8:25  WELCOME

8:30-8:45  MUCIN PROFILE IN GOBLET CELL CARCINOID OF THE APPENDIX
Farshid Siadat, Gomes, M., Marginean, C., Mai, K. and Nguyen, B.;
Pathology and Laboratory Medicine, University of Ottawa, Ontario, Canada.

8:45-9:00  HEMOPHAGOCYTOSIS IN LIVER KUPFFER CELLS: A CHALLENGING BUT CRITICAL DIAGNOSIS
Allison Edgecombe¹, Christopher Milroy¹,², Susan Commons¹ and Bich Nguyen¹
¹ University of Ottawa, The Ottawa Hospital, Department of Pathology & Lab Medicine, Ottawa, ON and ² Eastern Ontario Regional Forensic Pathology Unit, The Ottawa Hospital, Ottawa, ON

9:00-9:15  RARE COMPLICATION OF SILICON BREAST IMPLANT: A CASE REPORT
Thamara Jayasinghe & V. Acharya
Department of Pathology and Laboratory Medicine, University of Ottawa, Ontario, Canada.

9:15-9:30  MICROSATELLITE INSTABILITY IN ADVANCED STAGE ENDOMETRIAL ENDOMETRIOID ADENOCARCINOMA IS ASSOCIATED WITH A POOR PROGNOSIS
Scott Bradshaw and Bojana Djordjevic
Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON

9:30-9:45  A CASE OF TRILINEAGE MYELODYSPLASIA AND HEMOPHAGOCYTOSIS ASSOCIATED WITH LUPUS
Aleksandra Paliga, Shahbazi N, Bormanis J, Padmore R.
Division of Hematopathology and Transfusion Medicine, Hematology, and Nephrology, The Ottawa Hospital and University of Ottawa, Ontario Canada.
9:45-10:15 BREAK AND POSTER VIEWING (ATRIUM)

10:15-10:30 THE DIAGNOSTIC UTILITY OF HEPATOCYTE ANTIGEN, GPC3, AND IMP3 IN DISTINGUISHING BETWEEN HEPATOCELLULAR CARCINOMA AND BENIGN HEPATIC LESIONS
Farshid Siadat1, Bich Nguyen1, Marcio Gomes1, Celia Marginean1
1Pathology and Lab. Medicine, University of Ottawa, Ottawa, Ontario, Canada.

10:30-10:45 MISSED MALIGNANCY IN BIOPSY-DIAGNOSED BENIGN PAPILLARY LESIONS OF THE BREAST: CASES WITH SURGICAL FOLLOW-UP
Stephanie Petkiewicz, S. Islam. Department of Anatomical Pathology and Laboratory Medicine, the Ottawa Hospital, University of Ottawa, Ottawa, Ontario

10:45-11:00 ELECTROLYTIC METHOD FOR PROCESSING CORONARY ARTERIES CONTAINING STENTS
Scott Bradshaw and John P. Veinot
Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON

11:00-11:15 URINARY BLADDER SINUSES - A NOVEL MORPHOLOGICAL LESION WITH CLINICAL AND PATHOLOGICAL SIGNIFICANCE.
Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa, ON, Canada.

11:15-11:30 CYTOKERATIN 5 DISTINGUISHES REACTIVE UROTHELIAL ATYPIA FROM CARCINOMA IN SITU AND NON-INVASIVE UROTHELIAL CARCINOMA
Allison Edgecombe, Eric C. Belanger, Bojana Djordjevic, Bich N. Nguyen, Kien T. Mai
Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa, ON

11:30-11:45 UNSUSPECTED CILIARY BODY AND CHOROIDAL MELANOMA DIAGNOSED AFTER EVISCERATION AND ENUCLEATION: A SERIES OF CASES SEEN AT THE OTTAWA EYE INSTITUTE FROM 1996-2010
André Jastrzebski MD1,2, Seymour Brownstein MD1,2, David R Jordan MD1, Steven M Gilberg MD1, Brian C Leonard1.
Departments of 1Ophthalmology and 2Pathology, University of Ottawa, Ottawa, Ontario

11:45-1:00 LUNCH AND POSTER VIEWING (ATRIUM 2ND FLOOR, FACULTY OF MEDICINE)
1:00-2:00  
GUEST SPEAKER  
DR. SYLVIA ASA  
UNIVERSITY HEALTH NETWORK, TORONTO  
TITLE: MOLECULAR PATHOLOGY OF THYROID CANCER

2:00-2:15  
THE POSITIVE CLINICAL IMPACT ON STAPHYLOCOCCAL BACTEREMIA BY DIRECT mecA PCR TESTING OF BLOOD CULTURE BOTTLES  
Bing Wang, Peter Jessamine, Marc Desjardins, Baldwin Toye, Karam Ramotar Division of Microbiology, Department of Pathology and Laboratory Medicine, The Ottawa Hospital, The University of Ottawa

2:15-2:30  
ENHANCED EXPRESSION OF PKCi AND REPRESSION OF CELL SENESCENCE IN BREAST CANCER  
Shahrier Amin, Manijeh Daneshmand, Judith A Paget, Ian J Restall, Julie A Mersereau, Manon Simard, Doris A E Parolin, Sylvie J Lavictoire, Shahidul Islam and Ian AJ Lorimer  
Department of Pathology and Laboratory Medicine, Ottawa Health Research Institute, University of Ottawa, Ottawa, ON, Canada.

2:30-2:45  
BREAK AND POSTER VIEWING (ATRIUM)

2:45-3:00  
CASE REPORT OF HEMATOMETRA ASSOCIATED WITH ENDOMETRIOSIS, ENDOMETRIAL ABLATION, AND TUBAL LIGATION  
Farshid Siadat1, N. Mehra2, S. Singh2, M. Lamba1  
1 Department of Pathology and Laboratory Medicine,  
2 Department of Obstetrics and Gynecology, The Ottawa Hospital, University of Ottawa, Ottawa, Canada.

3:00-3:15  
EMPLOYMENT IN A MICROBIOLOGY LABORATORY IN A LARGE TERTIARY CANADIAN HOSPITAL IS NOT A RISK FACTOR FOR NASAL CARRIAGE OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA).  
Greg German, Toye, B., Ramotar, K., Desjardins, M., Suh, K., and P. Jessamine  
Division of Microbiology; Department of Pathology and Laboratory Medicine, The Ottawa Hospital

3:15-3:30  
EPITHELIAL SODIUM CHANNELS IN THE BRAIN: EFFECTS OF HIGH SALT INTAKE ON THEIR EXPRESSION  
Shahrier Amin, Erona Reza, Hongwei Wang, Frans H H Leenen.  
Department of Cellular and molecular medicine, University of Ottawa Heart Institute, University of Ottawa, Ottawa, ON, Canada.
3:30-3:45  CLEAR CELL RENAL CARCINOMA WITH TUBULAR FOLLICULAR CYSTIC ARCHITECTURE

Zuzana Kos¹, Eric C. Bélanger¹, Susan J. Robertson¹, Bojana Djordjevic¹ and Kien T. Mai¹
Department of Pathology and Laboratory Medicine, University of Ottawa and The Ottawa Hospital, Ottawa, ON, Canada

3:45-4:00  ANNOUNCEMENT OF PRIZE WINNERS AND CONCLUSION

• Nadia Mikhael Award for Best Paper presented by a Junior Resident
• 2nd Best paper by a Junior Resident
• Virbala Acharya Award for Best Presentation by a Senior Resident or Fellow
• 2nd Best paper by a Senior Resident or Fellow
• Best Poster Presentation by a Graduate Student
• 2nd Best Poster Presentation by a Graduate Student
• Best Poster Presentation by a Resident
• 2nd Best Poster Presentation by a Resident
• Dr. M. Orizaga Award for Best Teacher
POSTERS

1- REGULATION OF APOBEC3G-MEDIATED INTRINSIC IMMUNITY TO HIV INFECTION
   Kasandra Bélanger and Marc-André Langlois
   University of Ottawa, Faculty of Medicine

2- ROLE OF p300 HAT ACTIVITY IN THE ACTIVATION OF MYF5 AND MYOD
   Munerah Hamed and Qiao Li
   Department of Cellular and Molecular Medicine, Department of Pathology and Laboratory Medicine, University of Ottawa

3- APOLIPOPROTEIN E AND AMYLOID-ß INDUCED NEUROINFLAMMATION
   Evan Dorey and Wandong Zhang
   NRC Institute for Biological Sciences, Ottawa, Ontario, K1A 0R6, Canada.
   Dept. of Cellular and Molecular Medicine, Dept. of Pathology & Laboratory Medicine, University of Ottawa, Ontario, Canada

4- PHOSPHATIDYLCHOLINE METABOLISM AFFECTS TRAFFICKING OF LDL DERIVED FREE CHOLESTEROL IN CHOLESTEROL LOADED CHO CELLS
   Chandra Landry and Thomas Lagace
   University of Ottawa Heart Institute, Department of Pathology and Laboratory Medicine
   Atherosclerosis, Genetics, and Cell Biology Group

5- ROLE OF RETINOID X RECEPTOR IN SKELETAL MUSCLE DEVELOPMENT
   Melanie Le May, Qiao Li
   Departments of Pathology and Laboratory Medicine, and of Cellular and Molecular Medicine, Faculty of Medicine, University of Ottawa.

