cryptosporidium as the most frequently pathogens associated. Malignant tumors, commonly seen in patients with AIDS, are very rare in the gallbladder (GB) with only handful reports in the literature : Kaposi's sarcoma, malignant lymphoma, and leiomyosarcoma. We describe the first case of GB adenocarcinoma in AIDS patient.
Design: A 36-year-old man, HIV seropositive at 24, was hospitalized with right upper quadrant abdominal pain. He had chronic liver disease HBV-related, but no previous diagnosis of an HIV-related opportunistic infection. He was on antiretroviral therapy, and 2 years earlier, he had developed intestinal malignant lymphoma, treated by surgery, and chemotherapy. The CD4+ lymphocyte was 30/mm3 at the time of admission. abdominal ultrasound showed polypoid nodules in the GB. The patient underwent laparotomy with cholecystectomy, and liver biopsy. Macroscopically, the GB appeared distended, with two friable polyps (1.3 to 3 cm).There were no gallstones present.
Results: Histopathologic examination of the polyps revealed well differentiated papillary adenocarcinoma involving the muscle layer. Widespread involvement of the mucosa by intraepithelial neoplasia was found. Special stains for acid-fast organisms and fungi were negative, and no viral inclusions were appreciated. Lymph node taken from the porta hepatis showed only reactive hyperplasia, and liver biopsy disclosed portal fibrosis, without cirrhosis. Later, the patient developed intestinal cryptosporoidosis, but at 3-year follow up, there was no evidence of GB adenocarcinoma recurrence.
Conclusion: Although a wide spectrum of AIDS-related cholangiopathy has been reported, malignant biliary tumors remain very rare. The present study describes what is the first case of GB adenocarcinoma in patient with AIDS, and therefore adds yet one more possibility to the growing list of malignancy in these people.

591 THE IMPACT OF HIV INFECTION ON CERVICAL NEOPLASIA IN A KENYAN SEMI-RURAL POPULATION
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Background: Cervical cancer is the second most common cancer in women after breast cancer with 470,000 reported new cases, of which 80% occur in developing countries. It accounts for about 22% of all cancers in Sub-Saharan Africa. The age-standardized mortality in developing countries is estimated to be 2.5 times that of developed regions of the world. In Eastern Africa, the mortality is high partly because women generally present late and facilities for management are grossly inadequate. Cervical cancer is preventable by screening, and curable by treatment at an early stage. However, mortality reduction from cervical cancer in developing countries is only one of the competing priorities for scarce resources. Molecular studies have confirmed the pathogenic role of HR-HPV in cervical carcinogenesis but epidemiological studies show that HR-HPV infections are very common but transient. Only a few persist and induce cervical epithelial lesions. Emerging data is showing that HIV infection influences the persistence of high-risk HPV infection and therefore cervical carcinogenesis. The long-term impact of the HIV epidemic on the incidence of cervical cancer is still uncertain, especially in those countries where the prevalence of both diseases is high. HIV infected women appear to be at increased risk of cervical neoplasia, with faster disease progression and poorer treatment outcomes and therefore require special clinical surveillance for earlier detection and eradication of HPV infection and CIN. Better understanding of cofactors that influence disease progression will leap forward the prevention strategies for countries devastated by the dual impact of HIV and HPV infections. This study aimed to establish as a baseline, the prevalence of cervical neoplasia and human immunodeficiency virus infection in a semi-rural unscreened population of Limuru Division, Kiambu District in Central Kenya. The national prevalence of HIV infection in 2003 was estimated at 14% while that of Kiambu district was 17%.
Design: This was a cross-sectional study. Most women in this community belong to a church or women's group. These social networks were used for recruitment for screening.
Results: From 3400 out of a target sample size of 5000 women screened so far, 264 (7.8%) women had abnormal pap smears. The HIV prevalence in the study group was 9%. All women who had an abnormal smear (ASCUS and higher) were offered colposcopy and biopsy. Out of 65 biopsied so far, 45 had the following results; 8 (18%) were LSIL, 24 (51%) were HSIL and 14 (31%) were chronic cervicitis. Of those that were HIV positive 18 (40%), 5 had a LSIL, 13 had a HSIL compared to the HIV negative 13 (29%), in which 3 had a LSIL on biopsy, and 10 had a HSIL. A total of 2516 (74%) women have returned for their HIV test results.
Conclusion: In this preliminary data, the numbers are small and therefore the differences between HIV positive and negative CIN are not statistically significant. The successes of mounting a dual pap/HIV screening programme include high acceptance rate, return for appointments and relatively low loss to follow-up.

