cultivated limbal epithelial cells transplatation (CLET) have been reported in many countries. In this study, we compared the air lifted method and submerged method in culturing the limbal epithelial cells. We also evaluated a serum free media to suit our purpose for CLET in the future. ***Method:*** For submerged method, human limbal biopsies were cut into small pieces and explanted onto denuded amniotic membranes. Cells were cultured with modified Human Corneal Epithelium Medium (HCEM) without cholera toxins. For the air lifted method, limbal biopsies were cultivated on denuded membranes which were spread on cell culture inserts. Mouse feeder cells were excluded in the culture. Besides HCEM medium, we also evaluated a serum free media for the cells culturing. Cells were observed under phase contrast microscope for morphological analysis. Culture-expanded cells were subjected to H&E, immunofluorescence and immunohistochemical examinations. ***Results:*** Cells cultured with either submerged or airlifted method with HCEM media were able to expand and stratify. However, most of the cultures were contaminated with fibroblast-like cells. The serum free media alone was not able to support the growth of cells from limbal explants. When the two media were mixed, cells with only of epithelial morphology and not fibroblasts morphology were observed. Cells cultured with mixed media expressed putative stem cells markers (ABCG2 and p63) and limbal epithelial markers (cytokeratin 19, 14, integrin alpha 9 and involucrin). ***Conclusion:*** Cells were successfully culture-expanded with both methods using a mixed media. The cultured-expanded cells were able to form stratified layer of limbal epithelial cells that were undifferentiated.

P39. The incidence of human platelet specific antigen (HPA-1) polymorphism in Malay ischemic stroke patients in HUSM

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Introduction: Ischemic heart disease and cerebrovascular disease are the leading causes of morbidity and mortality among both adult men and women in the developed western world. Recent evidence indicates that the incidence of this disease is steadily increasing among Asian populations. However, the majority of cases of ischemic stroke are mutifactorial in aetiology. Recently, the Pl^{A2} (HPA-1b) allele of GPIIb-IIIa was reported to be an inherited risk factor for acute coronary artery events, but the association with ischemic stroke is less clear. HPA-1 is part of the GPIIb/IIIa complex (integrin $\alpha IIb\beta 3$), which is the numerically predominant platelet integrin, and mediates platelet aggregation by binding adhesive proteins, most notably fibrinogen and von Willebrand factor. Polymorphisms in platelet glycoprotein influence platelet function. However, assessments of their exact contribution to atherothrombotic events, including stroke, often yielded inconsistent results. ***Method:*** A prospective case control study was done by collecting **2** mls of EDTA-anticoagulated blood from 91 ischemic

stroke patients and 104 samples from normal blood donors among Malay population. DNA was isolated using phase lock gel method and HPA-1 genotype was determined by allele-specific oligonucleotide PCR (ASO-PCR) method. ***Results:*** In ischemic stroke the allele frequencies were HPA-1a/b was 6.6%; and in blood donors, the frequencies were 6.7%. There were no statistically significant differences for the analyzed HPA polymorphism frequencies either between ischemic stroke patients or blood donors. ***Conclusion:*** Our results indicate that the HPA-1b polymorphism is not associated with an increased risk for stroke in Malay population. Given the demographic and ethnic heterogeneity in the distribution of the HPA polymorphic variants, and likely their pathogenic capacity, additional studies are required, involving larger numbers of subjects together with other populations, to assess the role of HPA polymorphic variants as risk factors for stroke.

P40. Detection of PlA2 gene polymorphism in glycoprotein IIIa among patients with coronary heart disease

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Introduction: Glycoprotein IIIa (GP IIIa) is a platelet membrane receptor, which when activated leads to platelet adhesion. Platelet alloantigen (PlA) is normally situated on the GP IIIa of human platelet membrane in the more common homozygous allelic state (PlA1/A1) or less common polymorphic state (Pl A1/A2). The later polymorphic state renders the platelet hyperadhesive leading to increased incidence of coronary thrombosis. ***Aim:*** This study was designated to identify the prevalence of the homozygous (PlA1/A1) and the polymorphic (PlA1/A2) state in patients with coronary heart disease (CHD) and the possible contribution of this gene to pro-thrombotic state in this group of patients. ***Method:*** This is a cross sectional study involving 165 patients. The PlA1/A2 genotype pattern of all these patients was analysed by polymerase chain reaction (PCR) using allele specific oligonucleotide (ASO) technique. ***Results:*** It was found that 95.8% of the patients showed homozygous (PlA1/A1) allelic state, while 4.2% showed PlA1/A2 polymorphism. ***Discussion/Conclusion:*** The PlA2 polymorphism in CHD patients does not differ from the normal control group previously described in our population. Although this polymorphism does not seem to be increased in CHD patients, concomitant inheritance with other prothrombotic genes may contribute to the development of coronary thrombosis. Future analysis on the effects of multiple prothrombotic genes may answer this possibility.