6- ASSESSMENT AND ANALYSIS OF THE RESTRICTION OF RETROVIRAL INFECTION BY THE MURINE APOBEC3 PROTEIN
   Halil Aydin and Marc-André Langlois
   University of Ottawa, Faculty of Medicine

7- IRADIOLOGY: A DIAGNOSTIC IMAGING DIGITAL LIBRARY FOR MEDICAL STUDENTS
   Anna Maria Abadir, Rebecca Peterson, Daniel Trottier, Alireza Jalali
   Faculty of Medicine, University of Ottawa

8- ASSOCIATION OF PCSK9 WITH LOW DENSITY LIPOPROTEINS IN HUMAN PLASMA
   Mia Golder, Geoffrey Leblond, Tanja Francetic and Thomas Lagace
   Atherosclerosis, Genetics and Cell Biology Group
   Department of Pathology and Laboratory Medicine
   University of Ottawa Heart Institute
9. CHRONIC EOSINOPHILIC LEUKEMIA WITH PDGFRα REARRANGEMENT
Majid Moteabbed, 1 Isabelle Bence-Bruckler, 2 Ruth Padmore 1
1 Department of Laboratory Medicine and Pathology, Division of Hematology and Transfusion Medicine, 2 Department of Internal Medicine, Division of Clinical Hematology, Ottawa Hospital, Ottawa

10. RARE ANTI-ANWJ ANTIBODY CAUSING ACUTE HAEMOLYTIC TRANSFUSION REACTION IN A PATIENT WITH APLASTIC ANEMIA
Zhaodong Xu, 1 Lisa Duffett, 2 Melanie Tokessy, 1 Ruth Padmore, 1 Lothar Huebsch, 2 Elianna Saidenberg 1
Departments of Pathology and Laboratory Medicine, Division of Hematology and Transfusion Medicine, 2 Division of Clinical Hematology, The Ottawa Hospital, Ottawa, Ontario, Canada

11. PERITONEAL SARCOIDOSIS MIMICKING PRIMARY PERITONEAL CARCINOMATOSIS
Kona Williams, Virbala Acharya, Manisha Lamba Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON

12. CHANGING TRENDS OF FINE NEEDLE ASPIRATE DIAGNOSIS OF LUNG NEOPLASM IN THE FACE OF CUSTOMIZED PATIENT MANAGEMENT APPROACH. ARE WE GOING TO STEP UP?
Thamara Jayasinghe, Marcio M Gomes, Harmanjatinder S Sekhon. The Ottawa Hospital, University of Ottawa, ON, Canada

13. SUDDEN DEATH SUPERIOR MESENTERIC ARTERY THROMBOSIS IN A COCAIN USER
Allison Edgecombe 1 and Christopher M. Milroy 1,2
1 Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON, 2 Eastern Ontario Regional Forensic Pathology Unit, The Ottawa Hospital, Ottawa, ON

14. REPRESSION OF CANCER CELL SENESCENCE BY PKCI
Shahrier Amin Judith A Paget, Ian J. Restall, Manijeh Daneshmand, Julie A Mersereau, Manon Simard, Doris A E Parolin, Sylvie J Lavictoire, Shahidul Islam and Ian AJ Lorimer
Centre for Cancer Therapeutics, Ottawa Hospital Research Institute, 501 Smyth Road, Ottawa, K1H 8L6, Canada; Department of Biochemistry, Microbiology and Immunology, University of Ottawa, Ottawa, Ontario, Canada, Department of Pathology, Ottawa Hospital, Ottawa, Canada, Department of Medicine, University of Ottawa, Ottawa, Ontario, Canada

15. MULTIFOCALITY OF WELL DIFFERENTIATED THYROID NEOPLASMS OF UNKNOWN MALIGNANT POTENTIAL.
Shahrier Amin, Bich Nguyen, Bernhard Olberg, Kien T Mai
Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa, ON, Canada

16. ONTARIO TUMOUR BANK INITIATIVE AT THE OTTAWA HOSPITAL
C.A. Jodouin 1, H. Sekhon 1, J. Werier, E. Pitre 2, M. Sienkiewicz 2, B. Zanke 1, S.Kodeeswaran 3
The Ottawa Hospital 1, Ottawa Hospital Research Institute 2, Ontario Institute for Cancer Research 3
17- CA 15-3 AS AN ALTERNATIVE MARKER FOR KL-6 IN FIBROTIC LUNG DISEASES
Adrian Kruit1, Wim B. M. Gerritsen1, Natalie Pot1, Jan C. Grutters2, Jules M. M. van den Bosch2, Henk J. T. Ruven, PhD1*
1 Department of Clinical Chemistry, St Antonius Hospital, Koekoekslaan 1, 3435 CM, Nieuwegein, The Netherlands, 2 Centre for Interstitial Lung Diseases, St Antonius Hospital, Department of Pulmonology, Koekoekslaan 1, 3435 CM, Nieuwegein, The Netherlands

18- PROTHROMBIN COMPLEX CONCENTRATE IMPLEMENTATION AND USE AT A COMMUNITY HOSPITAL.
Department of Laboratory Medicine, Renfrew Victoria Hospital, Renfrew, Ontario and Division of Hematopathology and Transfusion Medicine, Department of Laboratory Medicine, The Ottawa Hospital and University of Ottawa, Ottawa, Ontario.
WELCOME
MUCIN PROFILE IN GOBLET CELL CARCINOID OF THE APPENDIX

Siadat, F., Gomes, M., Marginean, C., Mai, K. and Nguyen, B.;

Pathology and Laboratory Medicine, University of Ottawa, Ontario, Canada.

Goblet cell carcinoid (GCC) of the appendix is a mixed exocrine-endocrine tumor. Unlike adenocarcinoma (ADC) and signet ring cell carcinoma (SRCC) of the colon, the mucin profile of GCC has not been characterized. The objective of this study is to identify the mucin profile of GCC.

Methods: 10 cases of GCC (6 men, 4 women, median age 59), 5 cases of colonic SRCC and 5 cases of colonic ADC (5 men, 5 women, median age 68) were retrieved from our Pathology archives. Tissue sections were immunostained with antibodies against MUC1, MUC2, MUC5AC (MUC5). Immunostaining for chromogranin A, synaptophysin, NSE, CD56 and MIB-1 were also done on GCC cases and confirmed an endocrine component. Cytoplasmic staining was scored based on proportion of positive tumor cells as follows: - (less 5%), 1+ (5-25%), 2+ (26-50%), and 3+ (>50%).

Results: All GCC and SRCC were MUC1 negative and MUC2 3+. In GCC group, MUC5 was 2-3+ in 4 cases and negative in 6 cases. In SRCC group, MUC5 showed 3+ reactivity in all cases and was 1-2+ in 3/5 cases. All ADC cases were MUC1 1-2+, MUC2 3+ and 2/5 ADC cases were MUC5 2+.

Conclusions: 1) This study is the first to report the following mucin profile of GCC: MUC1-/MUC2+/MUC5 variably expressed; 2) The above MUC markers are similarly expressed in GCC and SRCC thus cannot be used to distinguish these entities in tumors with ambiguous morphology. These preliminary findings will need further assessment and confirmation in larger series.
HEMOPHAGOCYTOSIS IN LIVER KUPFFER CELLS: A CHALLENGING
BUT CRITICAL DIAGNOSIS

Allison Edgecombe¹, Christopher Milroy¹,², Susan Commons¹ and Bich
Nguyen¹
¹ University of Ottawa, The Ottawa Hospital, Department of Pathology &
Lab Medicine, Ottawa, ON and ² Eastern Ontario Regional Forensic
Pathology Unit, The Ottawa Hospital, Ottawa, ON

Background: Hemophagocytosis describes the pathologic engulfment of
erthrocytes, leukocytes, platelets and precursor cells by activated
macrophages. This finding is the hallmark of hemophagocytic syndrome
(HPS), an entity diagnosed by clinical, laboratory and histological criteria.
The recognition of hemophagocytosis in biopsies of the reticuloendothelial
tissues (i.e. liver, bone marrow, lymph node) is essential since HPS is a
notoriously difficult clinical diagnosis and may be fatal if not treated.

Design: A 57 year-old female presented with an abrupt onset of painless
jaundice, coagulopathy and hepatic and renal failure. Her liver enzymes
were elevated above 1300 U/L and her creatinine was 1403 μmol/L. She
had experienced a 7 day history of nausea, vomiting, anorexia and
abdominal discomfort. Her past medical history was significant for a recent
myocardial infarct, hyperlipidemia and hypertension. Her medications
included Crestor (discontinued 2 days before admission due to
rhabdomyolysis), Perindopril, Metoprolol, Plavix and Niacin (one dose). A
liver biopsy was performed. Two days after admission, the patient had a
cardiac arrest and could not be resuscitated. A medico-legal autopsy was
ordered.

Results: The liver biopsy showed lobular disarray. There was moderate
mixed inflammation of the portal tracts with no significant interface
damage. Severe cholestasis was seen. Significant liver necrosis was
absent. There was extensive dilatation of the sinusoids with massive
infiltration of activated Kupffer cells displaying hemophagocytosis. An
incidental renal biopsy demonstrated acute tubular necrosis. At autopsy, a
5 cm gallbladder carcinoma was identified extending into the liver.

Conclusions: Kupffer cell hemophagocytosis in a liver biopsy may be only
indication of HPS. In our patient, the strict diagnostic guidelines for HPS
were partially met. The association of hemophagocytosis with solid
neoplasms is rare and when detected is usually associated with
lymphoma. We present a novel case of hemophagocytosis in association
with gallbladder carcinoma.
RARE COMPLICATION OF SILICON BREAST IMPLANT: A CASE REPORT

Thamara Jayasinghe & V. Acharya
Department of Pathology and Laboratory Medicine, University of Ottawa, Ontario, Canada.