592 THE PATHOLOGY OF ANTIRETROVIRAL THERAPY
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Background: Antiretroviral therapy (ART) has important adverse reactions including immune restoration responses, hepatotoxicity, dermatologic conditions, gastrointestinal complaints, and disorders of lipid and glucose metabolism. Although little has been published on tissue changes related to ART, it is important for histopathologists to recognize these changes.
Design: We reviewed cases from our files to determine the types and frequencies of lesions related to antiretroviral therapy. Lesions were classified as: immune restoration inflammatory syndromes (IRIS), hypersensitivity reactions, other drug toxicity, and metabolic dysfunction.
Results: There were a total of 847 patients for whom we have information on antiretroviral therapy (demographics did not vary significantly between all those on ARV and those with adverse reactions). We identified 172 lesions in 170 patients: 152 males & 18 females. The ages ranged from 10 to 69 years (avg. 43yrs). There were 4 cases prior to 1990; 17 from 1990-1995, and 130 from 1996 (introduction of HAART) through February 2006. The most commonly involved sites were liver (54), skin (38), GI tract (16), soft tissue (14), and lymph node (13). Other sites included bone, bone marrow, breast, CNS, eyes, genitourinary tract, lung, muscle, and oral cavity. There were 30 cases of IRIS (most common infections were mycobacterial and viral). Most of the hypersensitivity reactions involved the skin and ranged from non-specific dermatitis to Steven-Johnson syndrome and eosinophilic hepatitis. There was a range of toxicity/metabolic reactions involving the liver from mild steatosis to severe necroinflammatory lesions. Many of these patients had underlying liver disease. All classes of drugs were implicated, but most patients were receiving drug cocktails containing both reverse transcriptase inhibitors and protease inhibitors.
Conclusions: The number of adverse tissue reactions to drugs is increasing. The reactions can be life-threatening or require suspension of therapy. It is important to document these tissue lesions to better understand their pathogenesis and natural history.

593 CANCER AND HIV/AIDS IN SWAZILAND
Sylvain Longengo Okonda, Swaziland Cancer Registry, Manzini, Swaziland
Sylvain Longengo Okonda, Swaziland Government, Manzini, Swaziland
Background: Swaziland government has declared HIV pandemic a national disaster. HIV prevalence is constantly increasing: it has passed from 25.2% in 1999 to 33.4% in 2001 in adults, with respective death rates of 8.0 and 14.3 per 1000. Currently, the prevalence is estimated to 42.5% (unpublished data). Concurrently, the prevalence of AIDS-related malignancies, defined as AIDS-related conditions, has drastically increased. **Design:** Objectives of this study is to obtain information on cancer prevalence; to examine changes in cancer patterns, particularly in relation to HIV/AIDS pandemic and to a population that is increasingly urbanized and adopting western lifestyle; and to provide clue to the causes of cancer with view to the prevention. The study compares two periods of time in the history of the Swaziland Cancer Registry: the 1979-1983 period considered to be pre-HIV/AIDS era and 1996-1999 period considered to be HIV/AIDS era. Comparison of cancer prevalence and patterns between two periods in both gendres is done using age standardized/adjusted incidence rates (ASIR). As HIV/AIDS pandemic is considered to be the main changing factor of cancer prevalence and patterns, its burden is measured by calculating relative and absulute risks.
Results: The prevalence of cancer in both studies and in both genders is displayed in Tables I and II, while the comparison of prevalences between the two studies in both genders is given in Tables III and IV.
Conclusion: It is difficult to make comparison between both studies because of the differences in case ascertainment. Nevertheless, many of the changes reflect the epidemic of AIDS, which is severe in Swaziland. Thus, the frequency of Kaposi`s sarcoma has increased enormously to reach 16.8% of all cancers in males (ASIR 17.2 per 100 000) and 10.4% in females (ASIR 9.5 per 100 000). In males, the incidence of liver cancer remains high (ASIR 22.0). So is that of prostate cancer (ASIR 21.5) and cancer of the esophagus (ASIR 14.0). In females, the picture is dominated by the extraordinary high rate of cervical cancer: 41.7% of all cancers (ASIR 59.3%). Breast cancer is much less common: 8.9% (ASIR 12.9). Liver and esophageal cancers are considerably less frequent than in males (M:F ratio are in the range 3-4:1).