P41. Detection of iron deficiency anaemia by retic haemoglobin in hemodialysis patients on rHuEPO (recombinant human erythropoietin)

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Introduction: Functional iron deficiency anaemia (IDA) appears frequently in hemodialysis (HD) patients with rHuEPO (recombinant human erythropoietin) therapy. Iron deficiency also is the most common factor associated with erythropoietin (EPO) hyporesponsiveness. However current iron indices are inadequate to demonstrate the status or utility of iron in erythropoiesis. The aim of this study was to clarify the accuracy of RET-He in diagnosing IDA in HD patients with rHuEPO therapy compared with conventional iron parameters. Secondly to detect the changes in RET-He during iron

supplementation for IDA patients, either this marker is a prospective and reliable indicator of iron sufficiency. ***Materials and Method:*** A prospective cohort study was done at Hospital Kota Bharu from August to December 2008, 55 samples was collected and analysed for RET-He, ferritin and sTfR. RET-He was measured with the XE-2100 (Sysmex). Ferritin values were determined using ELISA method by AXSYM and sTfR by ELISA Biovender. Data were analyzed using SPSS software version 12.0. ***Result:*** RET-He was significantly correlated with sTfR (p=0.004).Mean RET-He in hemodialysis patients was 31.62$\pm$3.03 pg. Sensitivity and specificity of RET-He compared with sTfR were 95% and 72% respectively. Percentage of IDA detected by RET-He was 63.64% but by sTfR and ferritin were 3.64% and 0% respectively. A follow up study showed those who were diagnosed had IDA by RET-He respond to iron supplement was significant (p=0.024). ***Conclusion:*** To date detection rate of IDA in HD patients with rHuEPO by conventional method (sTfR & ferritin) was low. However our current method by RET-He shows that it is a sensitive and specific marker of iron status in HD patients with rHuEPO. Thus we strongly suggest to use RET-He as a gold standard for diagnostic of IDA and monitoring of responses to IV iron therapy in HD patients.

P42. The Isolation of mesenchymal stem cell from human placenta

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Introduction: Mesenchymal stem/progenitor cells (MSCs) are widely distributed in a variety of tissues in the adult human body. These cells are also present in the fetal environment. However, MSCs are a rare population in these tissues. Placental tissue draws great interest as a source of cells for regenerative medicine because of the phenotypic plasticity of many of the cells types isolated from this tissue. Placental tissue is readily available and easily procured without invasive procedures. ***Aim:*** The aim of this study is to isolate mesenchymal stem cell from human placenta. ***Method:*** The amniotic membrane was minced, hemolyzed, trypsinized and finally prepared in both single-cell suspensions and small digested residues. These samples were cultured in Mesencult medium and supplemented with 100U/ml penicillin, and 100μg/ml streptomycin. Cultures were maintained at 37^0C in humidified atmosphere with 5% CO^2. Few days after initiating incubation, the small digested residues were removed and the culture was continued. Approximately weeks later at 50% confluence, the cells were trypsinized using 0.01% trypsin and replated at a dilution of 1:3 dilution. Under the same conditions, placenta-derived cells were continued to culture. ***Result:*** After 2 days in culture, the cells in the culture displayed fibroblastic morphology, which was maintained for the duration of the culture (five passages). The morphology of the cells was comparable to the mesenchymal stem cell isolated from the marrow. ***Conclusion:*** Mesenchymal-like stem cells has been successful isolated from amnion membrane of human term placenta. Further work to confirm the cells by immunophenotyping and differentiation capacity are in progress.