Introduction
Primary sarcoma of breast is very rare (0.1%). Angiosarcomas account for about 25%-40% of these cases. These tumours tend to be very aggressive with high rate of local recurrence and low survival rates. Irradiation and post-mastectomy angioedema are known to increase the risk of primary angiosarcoma of breast1. Angiosarcoma of breast arising after silicone breast implants, for breast augmentation is an exceedingly rare occurrence with only two cases reported in the previous literature, one of which was an epithelioid angiosarcoma.

We report a case of epithelioid angiosarcoma associated with ruptured silicone breast implants in a 78 year old female, presenting with clinical features of a breast abscess.
MICROSATELLITE INSTABILITY IN ADVANCED STAGE ENDOMETRIAL ENDOMETRIOID ADENOCARCINOMA IS ASSOCIATED WITH A POOR PROGNOSIS

Scott Bradshaw and Bojana Djordjevic
Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON

Background: Microsatellite instability (MSI) occurs as a consequence of loss of function of mismatch repair (MMR) proteins, commonly MSH1, MLH2 and MLH6. In sporadic tumors, MSI occurs predominantly through methylation of the MLH1 promoter. MSI is a well-recognized positive prognostic factor in sporadic colon cancer. However, there have been conflicting reports in the literature regarding the prognostic value of MSI in endometrial cancer. The aim of this study was to investigate this phenomenon with the emphasis on early vs advanced stage disease at the time of diagnosis.

Design: Immunohistochemistry for MMR proteins MLH1, MSH2 and MSH6 was performed in a cohort of 100 endometrioid carcinoma cases. The patients, aged 28-92, had no known history of HNPCC. Immunohistochemistry was scored as positive or negative. Tumors with loss of any one of the three MMR proteins were classified as having MSI, with the remainder classified as microsatellite stable (MSS). Patients were grouped as early (I and II) and advanced (III and IV) stage. Outcomes including depth of myometrial invasion (MI), lymphovascular invasion (LVI), lymph node (LN) status, relapse free survival and overall survival were examined.

Results: The results are summarized in Tables 1 and 2. MSI was identified in 40 patients (34 MLH1, 2 MSH2, 4 MSH6). Patients in the early and advanced stage groups were of similar age (59.8 and 61.1 respectively). For early stage tumors, MSI and MSS were associated with a comparable prognosis. However, for advanced stage disease, MSI tumors had shorter overall survival and relapse free survival rates, a greater depth of MI and higher rates of LVI and LN metastases.

Conclusion: MSI is associated with a poor prognosis in advanced endometrioid cancer. MSI may predispose tumors towards an accelerated pace of acquisition of new mutations, leading to more aggressive tumor behavior in advanced stages. As such, identification of MSI early in the work-up of endometrioid endometrial carcinomas (i.e. on biopsy) may be instrumental in guiding patient management.

Table 1 – Endometrioid Tumors Survival

<table>
<thead>
<tr>
<th></th>
<th>MSS alive %</th>
<th>MSI alive %</th>
<th>MSS relapse free %</th>
<th>MSI relapse free %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I,II</td>
<td>95.83</td>
<td>100.00</td>
<td>72.92</td>
<td>78.95</td>
</tr>
<tr>
<td>stage III, IV</td>
<td>95.24</td>
<td>58.33</td>
<td>66.67</td>
<td>25.00</td>
</tr>
</tbody>
</table>

Table 2 – Endometrioid Tumor LVI, %MI and %LN+

<table>
<thead>
<tr>
<th></th>
<th>MSS %LVI</th>
<th>MSI %LVI</th>
<th>MSS depth of MI (%)</th>
<th>MSI depth of MI (%)</th>
<th>MSS %LN+</th>
<th>MSI %LN+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I, II</td>
<td>28.89</td>
<td>47.37</td>
<td>31.5</td>
<td>33.35</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>stage III, IV</td>
<td>70.59</td>
<td>100.00</td>
<td>48.25</td>
<td>72.76</td>
<td>61.11</td>
<td>77.78</td>
</tr>
</tbody>
</table>
A CASE OF TRINEAGE MYELODYSPLASIA AND HEMOPHAGOCYTOSIS ASSOCIATED WITH LUPUS

Paliga A.A., Shahbazi N, Bormanis J, Padmore R.
Division of Hematopathology and Transfusion Medicine, Hematology, and Nephrology, The Ottawa Hospital and University of Ottawa, Ottawa, Ontario Canada.

Systemic lupus erythematosus (SLE) is an autoimmune disease that attacks multiple organ systems, including the bone marrow microenvironment. Although lymphopenia and anemia are the most well described hematologic abnormalities in SLE patients (1), bone marrow dysplasia (2, 3) and hemophagocytosis (4, 5) have also been documented. To our knowledge, this is the first case report to describe both myelodysplasia and hemophagocytosis as cause for pancytopenia in the bone marrow of a young patient with SLE. The mechanism leading to either phenomenon is unknown, but both hemophagocytosis syndrome (HS); and myelodysplastic syndrome (MDS) are associated with a hypercytokinemia (4, 6). We provide evidence that supports the existence of transient immune mediated dysplastic changes in SLE patients as well as concurrent secondary HS: highlighting that the bone marrow is an important target in lupus. As the diagnosis of both MDS and HS hinges primarily on morphology and may portend a poor prognosis and aggressive clinical management for the patient, it is important to keep the possibility of systemic lupus exacerbation in mind.

References:
BREAK AND POSTER VIEWING (ATRIUM)
THE DIAGNOSTIC UTILITY OF HEPATOCYTE ANTIGEN, GPC3, AND IMP3 IN DISTINGUISHING BETWEEN HEPATOCELLULAR CARCINOMA AND BENIGN HEPATIC LESIONS

Farshid Siadat¹, Bich Nguyen¹, Marcio Gomes¹, Celia Marginean¹
¹Pathology and Lab. Medicine, University of Ottawa, Ottawa, Ontario, Canada.

Background: Histopathologic distinction between hepatocellular carcinoma (HCC) and benign hepatocellular adenoma (HA) and focal nodular hyperplasia (FNH) can sometimes be challenging, especially in small biopsy samples. Hepatocyte Specific Antigen (HSA) staining has been demonstrated consistently in the vast majority of HCC. More recently, insulin growth factor messenger RNA binding protein 3 (IMP3) expression has been identified in multiple malignant neoplasms including HCC. Glypican-3 (GPC3), a cell surface proteoglycan have been shown to be overexpressed in HCC, but not in HA and FNH. The aim of this study is to determine the usefulness of these markers in the differential diagnosis of hepatocellular mass lesions.

Design: 29 surgical resected or biopsied specimens of well- to moderately-differentiated HCC (25 resections, 5 biopsies), eight HA (all resections) and twenty one FNH (15 resections, 6 biopsies) were obtained from University of Ottawa Medical Center. Immunohistochemistry was performed using HSA (Abcam), IMP3 (Abcam) and GPC3 (Santa Cruz). Cytoplasmic staining was considered positive for HSA and IMP3 and cytoplasmic and/or membranous staining was considered positive for GPC3. The percentage of positively stained tumor cells was recorded and the staining intensity was graded as weak (1+), moderate (2+), or strong (3+).

Result: Strong 2+ to 3+ HSA reactivity was detected in 20 (95.2%) of FNH, all HA, and 26 (89.7%) of HCC. Staining for IMP3 was observed in 20 (95.2%) of FNH and all HA and all HCC. IMP3 showed a stronger (3+) staining at the periphery of the tumors. GPC3 was negative in all FNH and HA whereas 20 (69%) HCC showed strong (3+) reactivity for GPC3. Neither HSA nor IMP3 could differentiate between the 3 lesions. However, GPC3 could distinguish HCC from either HA (p=0.001) or FNH (p<0.001).

Conclusion: IMP3 (Dako) was previously reported as being positive in HCC and negative in HA and non-neoplastic hepatic tissues. However in our study all HA and the vast majority of FNH expressed IMP3.
MISSED MALIGNANCY IN BIOPSY-DIAGNOSED BENIGN PAPILLARY LESIONS OF THE BREAST: CASES WITH SURGICAL FOLLOW-UP

S. Petkiewicz, S. Islam. Department of Anatomical Pathology and Laboratory Medicine, the Ottawa Hospital, University of Ottawa, Ottawa, Ontario

Background: Papillary lesions are a frequent breast biopsy finding and controversy surrounds whether or not to excise benign papillary lesions because only a fraction are found to contain malignancy. The purpose of this study was to determine the frequency of missed malignancy in papillary breast lesions at our institution and to determine the factors that may have contributed to the missed diagnosis.

Design: Hospital pathology records from the past 5 years were searched and benign papillary lesions of the breast with their paired resection specimens were selected for further study. The frequency of malignancy found at final resection was calculated and radiological and tumoral features that may have aided the diagnosis of malignancy were sought. The histologic sections from the biopsy and resection were reviewed and examined for possible sources of error.

Results: Of the 41 pairs of biopsy-diagnosed papillary lesions with subsequent resections, 44% of final resections were found to harbor a malignancy. The most common finding was DCIS, but papillary carcinoma and invasive carcinoma were also diagnosed. The presence of calcifications on imaging was associated with a higher risk of subsequently diagnosed malignancy. The most common source of error appears to be insufficient biopsy sampling of the lesion with the discovery of carcinoma on resection that was not present in the biopsy tissue.