Immunohistochemistry

594 IMMUNOHISTOCHEMICAL STUDY OF THE HISTOGENESIS OF NASOPHARYNGEAL ANGIOFIBROMAS
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Background: Nasopharyngeal angiofibromas are vascular lesions that occur almost exclusively in male individuals during the peri-pubertal period and have been shown to be positive for androgen receptors. These lesions have been postulated to be hemangiomas or vascular malformations, but their histogenesis remains at best a matter of speculation. This study was done to characterize nasopharyngeal angiofibromas in terms of their histomorphologic components and their immunoreactivity profiles; and to compare the findings with published results for vascular malformations and hemangiomas.
Design: A search of the computerized database of our institutional Anatomic Pathology files for the diagnostic word: angiofibroma, yielded 57 cases diagnosed between January 1990 and August 2005. 25 cases of nasopharyngeal angiofibroma were retrieved from the group. The H&E glass slides were reviewed and the histo-morphologic components of the lesions were recorded. Representative paraffin-embedded tissue blocks were selected for immunohistochemical staining for S100 (a marker for nerves - recently shown to be a reliable as diagnostic criterion for vascular malformation); and also for p57 and Glut1 (recently shown to be reliable markers for hemangiomas). Immunohistochemistry was done on 4µm-thick tissue sections using conventional avidin-biotin complex detection method with antigen retrieval.
Results: Presence of nerves was seen in 16 of 25 (64%) cases in H&E stained sections and in 22 of 25 (88%) cases with S100 immunostain. Fat (mature adipose tissue) was detected in 10 cases (40%). Thick walled vessels were present in all cases and the endothelial cells stained negative for the markers of hemangioma (Glut1 and p57) in all 25 cases.
Conclusion: These results support the theory that nasopharyngeal angiofibromas are vascular malformations - based on their structural components (admixture of thick walled vessels, adipose tissue and nerves) as well as their negative p57 and Glut1 immunoreactivity patterns.

595 IMMUNOHISTOCHEMICAL ANALYSIS OF TISSUE FACTOR EXPRESSION IN HUMAN COLORECTAL CARCINOMA: CORRELATION WITH ANGIOGENESIS, CLINICOPATHOLOGICAL ASPECTS AND SURVIVAL
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Background: It is recognized that there is a potential interaction between malignant cell growth and the coagulation pathway. Recently, some studies suggested that tissue factor,

a primary initiator of coagulation, is expressed in a variety of solid tumors in association with increased angiogenesis.
Design: The immunohistochemical expression of tissue factor and microvascular density (CD34) of 43 colorectal carcinomas treated by surgery at HSL-PUCRS, were compared to TNM stage, gender and age of the patients.
Results: An intensity of tissue factor expression ranging from 50 to 100% of tumor glands was observed in 88.3% of the tumors (38 patients) and was associated with an increased microvascular density (28.4±10.1/0.66 mm2). Patients with high expression of tissue factor had also a mean age of 60.2±11.5 years, whereas the five patients with lower activity of this protein (0 to 50% of tumor glands) were significantly younger (42.6±10.2/0.66 mm2) and presented microvascular densities of 17.1 (±7.9). The intensity of tissue factor expression was not associated with TNM stage or survival in this study.
Conclusion: High intensity of tissue factor expression in colorectal carcinoma appears to be related to microvessel density ($p<0.01$) and to be present in older patients ($p=0.02$). Research of anti-tissue factor drugs may be an interesting target in the treatment this disease.