P43. Cardioprotective effect of post-menopausal women on hormone replacement therapy based on platelet activation markers

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Introduction: Platelet activations play a major role causing thrombosis. However women are generally protected from cardiovascular disease before menopause. Previous study showed that there was an evidence of platelet activation in post menopausal women and it was related to the level of serum estradiol (Tariq et al, 2007). Thus our aim was to study the platelet activation on post menopausal women on hormone replacement therapy. ***Method:*** Total of 48 postmenopausal women were recruited from gynaecology clinic. All women received HRT for 2 weeks on Primarine or Progestin. 10 mls of blood pre- and post HRT was collected in EDTA bottle. Platelet activation was measured by flow cytometric analysis using P-selectin, CD62 and PAC-1 FITC. ***Results:*** CD 62 and PAC-1 FITC expression post treatment with HRT show dramatically decreased compare to pre treatment level. CD62P were reduced significantly from 8.51±12.56% to 3.15 ± 6.64% and PAC-1 FITC from 41.75 ± 26.85% to 20.86 ± 19.02% after two weeks treatment ($p<0.05$). ***Conclusion:*** Short-term treatment with estradiol or combined HRT decreases the amount of circulating activated platelets as measured by flow cytometry. Thus we conclude that this short-term HRT has a cardio protective mechanism in the healthy post-menopausal women. Further study is required on its long term effect.

P44. PML/RAR*α* isoforms determine the survival of patients with acute promyelocytic leukemia (APML)

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Introduction: Reciprocal translocation between *RARα* gene on chromosome 17 and *PML* gene on chromosome 15 is the hallmark for APML. Three different *PML/RARα* isoforms have been described; S-form, L-form and V-form. Our aim was to determine the survival of different isoforms of PML/RARα in APML patients. ***Method:*** Nineteen patients were recruited between September 2004 and October 2008. Total RNA was extracted from peripheral blood or bone marrow specimen using standard methods as described in manufacturers' protocol for QIAamp® RNA Blood Mini Kits (Qiagen GmbH, Hilden, Germany). Multiplex RT-PCR was performed on all patients diagnosed as APML. ***Results:*** PML/RARα fusion transcript was detected in all them. Of these patients, 57.9% (11patients) exhibited V-form, 36.8% (7 patients) S-form, and 5.2% L-form. Four years survival was 100% and 42.8% for V-forms and S-forms respectively. Kaplan Meier analysis was performed and patients with V-form have significantly better survival than the S-form. ($p<0.005$). ***Conclusion:*** To our knowledge this is the first reported findings showing patients with V-form survived better than S-form. Thus molecular diagnosis for the detection of isoforms plays an important role in the management of patients diagnosed as Acute Promyelocytic Leukemia.

P45. A preliminary study to determine the pH of platelet concentrates and its relation to febrile non hemolytic transfusion reactions

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Introduction: Platelet transfusion can be associated with numerous adverse reaction, the most common being febrile non-hemolytic transfusion reaction (FNHTR). Although it is not life threatening, the clinical symptoms can cause discomfort to the patient as well as utilize nursing and laboratory resources. Platelet are stored at 22 C which can lead to increase lactate production due to glycolysis and fall in pH. The aim of this study was to determine the relation between pH of the platelet concentrates and febrile non hemolytic transfusion reaction (FNHTR) and to correlate the drop of pH with the WBC count and platelet count. ***Method:*** A cross sectional study was performed since August 2008 at Transfusion Medicine Unit, Hospital Universiti Sains Malaysia. All the platelets concentrates were randomly selected and the sample was separated into the second bag, which represented for analysis. Sample was subjected to full blood count and bacterial culture. Daily pH measurement was performed until the platelet concentrates were released to the patient. Data FNHTR were obtained from the patients record post transfusion. Data were then analyzed using SPSS Software. ***Results:*** Hundred samples of platelet concentrates were included in the analysis. The pH of the platelet concentrates was reduced throughout the day. There was significant linear negative correlation between pH and platelet count ($p < 0.05$). However, there is no significant correlation between pH of platelets concentrates with Febrile Non Hemolytic Transfusion Reaction ($p > 0.05$) and WBC count ($p > 0.05$). ***Conclusion:*** Our preliminary results indicate that pH of platelet concentrates will reduce with high platelets count. However, there is no significant correlation between pH of platelets concentrates with FNHTR and total white blood cell count.