Conclusions: We have demonstrated at our institution that nearly half of women diagnosed with papillary lesions of the breast who undergo surgical resection, are found to harbor a malignancy. Radiological findings did not predict the discovery of malignancy at resection. Our data indicate that the most common cause for this discrepancy is sampling error with the malignancy not being present within the biopsy material. Due to the high rate of malignancy at resection, our data suggest that women diagnosed with papillary lesions on biopsy should undergo local resection in order to avoid missing a malignancy that may not have been sampled in the biopsy.
ELECTROLYTIC METHOD FOR PROCESSING CORONARY ARTERIES CONTAINING STENTS

Scott Bradshaw
Department of Pathology and Laboratory Medicine, The Ottawa Hospital, Ottawa, ON

Background: Due to its hardness, sectioning through a stent using conventional methods causes significant damage to and/or loss of native morphology of the underlying tissue. Current specialized methods exist for making thick and thin sections through metal, however they are expensive, time consuming, and require a high degree of operator skill. In addition, cutting artifacts and undesirably thick microscopic sections are common. A novel electrochemical method is described and tested, which addresses these difficulties.

Design: A positive voltage was attached to a stent embedded in formalin fixed tissue, which was then suspended in a grounded electrolytic solution. The stent dissolved over a time interval of 5 to 30 minutes, after which the tissue was sectioned. Residual small metallic fragments were removed as required. The resulting sections were processed according to standard histological techniques.

Result: Sixteen stents were dissolved using this electrolytic process. These included stainless steel and Cobalt-Chromium core materials, as well as drug eluting and bare metal stents. The underlying tissue was preserved, and histological sections obtained, including H&E, Movat (figure 1), and several immunohistochemical stains. The sections were compared to those obtained from previous processing methodologies.

Conclusion: The electrolytic stent removal process was applied successfully to a broad range of stents, representing the majority of stent designs encountered in practice. Histological sections obtained compared favorably to those obtained with previous processing methodologies. Other improvements over previous methods include low cost, short processing time, short operator time, low skill level required, increased consistency of results, and compact size.
URINARY BLADDER SINUSES - A NOVEL MORPHOLOGICAL LESION WITH CLINICAL AND PATHOLOGICAL SIGNIFICANCE.


Department of Pathology and Laboratory Medicine, University of Ottawa, Ottawa, ON, Canada.

Peculiar changes in the urinary bladder, characterized by segmental mucosal invaginations into the submucosa and muscularis propria, were observed in radical cystectomy specimens. We described and termed these lesions as urinary bladder sinuses (UBS). The significance of these lesions has not been studied. 50 consecutive radical cystectomy specimens (49 - carcinoma with history of BCG / radiation / chemotherapy, 1 - neurogenic bladder), 20 transurethral resections of bladder tumor (TURBT) and 20 biopsies were reviewed. UBS were classified into superficial and deep types. Superficial UBS was defined as invaginations of the mucosa (including urothelium, lamina propria and muscularis mucosa) into the submucosa, while deep UBS was defined as mucosal invaginations into the muscularis propria. Superficial UBS were distinguished from cystitis cystica, and deep UBS differed from intramural ureters by their cleft-like appearance. UBS were often associated with cystitis cystica and proliferation of Von Brunn’s nests. Superficial UBS were identified in 13/20 TURBT specimens. Of the 50 radical cystectomy specimens, superficial UBS were identified in 26 cases, and deep UBS (all with associated superficial UBS) were seen in 13 cases. UBS were found to be more located adjacent to scars or invasive carcinoma than elsewhere in the bladder. Intraepithelial neoplasia involving the mucosa of UBS was observed in 14 cystectomy specimens. Mucosal redundancy and hypertrophy of the muscularis propria associated with UBS can mimic muscle invasive cancer on pelvic examination and imaging. They may pose diagnostic problems with invasive carcinoma. Recognition of UBS is important, both pathologically and clinically, in order to avoid over-staging of bladder malignancies.
CYTOKERATIN 5 DISTINGUISHES REACTIVE UROTHELIAL ATYPIA FROM CARCINOMA IN SITU AND NON-INVASIVE UROTHELIAL CARCINOMA

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Background: Cytokeratin 5 (CK5) is commonly used to differentiate epithelial hyperplasia from atypical hyperplasia and ductal carcinoma in situ in breast. The utility of CK5 to distinguish reactive urothelial atypia (RA) from urothelial carcinoma in situ (CIS) and the non-invasive component of papillary urothelial carcinoma (PUC) is not known, and is the focus of this study. CK5 performance is compared to that of cytokeratin 20 (CK20) and p16, which have been previously reported as useful markers in this differential.

Design: Twenty consecutive surgical specimens of reactive urothelial atypia (RA) with or without papillary hyperplasia, 40 high grade and low grade papillary urothelial carcinomas (PUC) and 20 CIS were submitted for immunostaining with CK5, CK20 and p16. The immunostaining pattern was documented as full urothelial thickness, basal cell layer or umbrella cell layer. The intensity/extent of immunoreactivity was recorded as negative, weak/focal (less than 20% of cells) and strong/diffuse (more than 50% of cells).

Results: Diffuse and strong reactivity involving the full thickness of urothelium was observed with CK5 in all cases of RA (100%). p16 and CK20 were negative in all the RA cases (no reactivity or reactivity in the umbrella cell layer). CK5 reactivity for CIS and high grade PUC was negative (no reactivity or reactivity in the basal cell layer) in all cases. CK20 was strongly positive (full thickness of urothelium) in 85% of CIS cases and 85% of high grade PUC cases. Strong positive staining for p16 was present in 90% of CIS cases and 80% of high grade PUC cases. Low grade PUC displayed variable reactivity for CK5, CK20 and p16.

Conclusions: Strong and diffuse CK5 reactivity in RA and negative CK5 reactivity (no reactivity or reactivity in the basal cell layer) in CIS and PUC may be helpful in distinguishing between these two entities, especially in the setting of negative or weak/focal reactivity for CK20 and p16.
UNSUSPECTED CILIARY BODY AND CHOROIDAL MELANOMA DIAGNOSED AFTER EVISCERATION AND ENUCLEATION: A SERIES OF CASES SEEN AT THE OTTAWA EYE INSTITUTE FROM 1996-2010

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\textbf{Purpose:} To show the clinicopathologic data of two patients diagnosed, unexpectedly, with a ciliary body and/or choroidal melanoma after evisceration or enucleation of a blind, painful eye.

To present the incidence of encountering this complication at our centre and for the population we serve.

\textbf{Methods:} Retrospective series of all cases processed by our laboratory since August 1996. Two cases were included in our study group. The incidence of misdiagnosis is calculated for eviscerations, enucleations, and for the population we serve.

\textbf{Results:} We reviewed all cases processed by our laboratory since August 1996. Our review revealed a total of 290 eviscerations and 207 enucleations processed. Out of a total of 88 diagnoses of posterior uveal melanoma, we identified two cases where the diagnosis was clinically unsuspected. One case of ring melanoma was diagnosed after enucleation of a blind, painful eye of a 55-year-old man with neovascular glaucoma. Another case of necrotic melanoma was diagnosed after evisceration of a blind, painful eye of an 86-year-old woman with endophthalmitis.

As the only ophthalmic pathology laboratory in our region (approx. pop. 1,192,500), we calculate a rate of posterior uveal melanoma for the region of 5.3 cases\textper百万/年. The incidence of unsuspected posterior uveal melanoma at our laboratory is 3.4/1000 eviscerations, 4.8/1000 for all enucleations done, and more specifically 8.3/1000 enucleations done for a blind and painful eye. A rate of 0.12 unsuspected melanomas/1,000,000 population/year was calculated for the greater Ottawa region over the last 14 years.

\textbf{Conclusions:} Unsuspected ciliary body or choroidal melanoma at the time of evisceration or enucleation of an eye is a rare finding, diagnosed in only two patients over a 14 year period by our ophthalmic pathology laboratory following histopathological and immunohistochemical examinations. To the best of our knowledge, we present the first single-centred and population based data on the incidence of this complication from a complete record of cases since the advent of modern diagnostic technologies.
LUNCH AND POSTER VIEWING

(ATRIUM 2ND FLOOR, FACULTY OF MEDICINE)
GUEST SPEAKER

DR. SYLVIA ASA

UNIVERSITY HEALTH NETWORK,
TORONTO
TITLE: MOLECULAR PATHOLOGY OF THYROID CANCER
THE POSITIVE CLINICAL IMPACT ON STAPHYLOCOCCAL BACTEREMIA BY DIRECT mecA PCR TESTING OF BLOOD CULTURE BOTTLES

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Objective: This study evaluated whether earlier determination and reporting of staphylococcal antibiotic susceptibility reduced unnecessary antistaphylococcal treatment and facilitated earlier optimization of antibiotic therapy.

Methods: Direct mecA PCR was performed on positive blood cultures with gram positive cocci in clusters using the Roche Light-Cycler MRSA Kit and results were phoned to the attending physician. Susceptibility testing of staphylococcal isolates was performed using Vitek 2 P580 cards (bioMérieux). Analysis of antibiotic usage in response to the direct mecA detection results was performed on patients from July – December 2010 (phase II) and compared to that of a “historical cohort” with “delayed” reporting (July – December 2009) (phase I) in which methicillin susceptibility was determined using traditional methods.

Results: A total of 48 bacteremias (34 S. aureus, 14 Coagulase-negative Staphylococcus or CoNS) in phase II and 38 bacteremias (24 S. aureus, 14 CoNS) in phase I were evaluated for real time change of antibiotic therapy upon the microbiology reporting (Figure 1). The mean time to antibiotic optimization in phase II (0.9+/−0.9 day) was significantly shorter than that in phase I (2.2 +/- 3.2 days) (p<0.05). Methicillin-susceptible staphylococcal bacteremias had significantly higher frequency of antibiotic adjustment upon direct mecA PCR reporting than Methicillin-resistant Staphylococcal bacteremias. The mean time from direct mecA reporting to antibiotic optimization in Methicillin-resistant and Methicillin-susceptible Staphylococcal bacteremia was 0.4 +/- 0.7 days, and 1 +/- 0.9 days, respectively.