596 IMMUNOHISTOCHEMICAL STUDY OF UROTHELIAL CARCINOMA IN GROUPS OF PATIENTS WITH DIFFERENT TUMOR PROGRESSION RISK
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Background: We aim to immunohistochemically study the biological agressiveness of bladder urothelial carcinoma in groups of patients with different tumor progression risk
Design: Formalin fixed and paraffin embedded tumor tissues from 32 patients with urothelial carcinoma were examined by immunohistochemistry and CISH methods to analyze expression of p53, PCNA, p16, prothymosin *f*Ñ (pT*f*Ñ stimulator cell proliferation) and presence of DNA HPV 16 and 18 types in urothelial carcinoma of low, moderate and high risk.
Results: HPV 16 and 18 types were found in 25% of all cases, only in groups with moderate and high risk. Expression of p53 was presented in all groups (from 10% to 90% nuclei), but the overexpression of p53 in more then 50% cells was demonstrated in moderate and high risk groups. We observed positive staining of p16 only in tumors of high risk group, in others groups reaction was negative. Expression of P16 was correlated with HPV positive reaction. PCNA and prothymosin *f*Ñ overexpression (more then 80% cells) was found in most tumors of moderate and high risk groups, however the same results were found in 2 from 8 cases of low risk group.
Conclusion: High level expression of p53, p16 and presence of HPV 16/18 types strongly correlate with high risk progression of bladder urothelial carcinoma. Overexpression of p53, PCNA, pT*f*Ñ in tumors of low risk group may be connected with poor prognosis.

597 STUDYING TUMOR PROGESSION IN NON-SMALL CELL LUNG CANCER BY USING TISSUE MICROARRAYS, VIRTUAL MICROSCOPY AND NEW SOFTWARE TOOL
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Background: Lung cancer is one of the leading causes of tumor mortality with poor survival rates even after surgical removal. Some non small-cell lung cancers (NSCLC) form metastases almost exclusively into the brain irrespectively of their primary sizes. In this study, possible markers of the metastatic potential of NSCLC have been tested in NSCLC groups representing different stages of tumor progression, using tissue microarrays (TMA), virtual microscopy and a new software tool.
Design: Paraffin donor blocks of 33 non-metastatic primary NSCLC (18 SCC, 13 ADC, 1 LCC and 1 APC), 26 metastatic primary NSCLC (14 SCC, 10 ADC, 2 LCC) and the brain metastases of the latter were punched (85 cases). TMA sections immunostained for molecules of cell adhesion (BP180/Collagen XVII, CD44, E-cadherin, β-catenin), cell growth (Akt1, EGFR, nm23, Her-2) cell cycle regulation (Cyclin-D1, -D3; Ki67, p16, p21wafl/Cip1, p27kip1) and apoptosis (Bax, Bcl-2, CAS, caspase-3, -8,-9, FAS, p53) were digitalized using the Mirax Scan (Zeiss) instrument. The cores were identified, scored on-screen, linked to patientsâ€™ data and the scores exported back to the Excel lookup file by using the Mirax TMA software. Immunostaining results were statistically correlated with progression groups and patientsâ€™ survival, or subjected to unsupervised hierarchical clustering to be visualized with the TreeView software.
Results: Increased expression of collagen XVII, CD44v6 and caspase-9 and the reduced cellular production of apoptosis susceptibility (CAS) protein and β-catenin and were significantly associated to the brain metastatic primary NSCLC compared to the non-metastatic group. Survival analyses revealed a highly significant negative correlation with the brain-metastatic NSCLC group and a positive correlation with -catenin expression. An almost significant inverse correlation was found between survival and cyclinD3 or p16 expression. 2/3rd of the brain-metastatic cases (16/26) formed a cluster of 24 cases out of 85, including 8 primary NSCLC, based on cyclinD1, -D3, Ki67, p16, p53, β-catenin and collagen XVII expression (correlation: 0.74). Members of the in-cluster group showed significantly poorer survival then those set outside the cluster.
Conclusion: The metastatic potential into the brain of NSCLC cases may be estimated with the concurrent detection of cell cycle activation (cyclinD1, -D3, Ki67), the up-regulation of CD44v6, p16 and Collagen XVII, and the down-regulation of β-catenin, which profile may be useful for prognostic testing of primary NSCLC cases.