P46. Innovative diagnostic tool to simultaneously identify common beta-thalassaemia mutations in Chinese Malaysians

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Introduction: Beta-thalassaemias are priority genetic diseases for prevention programs. Malaysia today, is a multiracial society. The three main races are Malays, Chinese and Indians. The Chinese-Malaysians are almost exclusively from the south-eastern provinces of China: Kwangtung, Fukien and Kwangsi. To institute a comprehensive thalassaemia control program in this region we have characterized the beta-thalassaemia mutations in patients in Malaysia since 1984. Four beta-thalassaemia mutations make up over 90% of the mutations seen in Chinese-Malaysians: CD 41-42 (-TCTT), IVSII-654(C→T), -28(A→G) and CD17(A→T). These mutations were identified by the amplification refractory mutation system (ARMS), a tedious process that requires each mutation to be identified by a separate reaction. The commonest ethnic group that has prenatal diagnosis for thalassaemia are Chinese-Malaysians. Rapid genotype characterization is fundamental in a diagnostic laboratory offering prenatal diagnosis for carrier couples. Current commercial kits that utilize RDBH analysis for beta-thalassaemia mutations are expensive. ***Methods:*** As a model, we designed a protocol based on PCR based reverse dot blot hybridization (RDBH) technology using our previous knowledge of the spectrum of common beta-thalassaemia mutations in the Chinese-Malaysians to screen these mutations simultaneously. The RDBH strip-assay was designed to have the following mutations CD 41-42 (-TCTT), IVSII-654(C→T), -28(A→G), CD17(A→T), -29(A→G) and CD 71-72(+A). ***Results:*** The protocol was first standardised with known mutations. It was reliable in distinguishing the wild-type from mutant alleles. Subsequent screening of 25 Chinese-

Malaysian beta-thalassaemia heterozygotes with unknown mutations identified the mutations. The commonest mutation identified was CD 41-42 (-TCTT). ***Conclusions:*** The protocol based on PCR based reverse dot blot hybridization (RDBH) technology can rapidly screen for common beta-thalassaemia mutations in the Chinese-Malaysians. It is appropriate for use in this ethnic group directing definitive mutation diagnosis and is suited for rapid prenatal diagnosis with a low cost per assay produced locally.

P47. Lack of BCL2 protein expression in a t(14;18)-positive lymphoma cell line may be caused by mutations

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Introduction: The t(14;18)(q32;q21) chromosomal translocation induces BCL2 protein expression in most follicular lymphomas. However in a small number of cases the expression of BCL2 is absent despite carrying the genetic aberrations. The aim of this study is to explore the mechanism that accounts for the negative immunostaining for BCL2 protein when the t(14;18) translocation is present. ***Methods:*** Protein expression of four t(14;18) translocation-positive cell lines namely, FL18, Karpas-422, SU-DHL-4 and SU-DHL-6 was analysed by Western blotting and by immunohistochemical staining. FISH and conventional cytogenetic studies were performed to confirm the cytogenetic changes in the cell lines. RT-PCR was also performed to evaluate the *BCL2* mRNA in the cell lines. Sequence analysis of genomic DNA was performed on FL18 and SU-DHL-6 cell lines for presence of mutations. ***Results:*** In FL18, Karpas-422, SU-DHL-4, the *BCL2* mRNA level correlated with the BCL2 protein expression. In contrast, BCL2 protein was not detected in the SU-DHL-6 line, despite the presence of the t(14;18) translocation and high level of mRNA. DNA sequencing showed three mutations in the SU-DHL-6 cell line and one of these mutations resulted in an amino acid replacement at residue 48 i.e. in the region recognised by the standard BCL2 antibody whereas the other two were silent mutations at residues 71 and 72. DNA sequencing of the FL18 cell line did not show any mutational changes in keeping with the immunostaining results. ***Conclusions:***The study suggested that somatic mutations of the translocated BCL2 gene may prevent epitope recognition by the BCL2 antibody, possibly due to conformational alteration, and hence cause false-negative labelling. It is recommended that in practice all BCL2-negative cases should routinely be stained with an alternative antibody to prevent false-negativity.