Conclusion: The implementation of direct mecA PCR improves timely antibiotic management, especially in Methicillin-susceptible Staphylococcal bacteremias.
ENHANCED EXPRESSION OF PKCi AND REPRESSION OF CELL SENESCENCE IN BREAST CANCER.

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Senescence is an irreversible growth arrest phenotype adopted by cells that has a key role in protecting organisms from cancer. There is now considerable interest in therapeutic strategies that reactivate this process to control the growth of cancer cells. Protein kinase C iota (PKCi) is a member of the atypical protein kinase C family and an important downstream mediator in the phosphoinositide pathway. We evaluated PKCi expression in tissue microarrays containing a range of breast cases: 29 cases of non-malignant breast tissue, 12 cases of carcinoma in situ, 48 cases of invasive carcinoma without lymph node metastasis and 50 cases of invasive carcinoma with lymph node metastases. In normal breast tissue there were very low levels of PKCi cytoplasmic staining in luminal and myoepithelial cells of the ducts, as well as the surrounding stromal cells. Cytoplasmic staining for PKCi was somewhat higher in hyperplasia than in normal tissue. PKCi expression was not significantly different between ductal carcinoma in situ, invasive ductal carcinoma and lymph node metastases; however PKCi expression was significantly higher in all of these when compared to hyperplasia (p<0.05 for each of the three comparisons). The results suggest that cytoplasmic PKCi expression is increased at an early stage in breast cancer and is maintained in metastatic disease. Overexpression of PKCi may suppress premature senescence of mutant cells and contribute to breast carcinogenesis. Inhibition of PKCi may therefore be an effective way to selectively activate premature senescence in cancer cells.
BREAK AND POSTER VIEWING (ATRIUM)
Post-ablation tubal sterilization syndrome (PATSS) is a well-recognized delayed complication in 6-10% of endometrial ablation cases that present as hematometra. First described over 15 years ago, PATSS is suspected to occur because of regenerated endometrium in the cornual area. Passage of menstrual blood is blocked by the scarred lower uterine segment and ligated fallopian tubes.

We report the pathologic findings in a 45 year old female presented with severe abdominal pain who developed hematometra one year post-endometrial ablation and tubal ligation for menorrhagia. The ultrasound revealed several pelvic masses and distended endometrial cavity with blood clots, suggestive of endometriosis. Right salpingo-oophorectomy and hysterectomy revealed hematometra with associated complex tubo-ovarian mass. Sections showed significant endometriosis involving the fallopian and ovary with cystic hydrosalpinx. Histopathological findings reflect stenosis of cervix due to extensive fibrosis rather than endometriosis.

This case exemplifies a concomitant endometriosis that can accelerate the development of hematometra after endometrial ablation.
EMPLOYMENT IN A MICROBIOLOGY LABORATORY IN A LARGE TERTIARY CANADIAN HOSPITAL IS NOT A RISK FACTOR FOR NASAL CARRIAGE OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA).

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Methicillin resistant Staphylococcus aureus (MRSA) is an important nosocomial pathogen and is spread within hospitals through contact of infected or colonized patients. Currently, MRSA accounts for about 15% of S. aureus bacteremia at The Ottawa Hospital and for a similar percentage of S. aureus isolated form soft tissue infections seen in the Emergency Department. In an attempt to prevent nosocomial spread, The Ottawa Hospital has a comprehensive screening program that is based on risk factors for MRSA colonization and involves screening for MRSA in those patients being admitted. Over 50,000 tests are being performed on an annual basis. The objective of this study was to determine if working in Microbiology represented a risk factor for MRSA colonization and if there are specific task(s) associated.

Methods: Informed consent was obtained from microbiology lab technologists and technicians. After instruction participants collected their own nasal swab for MRSA and completed a survey that examined for potential risk factors for MRSA colonization. Nasal swabs were collected at time 0, and at 3 and 6 months. Nasal swab specimens were placed in a selective enrichment liquid media, and then subcultured to a chromogenic selective agar for MRSA detection (MRSA Select; BIO-RAD). Identification of MRSA and susceptibility testing was done with standard methods; and MRSA isolates typed using pulse field gel electrophoresis (PFGE). Participants also completed the survey at each time period. New microbiology lab staff were also able to enter the study after it was initiated.

Results: A total of 52 different lab staff representing 74% of lab staff were enrolled in the study, and provided a total of 113 nasal swabs. Thirteen staff participated in one time point while 39 participated in more than one time point. Two of the fifty-one microbiology lab workers were positive for MRSA (Worker A and B). Worker A had worked with MRSA over a prolonged period and investigation of family determined that the spouse was also colonized with MRSA with same PFGE genotype. Worker A's other family members, including dog, were negative for MRSA. Worker B had nasal swabs negative for MRSA at time zero and 3 months, but at 6 months was positive. Investigation of worker B's family was negative for MRSA. The PFGE pattern of worker A was suggestive of lab acquisition as the genotype had been a predominant strain seen in the laboratory. The PFGE pattern of Worker B was one that had not been seen in the laboratory, therefore in keeping with community acquisition. Interestingly, neither Worker A or their spouse had ever experienced a soft tissue infection with MRSA, in contrast Worker B developed a soft tissue infection that clinically was suggestive of MRSA. Both Worker A and B were successfully decolonized of their MRSA.

Conclusion: Two lab workers were identified as being colonized with MRSA, such that the prevalence of MRSA was 4% and is in keeping with that seen in the community. Only one of the lab workers had an MRSA strain that was likely laboratory acquired. The results do not support the hypothesis that being a Microbiology laboratory worker is a risk factor for MRSA colonization and therefore should not be a screening indication. Perhaps long term direct exposure to MRSA cultures might be a risk factor and further studies are required.
EPITHELIAL SODIUM CHANNELS IN THE BRAIN EFFECTS OF HIGH SALT INTAKE ON THEIR EXPRESSION.

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The epithelial sodium channels (ENaC) play an important role in sodium (Na⁺) homeostasis and regulation of blood pressure (BP). The genes for ENaC subunits are identical in Dahl salt sensitive (S) and Dahl salt resistant (R) rats. But ENaC mediated Na⁺ transport is enhanced in inner medullary collecting ducts of Dahl S versus Dahl R rats. Intracerebroventricular infusion of ENaC blocker benzamil prevents Na⁺ induced hypertension. Expression and function of ENaC in the brain in Na⁺ induced hypertension had not yet been studied. We studied expression and distribution of the ENaC subunits and assessed the effects of intracerebroventricular infusion of Na⁺-rich aCSF in Wistar rats or high salt diet in Dahl S rats in different areas of the brain. Function of ENaC in the choroid plexus was evaluated by studying the effects of benzamil and ouabain on Na⁺ transport. In Wistar rats, both mRNA and protein of all three ENaC subunits are expressed in brain epithelia and magnocellular neurons in the suprachiasmatic nucleus (SON) and paraventricular nucleus (PVN). ENaC abundance is higher on the apical versus basolateral membrane of choroid cells. Benzamid decreases Na⁺ influx into choroid cells by 20-30% and increases CSF [Na⁺] by ~8 mmol/L. Na⁺ rich aCSF increases apical membrane expression of βENaC in the choroid cells and of α and βENaC in basolateral membrane of ependymal cells, but has no effect on neuronal ENaC. Expression of ENaC is higher in choroid cells and SON of Dahl S versus R rats. In Dahl R rats, high salt attenuates the ouabain blockable efflux of Na⁺ from choroid cells and has no effect on CSF [Na⁺]. In contrast, in Dahl S, high salt does not attenuate ouabain blockable efflux of ²²Na⁺ and increases CSF [Na⁺]. Therefore, ENaC subunits contribute to Na⁺ transport into the choroid cells and appear to be involved in reabsorption of Na⁺ from the CSF. Aberrant regulation of Na⁺ transport and of Na⁺K⁺ATPase activity, might contribute to increases in CSF [Na⁺] in Dahl S rats on high-salt diet. ENaC in magnocellular neurons may contribute to enhanced secretion of mediators such as ‘ouabain’ leading to sympathetic hyperactivity in Dahl S rats.
CLEAR CELL RENAL CARCINOMA WITH TUBULAR FOLLICULAR CYSTIC ARCHITECTURE

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Background: Clear cell renal cell carcinoma (CRCC) usually displays variable architecture, including alveoli, acini, tubules, follicles, cysts, papillae, solid nests and sheets. Large solid nests and sheets are usually associated with high nuclear grades, while areas with low Fuhrman nuclear grades (1-2/4) often display alveolar or tubulo-follicular-cystic (TFC) architecture, with or without papillae. We present an immunohistochemical and fluorescence in situ hybridization (FISH) study of CRCC with a predominant TFC architecture.

Design: 12 CRCC with TFC architectures were reviewed. Tumors with an alveolar architecture accounting for more than 10% of the tumor were excluded. Representative sections were submitted for immunostaining with cytokeratin 7 (CK7), alpha-methyl-acyl-CoA racemase (AMACR) and for FISH for loci 3p25 (von Hippel Lindau gene) and 3p14 (fragile histidine triad gene), as well as for centromeres of chromosomes X, Y, 7 and 17.

Result: Male to female patient ratio was 5:1. Patient age ranged from 33-68 years (54 ±8). All tumors were stage I and ranged in size from 1.2-3.5 cm (2.1 ± 0.4). No recurrence or metastases occurred during the period of follow-up (up to 5 years with a mean of 3 years). Grossly, all tumors were encapsulated.