598 MULTISPECTRAL IMAGING ENABLES DOUBLE-NUCLEAR AND DOUBLE-MEMBRANE IMMUNOHISTOCHEMISTRY
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Background: Performing multi-analyte immunohistochemistry has potential applications in drug target evaluation and patient screening, including: 1) detection of target co-localization; 2) evaluation of spatial relationships between cell types; 3) signal transduction studies; 4) reduced sample depletion; and 5) decreased reagent utilization. However, analysis of two or more co-localized antigens by brightfield (non-fluorescence-based) microscopy is difficult. Multispectral imaging can resolve the absorption pattern of overlapping chromogens and generate quantitative images of individual analytes. This has immediate application in the study of ER and PR-expression in breast cancer as well as in double immunophenotyping in hematopathology.
Design: Staining and imaging parameters were evaluated to determine optimal procedures. These factors included spectral analyses and comparisons of commercially available chromogen combinations, order of chromogen development, and chromogen development time. Spectral imaging was accomplished using the Nuance™ instrument, an integrated multispectral system that can be attached to any microscope. Automated software tools were developed to quantitate nuclear percent-positivity and degree of colocalization of dual nuclear markers, and assessment of immunophenotype for multiple membrane markers. Additional tools that allowed linking of nuclear to membrane phenotype were also developed and applied.
Results: Staining protocols must be optimized to for compatibility with multiple chromogens. For example, development with Vulcan Red followed by 3-3 – diaminobenzidine (DAB) produced similar immunoreactivity for each analyte, while development with DAB first decreased the intensity for Vulcan Red up to 50% compared to slides stained with Vulcan Red only. Quantitative spectral unmixing of both chromogens from the hematoxylin counterstain was achieved and automated. Colocalization of ER and PR in breast cancer was notably higher in breast cancer lesions compared to corresponding normal breast tissue. Identifying MIB1-(+) B-cells by linking nuclear and membrane markers automatically was also accomplished.
Conclusion: Automated spectral tools can easily separate and quantitate multiple chromogens and counterstain. Colocalization and associations between specific membrane and nuclear markers are readily determined, without the use of fluorescence-based techniques. Brightfield multispectral microscopy holds great potential for further characterizing and subtyping cancers and other pathological processes.

599 ANGIOMYOLIPOMA (AML) AND PERIVASCULAR EPITHELIOID CELL NEOPLASMS (PECOMAS) ARE FREQUENTLY IMMUNOREACTIVE FOR TFE3
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Background: Aberrant nuclear immunoreactivity for TFE3 is a sensitive marker of tumors with known translocations involving the TFE3 gene at Xp11.2. However, TFE3 immunoreactivity has been reported in rare tumors without known TFE3 gene fusions, such as granular cell tumors, adrenal cortical carcinomas, and bile duct carcinoma. Recently, several cases of PEComas has been also reported to be immunoreactive for TFE3. We have performed a more thorough evaluation of the prevalence and degree of TFE3 immunoreactivity in PEComas and AML.
Design: All PEComas, AML, and lymphangioleiomyomatosis (LAM) were retrieved from our files (n=36). All cases were studied with respect to clinical and histopathological features. We performed immunohistochemistry using the polyclonal antibody to the C-terminal portion of TFE3 (Santa Cruz) in formalin-fixed, paraffin-embeded tumors. TFE3 nuclear immunoreactivity was scored based on intensity (0-3) and distribution (percentage of positively stained tumor cells). Cases showing 2+ or 3+ in more than 75 % of tumor cells were considered as positive.
Results: There were 28 renal AML, 1 hepatic AML, 2 LAM, 1 sugar tumor of the lung, and 4 PEComas. Ten patients were male (27.8%) and 26 female (72.2%), with an average age of 56.3 yr (range 30-80 yr). Nuclear immunoreactivity for TFE3 was observed in 17 cases (47.2%): 13 renal AML, 1 LAM, and 3 PEComas. One hepatic AML, 15 renal AML, one lung LAM, one PEComa, and the sugar tumor of the lung were TFE3 negative. Of the 17 TFE3 positive cases, 13 (76.5%) showed strong (3+) and 4 (23.5%) showed moderate (2+) nuclear labeling, in a diffuse pattern (75-100% cells). Positive TFE3 renal AML had highest mitotic index (mean: 1.85; SEM: 0.92) than TFE3 negative renal AML ($p=0.023$). Nuclear immunoreactivity was observed in all positive control cases. TFE3 nuclear labeling was not seen in normal tissues.
Conclusion: Angiomyolipoma and perivascular epithelioid cell neoplasms are frequently immunoreactive for TFE3. The nuclear TFE3 immunoreactivity in these tumors precludes its use in discriminating epithelioid renal AML or PEComas from renal carcinomas associated with Xp11.2 translocations. These results suggest a potential role for TFE3 in the development of these tumors, which warrant further studies. Funded by the Ministry of Health of Spain (FIS 02/0835).