P48. Immunophenotyping of intraepithelial lymphocytes in coeliac disease

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Introduction: Cell-mediated immune responses appear to be important in the pathogenesis of coeliac disease. This study was carried out to (a) study the phenotypes of intraepithelial lymphocytes (IELs) in the duodenal biopsies of celiac patients (b) to make distinction between coeliac disease and refractory sprue. ***Method:*** Prepared duodenal tissue slides from paraffin-embedded duodenal biopsies taken from 226 (155 children and 71 adults) proved celiac patients were stained by mouse monoclonal anti human CD3 and CD8 using immunohistochemical technique. ***Results:*** All the 155 (100%) children coeliac patients showed positive CD3 and CD8, while 71 (100%) adult coeliacs

showed positive CD3 but 68 (95.8%) showed positive CD8 and the rest 3 (4.2%) give negative results. ***Conclusion:*** The study confirmed that coeliac disease is associated with diffuse epithelial T-cell infiltration in the duodenal biopsy, moreover it showed that abnormal phenotyping of IELs was most probably cases of refractory sprue.

P49. Bone marrow aspiration and trephine biopsy in assessing marrow infiltration

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Introduction: For the assessment of the marrow infiltration by the primary disease, it has been recommended that bone marrow aspiration and trephine biopsy be performed simultaneously. The review of both aspiration and trephine biopsy should be done together and preferably by the same pathology team. In Hospital Universiti Sains Malaysia the trephine biopsy is reviewed by the histopathology team while the aspirate is reviewed by the hematopathology team. This can result into two different impressions by the two teams. ***Method:*** This study was performed to compare the results of both bone marrow aspirates and trephine biopsies in cases suspected to have infiltration by the primary disease. Bone marrow aspiration and trephine biopsy reports for staging of the primary disease were identified. Each of the results was reported by a different team without knowing the impression made by the other team. ***Results:*** Twenty three (23) bone marrow aspiration reports over a period of 15 months (Dec 2004-March 2006) were identified. Five reports were inconclusive due to poor specimens. Ten out of 18 marrow aspiration samples showed marrow infiltration by the primary disease. However, results from trephine showed lower number of infiltration as compared to what was reported in aspiration results. ***Conclusions and Recommendations:*** It can be concluded that neither of the two investigations is diagnostically superior to the other and that both are recommended to reduce the possibility of getting false negatives. A team composed of a histopathologist and a hematopathologist with a clinician should review the samples together in cases when it is not possible to review all the samples by the same person.

P50. 7.3 Mb deletion of 18q22.3–q23 in a patient with idiopathic mental retardation and dysmorophism

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Introduction: Chromosomal imbalances are the major cause of syndromic mental retardation (MR). Many of these imbalances are caused by submicroscopic deletions or duplications which may not be detected by current cytogenetic techniques such as FISH and G-banding karyotype. Microarray-based Comparative Genomic Hybridization (aCGH) is considered to be a powerful molecular cytogenetic tool for the detection of submicroscopic chromosomal abnormalities in children with syndromic MR. We report here on a 16-year-old MR boy with normal karyotype. Clinical findings include: developmental delay, hearing impairment, scoliosis, clubfeet, congenital heart disease and dysmorphic facial features. ***Method:*** Genomic DNA of the patient was extracted from peripheral venous blood samples using DNeasy Blood Kit (Qiagen). The quality and quantity measurement of the isolated DNA was determined by spectrophotometric quantification using NanoDrop ND-1000 UV-VIS spectrophotometer and 2100 Bioanalyzer analysis (Agilent). Male genomic DNA (Promega) was used as reference DNA. aCGH was performed using a 244K 60-mer-oligonucleotides microarray

slide (Agilent) according to the manufacturer's protocol and was analyzed via DNA Analytics 4.0 sofware. ***Result:*** A deletion of the long arm of chromosome 18 involving bands q22.3–q23 was detected by aCGH with approximate size about 7.3 Mb. The deleted region has been reported to be associated with 18q-syndrome. The gene content analysis of the deleted region revealed the presence of some genes that may be indicated as good candidates in generating both neurological and dysmorphic phenotype in the patient. Within the deleted region, *Myelin Basic Protein* (MBP) gene merit further interest because of its involvement in the pathogenesis of the 18q- syndrome. ***Conclusion:*** High resolution aCGH enables the detection of 7.3 Mb deletion involving bands 18q22.3–q23 which have been reported to be associated with variable phenotype. The phenotype of this patient is in keeping with 18q- syndrome in patients with unexplained mental retardation and dysmorphism