Focal areas of alveolar architecture were seen in 3 tumors. Focal areas with features of tubular cystic renal cell carcinoma with clear cell changes were identified in 4 tumors. Immunostaining showed positive CK7 reactivity ranging from diffuse in 7 tumors, focal in 3 tumors to negative in 2 tumors. AMACR reactivity was extensive in 2 and focal in the remaining 10 tumors. FISH revealed 7 tumors with loss of 3p, 2 tumors with loss of 3p and gain of chromosome 7, and one tumor with loss of 3p and gain of chromosomes 7 and 17. The remaining 2 tumors showed no detectable chromosomal changes. Tumors without loss of 3p displayed strong and extensive CK7 reactivity. Tumors with trisomy 7/17 showed focal papillary formations.

Conclusion: We propose that CRCC with a TFC architecture is a distinct type of renal cell carcinoma (RCC), characterized grossly by encapsulation and microscopically by a predominant TFC architecture. The chromosomal findings suggest that these tumors do not always present with typical chromosomal changes of CRCC or papillary RCC.
AWARDS TO BE ANNOUNCED
POSTERS
REGULATION OF APOBEC3G-MEDIATED INTRINSIC IMMUNITY TO HIV INFECTION

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APOBEC3G is a host-encoded antiretroviral protein that can deaminate cytidines into uridines in single-stranded DNA retroviral replication intermediates. In dividing cells however, APOBEC3G is mostly maintained in a catalytically inactive state because of the binding of various cellular RNAs and proteins that sequester APOBEC3G into high molecular mass (HMM) complexes. Our goal is to identify these cellular factors responsible for the inactivation of APOBEC3G in order to extend its antiretroviral activity to dividing cells such as activated T lymphocytes. To map the sites on APOBEC3G that interact with regulatory elements, we generated several mutants of the protein. Some mutants had deletions in either the N-terminal or C-terminal domains of the protein, whereas others had point mutations on residues predicted by structural studies to interact with nucleic acids. These mutants were then analyzed for their loss of assembly into HMM complexes by velocity sedimentation followed by Western blot analysis. We successfully identified one point mutation that resulted in the inhibition of the formation of HMM complexes but this mutant APOBEC3G protein also lost its antiretroviral activity against HIV. Analyses are now being performed to identify RNAs and proteins that bind to this amino acid within APOBEC3G that could be responsible for the regulation of the antiretroviral potency of APOBEC3G against retroviruses like HIV.
ROLE OF p300 HAT ACTIVITY IN THE ACTIVATION OF MYF5 AND MYOD

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The differentiation of stem cells into skeletal muscles is regulated by the myogenic regulatory factors (MRFs). These regulatory proteins belong to the basic-Helix-Loop-Helix (bHLH) family of transcription factors that are important for DNA binding and dimerization. This family consists of Myf5, MyoD, myogenin and Mrf4. The expression of Myf5 and MyoD is the key step that results in the commitment of pluripotent somite cells to the myogenic lineage. The transcription factors are regulated by the transcriptional co-activator p300 that regulate gene expression. p300 is known to be necessary for the expression of Myf5 and MyoD. It influences chromatin structure with its acetyltransferases (ATs). Histone acetyltransferase (HAT) activity of p300 regulates the expression of genes via acetylation of the lysine residues present in the N-terminal of the histone tails. However, the p300 HAT regulatory function in muscle differentiation program is to be investigated. In order to clarify the mechanism by which p300 regulates Myf5 and MyoD expression, we have inhibited the HAT activity of p300 by curcumin and C646. We here show that the inhibitors have the ability to inhibit skeletal myogenesis as assessed by immunofluorescence microscopic analysis which correlates with the myogenin expression as examined by western blot technique. In contrast, these inhibitors had no effect on p300 protein level. We will next examine the Myf5, MyoD and H3Ac mRNA levels using real-time PCR. We will also determine the occupancy of p300 at Myf5 and MyoD enhancer. Furthermore, we will investigate the role of p300 in chromatin remodelling and its function as a co-activator at the Myf5 and MyoD enhancer.
Alzheimer's disease (AD) is characterized by a buildup of amyloid-beta (Aβ) peptide in the brain, leading to the formation of plaques. A major pathological consequence of this Aβ aggregation is the development of neuroinflammation, as activated astrocytes release pro-inflammatory factors. The main genetic risk factor for AD is the ε4 allele of apolipoprotein E (apoE), a cholesterol transport protein that mediates lipoprotein uptake and transport within the CNS. There are three isoforms of ApoE, ApoE2, E3 and E4, with the E2 form having previously been shown to have a protective effect in AD pathogenesis. ApoE dysfunction has been shown to contribute to neuroinflammation in AD, but the mechanisms of this action are unclear. This study used an immortalized rat astrocyte cell line to examine the effects of exogenous Aβ1-42 on a series of inflammatory markers, and attempted to elucidate the signaling pathways involved in the process. Two inflammatory genes, tumor necrosis factor-alpha (TNF-α) and growth-related oncogene (GRO) were upregulated upon treatment with 5μM Aβ for 6 hours. When cells were pretreated with 6μM of isoforms of human recombinant apoE, the combination apoE2 + Aβ treatment showed significant less expression of inflammatory genes, compared to the apoE3 and apoE4 isoforms, and to Aβ alone. Previous work suggested that the AP-1/c-Jun signaling pathway may be involved in the AD inflammatory response. This study found that Aβ treatment increased activation of the c-Jun protein, but that apoE isoform had no effect on this response. The results suggest that the protective effect of ApoE2 in AD may be involved in the suppression of the Aβ-induced inflammatory response, but further investigation is needed to uncover the mechanisms and relevant signaling pathways.
PHOSPHATIDYLCHOLINE METABOLISM AFFECTS TRAFFICKING OF LDL DERIVED FREE CHOLESTEROL IN CHOLESTEROL LOADED CHO CELLS

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Background: In vitro studies have shown that phosphatidylcholine (PC), the most abundant phospholipid in cell membranes, can positively influence the incorporation and bilateral movement of cholesterol in artificial membrane systems. The potential influence of PC on the cellular trafficking of LDL-derived free cholesterol was examined in sterol regulatory-defective (SRD)-4 cells, a line of chemically mutagenized Chinese hamster ovary (CHO) cells that overproduce cholesterol and fatty acids and are unable to esterify free cholesterol for storage in cytosolic lipid droplets. As a result, these cells accumulate free cholesterol in cellular membranes. Biosynthesis of PC is also elevated in SRD-4 cells due to increased production of a fatty acid-derived activator of CCTalpha, the rate-limiting enzyme in the CDP-choline pathway. However, this increased PC synthesis is balanced by increased catabolism, resulting in minimal net change in cellular PC content.

Methods/ Results: Incubation of SRD-4 cells with 50 ug/ml low-density lipoprotein (LDL) for 18 h resulted in lysosomal/late endosomal accumulation of free cholesterol as revealed by filipin staining, characteristic of cholesterol trafficking defects seen in Niemann-Pick type C disease. Lysosomal accumulation of LDL-derived free cholesterol was prevented in SRD-4 cells supplemented with lyso-PC (50 uM), a substrate for PC synthesis through the reacylation pathway, and also in cells treated with bromoenol lactone (BEL), an inhibitor of phospholipase A2 implicated in bulk PC turnover. In a counter study, lysosomal cholesterol accumulation in LDL-treated CHO cells was induced using R-propranolol, which inhibits the conversion of phosphatidic acid to diacylglycerol (DAG), a substrate in the CDP-choline pathway. This blockage was also relieved through co-treatment with lyso-PC, suggesting that the mechanism requires intact PC or lyso-PC molecules.

Conclusion: These studies support that PC levels in downstream organellar membranes can influence cholesterol trafficking out of the lysosomal compartment.
ROLE OF RETINOID X RECEPTOR IN SKELETAL MUSCLE DEVELOPMENT

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Pluripotent stem cells hold tremendous potential for the treatment of many diseases because of their capacity to differentiate into a variety of lineages. They, however, provide little promise for muscle related diseases mainly due to the lack of small molecule inducers to efficiently direct myogenesis. Retinoic acid (RA) signaling through retinoic acid receptor (RAR) and retinoid X receptor (RXR), affects stem cell fate determination in a concentration-dependent manner, but it only has modest effect on the differentiation of embryonic stem (ES) cells into myogenic lineage. RXR is important for embryonic development but generally considered to act as a silent partner of RAR in a non permissive mode. In this study, we have examined whether the activation of RXR by rexinoid or RXR specific signaling plays a role in the commitment of stem cells into myogenic lineage. Our findings demonstrate that mouse ES cells can effectively generate skeletal myocytes following rexinoid induction at the early stage of differentiation, and on a molecular level, rexinoid-enhanced myogenesis simulates the sequential events observed in vivo. Moreover, rexinoid-induced myogenic conversion requires the function of β-catenin but not RAR. Our studies establish the feasibility of applying RXR agonist in cell based therapies for muscle related diseases. The aptitude of ES cells to generate skeletal myocytes upon rexinoid induction also provides a model system to study the convergence of different signaling pathways in myogenesis and to develop non-toxic protocols for generating large quantities of skeletal myocytes for clinical application.
ASSESSMENT AND ANALYSIS OF THE RESTRICTION OF RETROVIRAL INFECTION BY THE MURINE APOBEC3 PROTEIN

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APOBEC3 proteins are host-encoded intrinsic restriction factors that can prevent the replication of a broad range of retroviruses such as HIV, FIV, MLVs and XMRV. The main pathway of the restriction is believed to occur as a result of the cytidine deaminase activity of these proteins that converts cytidines into uridines in single-stranded DNA retroviral replication intermediates. These mutations can then disrupt the viral cycle during reverse transcription and integration and also inactivate retrovirus infectivity. In addition, APOBEC3 proteins also exploit a deamination-independent pathway to restrict retroviruses that is currently not well understood. Although this restriction process has been well documented \textit{in vitro} for human APOBEC3 proteins, our understanding of how the murine APOBEC3 protein restricts retroviruses and/or prevent zoonotic infections \textit{in vivo} is very limited. Moreover, humans and primates have 7 APOBEC3 genes; mice on the other hand have but a single copy. Investigations on physiological role of mouse APOBEC3 protein revealed that it has a distinct functional organization compared to the human protein and its catalytic activity has a substantial impact on the restriction of HIV and MLV viruses. Mapping the crucial residues and understanding the structural organization of the protein allowed us to identify key regions of APOBEC3 responsible for the restriction of HIV, MLV viruses. Our data shows that mouse APOBEC3 induces a significant decrease in retroviral activity in all viral assays by exploiting both deamination dependent and independent pathways. However, the catalytic activity of APOBEC3 was shown to be essential to confer long-term resistance to retroviral infection. Our observations suggest that APOBEC3 proteins act in complementary ways to restrict a broad range of human and animal retroviral pathogens. APOBEC3 proteins in the context of the intrinsic immune system provide a powerful block to cross-species transmission of retroviral pathogens that very few have found ways to evade.
IRADIOLOGY: A DIAGNOSTIC IMAGING DIGITAL LIBRARY FOR MEDICAL STUDENTS

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Background: Limited teaching time in radiology in most undergraduate medical curriculums increases the level of difficulty that students encounter when learning radiology in the pre-clerkship years. In order to remedy this, a bilingual digital radiology library (iRadiology) was created to aid in the dissemination and integration of knowledge, and complement the existing medical school curriculum.

Methods: The iRadiology website is designed in units and subunits in accordance with the radiology learning objectives created by the curriculum committee. In its first phase, the website focuses on normal anatomy on radiology images. Knowledge integration being a main focus of this endeavor, labeled cadaveric anatomical images that would aid in the three dimensional understanding of the radiological images were incorporated into each learning module.

Modules are based on curriculum timeline and topic and are further subdivided by type of imaging technology (i.e. X-ray, CT) to facilitate use by students. In order to further solidify knowledge, each module is followed by a comprehensive quiz allowing students to re-identify structures that were previously labeled by choosing from a drop down menu.

Results: iRadiology has proven to be a practical and innovative approach to knowledge integration, allowing students to focus learning on clearly labeled, carefully chosen images which maximize their learning. Its use guides the student through their learning by creating a well structured manner in which to grasp radiological findings; first by learning basic anatomical structures, then by recognizing normal anatomy in radiological images, ultimately leading to an increased competency in identifying pathological radiological characteristics.
ASSOCIATION OF PCSK9 WITH LOW DENSITY LIPOPROTEINS IN HUMAN PLASMA

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Background
Proprotein convertase subtilisin/kexin type 9 (PCSK9) is a secreted serine protease that binds to cell surface low-density lipoprotein (LDL) receptors and mediates their degradation in liver. PCSK9 is abundant in human plasma (30-3000 ng/mL) and its levels are positively correlated with LDL-cholesterol, a major risk factor of cardiovascular disease. Size fractionation studies have shown that circulating PCSK9 displays considerable size heterogeneity due to partial association with undefined high-molecular-weight complexes. In the current study, we have investigated whether PCSK9 is associated with lipoproteins in human plasma.

Methods/Results
Using Optiprep density gradient separation of human plasma samples, we show that a subset of PCSK9 is present in highly purified LDL fractions. PCSK9 distribution was increased in the LDL-containing fraction in plasma from patients with familial hypercholesterolemia and thus highly elevated LDL-cholesterol levels. In vitro binding studies showed a direct association between isolated LDL (density 1.019-1.063 g/mL) and fluorophore-labeled recombinant PCSK9, as evidenced by their co-migration in agarose gel electrophoresis. This interaction was highly specific, as it was competed >95% by excess unlabeled PCSK9. Homologous competition binding curves were consistent with a one-site binding model, suggesting a protein-protein interaction involving the apoB100 component of LDL.

Conclusions
The association of PCSK9 with circulating LDL particles may affect the ability of PCSK9 to mediate liver LDL receptor degradation.
We describe the laboratory findings of a 51 year old male patient referred to the Hematology outpatient clinic for a high eosinophil count on the complete blood count. The history and physical examination was negative for any clinical finding. The complete blood count was as follows: WBC 11.8 x 10^9/L, Hb 119 g/L, PLT 150 x 10^9/L with an eosinophil count of 5.6 x 10^9/L (N: 0.1-0.2). On the peripheral blood film, a high eosinophil count with morphological atypia including hypolobation, hypogranulation and dysplastic changes were noted. Bone marrow aspirate and biopsy showed a hyperplastic marrow with trilineage hematopoiesis, high granulocyte to erythroid precursor ratio and high number of eosinophilic precursors, suggestive of a myeloproliferative process. The laboratory investigations were negative for JAK2 V617F mutation and for BCR-ABL, t(9;22). However, a positive platelet derived growth factor receptor alpha (PDGFRα) rearrangement was reported for this patient. These laboratory findings were consistent with a myeloproliferative variant of a hypereosinophilic syndrome known as chronic eosinophilic leukemia with PDGFRα rearrangement. It accounts for 5-15% of chronic eosinophilic leukemias usually resulting from cryptic deletion at (4)q12. This leads to the gene fusion of PDGFRα and FIP1L1, subsequent acquired autonomous tyrosine kinase activity and clonal hypereosinophilia. This condition is also featured by male predominance (M:F=17:1), absent BCR-ABL gene fusion and good response to low dose imatinib. Treatment by the low dose imatinib, allowed normalization the patient’s eosinophil count within one month after beginning of the medication and after 6 months the patient remains in complete remission on maintenance imatinib.
RARE ANTI-ANWJ ANTIBODY CAUSING ACUTE HAEMOLYTIC TRANSFUSION REACTION IN A PATIENT WITH APLASTIC ANEMIA

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AnWj is a high incidence red blood cell (RBC) antigen. There are only 6 published case reports of anti-AnWj antibodies since it was first documented in 1972. Five of these were in association with hematologic malignancies and one other reported case involved a patient with autoimmune haemolytic anemia (AIHA). We now present a case of a patient with aplastic anemia who developed an anti-AnWj antibody with clinically significant haemolysis after transfusion of AnWj positive red cells. Given the patient’s underlying disease, frequent transfusion was required and rare In (Lu) and AnWj negative units had to be procured. The patient subsequently underwent an allogenic bone marrow transplant (allo-BMT) for treatment of her severe aplastic anemia. The transplant failed to completely engraft and the patient remained transfusion dependent until her death. We describe the complicated transfusion investigations and therapies that enabled successful management of the patient and highlight the importance of multi-disciplinary and international collaboration.
PERITONEAL SARCOIDOSIS MIMICKING PRIMARY PERITONEAL CARCINOMATOSIS

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Sarcoidosis is a disease of unknown etiology, characterized by a chronic, systemic granulomatous condition that can affect nearly every organ. It is very rarely identified in the peritoneum, particularly as the only presentation. Here we present a case of primary peritoneal sarcoidosis in a 37 year old woman with ascites, abdominal distention and a thickened peritoneal lining, as well as a grossly elevated CA 125. Histopathologic analysis revealed extensive non-caseating granulomatous inflammation disease consistent with sarcoidosis. Her disease completely resolved with corticosteroid treatment. Sarcoidosis should be considered in the differential diagnosis of ascites and peritoneal nodules along with carcinomatosis, tuberculosis and fungal infections.

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CHANGING TRENDS OF FINE NEEDLE ASPIRATE DIAGNOSIS OF LUNG NEOPLASM IN THE FACE OF CUSTOMIZED PATIENT MANAGEMENT APPROACH. ARE WE GOING TO STEP UP?

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Background: Transthoracic image guided fine-needle aspiration (FNA) is one of the mainstay and utterly useful initial diagnostic modalities for acquiescent focal lung lesions. A large body of literature is available regarding accessibility, yield, sensitivity, specificity and accuracy of lung FNA but recent expectations for profiling classified tumours are becoming an important and desirable diagnosis to tailor tumour specific targeted therapies. The objectives of our study include overall evaluation and efficacy of FNA in the diagnosis of neoplastic lung lesions and to observe the evolvement of diagnostic reporting trends from traditional to more specific classification of tumour and molecular testing phased in at our institution.

Design: Cytology reports of FNA performed on 2206 patients with lung lesions over a 3 year period (2007-2009) were retrieved from the archives of cytopathology of the Ottawa Hospital. During the study period, 517 cases with histologically proven non-small cell carcinoma (NSCLC) diagnoses were identified and evaluated for cytological-histological correlation. Sections of cell blocks of FNA samples of adenocarcinoma cases were tested for EGFR exon 19 and exon 21 mutations.

Results: Patients' age ranged from 31 to 90 years with a male: female ratio of 1.69:1 and collectively a diagnosis of neoplasm was rendered for 75.2% for 2206 FNA procedures performed whereas 2.5% were suspicious for malignancy, 4.8% atypical, 14% negative for malignancy and 3% were non-diagnostic. The sensitivity was 100% as all histologically proven non-small cell carcinomas had positive cytology. A specific diagnosis for adenocarcinoma (AdCa) and squamous cell carcinoma (SqCCa) improved from 33% in 2008 to 42% in 2009 in proven NSCLC cases and a diagnosis of atypical cells decreased from 11.4% to 6.7% in all malignant cases. Accuracy rate for SqCCa was 100% and for adenocarcinoma was 98%. 10.3% of adenocarcinoma FNA samples tested for EGFR mutations were positive.

Conclusions: Relatively less invasive, time efficient and cost effective FNA samples obtained by experienced interventionists are optimal to deliver classified tumor diagnosis in a significant number of non-small cell carcinoma cases. In addition, these samples if preserved properly, can be utilized for immunohistochemical studies to further refine the diagnosis and to perform molecular diagnostic techniques to deliver customized oncological chemotherapeutic patient management Category: Cytopathology
SUDDEN DEATH SUPERIOR MESENTERIC ARTERY THROMBOSIS IN A COCAIN USER

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Background: Cocaine-mediated tissue injury is well established; particularly myocardial ischemia and infarction. Gastrointestinal complications, including mesenteric ischemia, ischemic colitis and intestinal perforation, occur less frequently. Cocaine-induced visceral arterial thrombosis is a rare finding.

Case Report: We report a case of a 49-year-old chronic cocaine user with superior mesenteric artery (SMA) thrombosis. The patient presented with a 24-hour history of abdominal pain, nausea and vomiting. Physical examination documented tachycardia and a soft, non-rigid abdomen with voluntary guarding. Abdominal X-ray did not show any evidence of peritoneal free air or bowel obstruction. Laboratory investigations revealed elevated white blood cells and a high anion gap; a blood gas analysis was not done. Three hours after initial presentation, the patient had a cardiac arrest and died.

Results: At autopsy, the jejunum was ischemic, without obvious infarction. The SMA was occluded at its origin by significant atherosclerosis with superimposed thrombus. The myocardium had old fibrosis, without acute infarction and severe triple coronary artery atherosclerosis was noted. Toxicological blood analysis confirmed cocaine use.

Conclusions: This report emphasizes the need to consider chronic stimulant drug abuse in accelerated atheroma and thrombosis of visceral arteries.
REPRESSION OF CANCER CELL SENESCEENCE BY PKCI

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Senescence is an irreversible growth arrest phenotype adopted by cells that has a key role in protecting organisms from cancer. There is now considerable interest in therapeutic strategies that reactivate this process to control the growth of cancer cells. Protein kinase C iota (PKC\(\iota\)) is a member of the atypical protein kinase C family and an important downstream mediator in the phosphoinositide pathway. PKC\(\iota\) expression was found to be upregulated in a subset of breast cancers and breast cancer cell lines. Introduction of mutant, oncogenic PIK3CA, but not wild-type PIK3CA, into breast mammary epithelial cells increased both the expression and activation of PKC\(\iota\) in breast cancer cells lines overexpressing PKC\(\iota\). Depletion of PKC\(\iota\) increased the number of senescent cells, as assessed by senescence-associated \(\beta\)-galactosidase, morphology and bromodeoxyuridine incorporation. This phenomenon was not restricted to breast cancer cells, as it was also seen in glioblastoma cells in which PKC\(\iota\) is activated by loss of PTEN. Senescence occurred in the absence of a detectable DNA damage response and was enhanced by the aurora kinase inhibitor VX-680. Depletion of PKC\(\iota\) had no effect on senescence in normal mammary epithelial cell lines. We conclude that PKC\(\iota\) is overexpressed in a subset of cancers where it functions to suppress premature senescence. This function appears to be restricted to cancer cells and inhibition of PKC\(\iota\) may therefore be an effective way to selectively activate premature senescence in cancer cells.
MULTIFOCALITY OF WELL DIFFERENTIATED THYROID NEOPLASMS OF UNKNOWN MALIGNANT POTENTIAL.

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Well differentiated Thyroid tumor of Undetermined Malignant Potential (WDT-UMP) are encapsulated thyroid tumors with nuclear changes intermediate between follicular adenomas (FA) and papillary thyroid carcinoma (PTC), therefore inadequate for the diagnosis of PTC. We studied the multicentricity of these lesions. 30 WDT-UMP were sampled extensively and reviewed to identify associated PTC, WDT-UMP and non-encapsulated thyroid lesion with nuclear features of WDT-UMP (NEN-TUMP).

The patient ages ranged from 22-78 (38±15) years with female to male ratio of 4:1. The tumors ranged from 1.3 cm to 6 cm in diameter. Lobectomy was performed in 14 cases and total thyroidectomy in 6 cases (including 3 completion lobectomy of the contralateral side). The WDT-UMPs were associated with incidental PTC (measuring 0.3-0.8 cm in diameter), 3 nodules of WDT-UMP (measuring 0.6-1.5 cm in diameter), and 12 nodules of NEN-TUMP (measuring 0.1-0.8 cm in diameter) in 10 cases. In 6 cases with total/subtotal thyroidectomy, the contralateral lobe contained only a NEN-TUMP measuring 0.1 cm in diameter in 1 case.

**Conclusion:** Unlike FA that are usually unifocal and PTC that are often multicentric and involve the contralateral lobe, WDT-UMPs were associated with PTC, smaller WDT-UMP and NEN-TUMP in nearly 30% of cases. These accompanying lesions were seen in the ipsilateral lobe, and NEN-TUMP was identified in only 1 out of 9 cases. Based on this study with limited number of cases, the recommendation to treat WDT-UMP as a benign lesion without completion lobectomy with appropriate clinical follow-up is likely appropriate.
ONTARIO TUMOUR BANK INITIATIVE AT THE OTTAWA HOSPITAL

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The Ottawa Hospital, Ottawa Hospital Research Institute, Ontario Institute for Cancer Research

The Ontario Tumour Bank is a province-wide biorepository and data bank focused on collection of tumour-related human biospecimens. It provides academic and industry cancer researchers with a diverse selection of high quality tumour-related specimens and data obtained directly by dedicated tumour bank staff, who follow a stringent set of procedures and ethical guidelines.

The biospecimens and clinical data are an important resource for scientists engaged in translational research who are developing better diagnostic tools and new drug therapies. Researchers depend on the Ontario Tumour Bank to provide research biospecimens of high quality, diversity, and integrity.

Operating at state-of-the-art hospitals and cancer centres across Ontario, including The Ottawa Hospital since 2005. The Ontario Tumour Bank coordinates the collection, storage, analysis, annotation, and distribution of tumour and peripheral blood samples. Working in collaboration with local pathologists, medical oncologists, surgeons and other hospital personnel, specially trained staff obtain patient consent, collect tissues and assemble comprehensive clinical information about each donor and the corresponding samples.

The Ontario Tumour Bank is a program of the Ontario Institute for Cancer Research (OICR). Funded by the Government of Ontario, OICR is a not-for-profit corporation that supports research on the prevention, early detection, diagnosis, treatment and control of cancer.
CA 15-3 AS AN ALTERNATIVE MARKER FOR KL-6 IN FIBROTIC LUNG DISEASES

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Background: KL-6 is a mucin that is increased in interstitial lung diseases (ILD), and in some malignancies. CA 15-3, a tumor marker for breast cancer, refers to the same mucin but utilizes antibodies against different epitopes.

Objective: The aim of our study was to evaluate CA 15-3 as a viable alternative to KL-6 as a marker for ILDs with and without fibrosis.

Design: Serums from 242 patients with ILDs and from 327 healthy controls were included and KL-6 and CA 15-3 were measured in all subjects. Regression analyses and ROC curves were used to compare the performances of both markers.

Results: KL-6 and CA 15-3 levels were both significantly higher in the ILD patients compared to the controls (p < 0.0001). A weak yet significant correlation was found between serum KL-6 and CA 15-3 levels in the controls (R=0.39, p<0.0001), but showed a much higher correlation in the patient group (R=0.85, p<0.0001). CA 15-3 correlated best with KL-6 in patients with fibrotic ILDs (R=0.83, p<0.0001).

KL-6 performed better as a marker compared to CA 15-3 in most ILDs. Both markers performed best in identifying idiopathic pulmonary fibrosis (IPF) and were equally able to differentiate between ILDs with and without fibrosis: (sensitivity and specificity %): 100/97, 95/92, and 90/72, respectively.

Conclusion: CA 15-3 and KL-6 are equally sensitive and specific in terms of differentiating between ILDs with and without fibrosis. The wide availability, ease of use, and cost effectiveness, make CA 15-3 a viable alternative for KL-6 as a possible marker for pulmonary fibrosis.
PROTHROMBIN COMPLEX CONCENTRATE IMPLEMENTATION AND USE AT A COMMUNITY HOSPITAL.

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Background: Prothrombin complex concentrate (PCC, Octaplex®) has been available from the Canadian Blood Services since fall 2008.

Purpose/Methods: (1) To describe the step-by-step approach to the successful implementation of PCC at a community hospital within a regional laboratory system. (2) To show the use of PCC after introduction at a community hospital. (3) To show the use of frozen plasma (FP) before and after PCC availability.

Results: (1) Before implementing PCC at the community hospital, an in-service was given to the hospital nursing, medical and laboratory staff, a written policy based on the NACBBP guideline was introduced and one laboratory technologist visited the central regional transfusion medicine (TM) laboratory to receive training in the reconstitution of PCC and in turn trained the rest of the laboratory technologists. (2) In the first year of PCC use (Jan – Dec 2009), 10 patients received PCC for emergency reversal of warfarin. In the second year (Jan – Dec 2010), 10 patients received PCC. Patient pre- and post-INR results and PCC dose will be presented on the poster. (3) FP use at this community hospital is declining, with 20 units of FP issued in 2008 (pre-PCC), 18 units FP issued in 2009 and 17 units FP issued in 2010.

Conclusions: With a step-by-step approach, PCC can be successfully implemented in a community hospital within a regional laboratory system. Most PCC can be administered by the family physicians in emergency, with backup consultation with TM specialists for a few exceptional cases. Since implementation of PCC, FP use has decreased and the blood bank inventory of FP (group AB) has been reduced from 6 units to 4 units.