600 THE PRACTICE OF ANATOMIC PATHOLOGY IN A DEVELOPING COUNTRY: SITUATION IN A TERTIARY HOSPITAL IN ZARIA – NIGERIA
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Background: The Department of Pathology Ahmadu Bello University Zaria has been rendering anatomic pathology services to the Northern part of Nigeria since 1972. The department and other clinical service departments of the hospital have been recently upgraded with new facilities and equipments by the national government in November 2005. Prior to this upgrading tissue processing was carried out with obsolete equipments that are frequently disrupted by power outages. Although there are new equipments like modern tissue processors, freezing microtome, immunofluorescence microscope and

radiological imaging machines, there are significant limitations in terms of sourcing of genuine laboratory consumables and capacity to handle this equipment for qualitative health services in a background of limited resources. Our aim is to appraise the service we offer with a view to improving histo/cytopathological service in our hospital and the country at large.

Design: Data from the specimen registers and surgical pathology reports of the Department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria for the year 2005 on the total sample collected, spectrum of lesions encountered and duration between receipt of sample and issuance of result were retrieved. Reports with histopathological descriptions without a well formed conclusion/opinion were considered inconclusive.

Results: There were a total of 1982 surgical biopsies evaluated during the study period. The spectrum of diagnoses issued were 407 malignant tumours cases (20%), 289 cases (14%) of inflammatory conditions, 244 cases of benign tumours (12%) and 793 (40%) cases of non-inflammatory/non-neoplastic conditions. The remaining 238 cases (12%) were inconclusive as only descriptive report could be issued. Of the inflammatory conditions, 14 were histologically consistent with tuberculosis (4 were acid fast positive) while 5 were caused by schistosomiasis. Special stains for fungus and viruses were either unavailable or unhelpful. Reagents for immunohistochemistry were not available and thus adequate tumour profiling is not possible. The average turn around time for our surgical biopsy before and after upgrading of facilities was 18days (range 1-103 days) and 14 days (range 3-28days; for the month of February 2006) respectively. Additionally, there were 5 cases of slide consultation for second opinion from other pathologists in the region.

Conclusion: The practice of anatomic pathology revolves predominantly around neoplastic and inflammatory conditions. The quality of our diagnoses is significantly limited by unavailability of special techniques (both conventional special stains and immunohistochemistry) and expertise to handle our newer equipments. There is a need to collaborate with other centers with experience in these facilities for procurement of laboratory consumables and capacity building. The friends of Africa initiative will have a significant role in this respect.

601 DIAGNOSTIC VALUE OF PAX-5 EXPRESSION IN NON-HEMATOLYMPHOID TISSUES

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Background: Immunohistochemical detection of Pax-5 is of recent date. Pax-5 expression has been previously described in B cell lymphomas and also in poorly differentiated neuroendocrine tumors, but the value of Pax-5 detection in diagnostic pathology has not been fully investigated.

Design: We have evaluated by immunohistochemistry representative samples of adult brain tissues, 53 neuroendocrine tumors including small cell carcinoma, atypical carcinoid and typical carcinoid tumors, 21 samples of mesonephoron-derived tissues, and 21 control cervical malignant tumors. A pre-B lymphoma cell line Daudi and a small cell carcinoma cell line NCL-H128 were evaluated by Western blot and immunocytochemistry. All samples were immunostained by mouse monoclonal anti-Pax-5 antibody by using standard synthetic polymer-based detection methods.

Results: Our study describes for the first time distribution of Pax-5 in adult brain tissues including periaqueductal gray matter of the midbrain, area postrema of the medulla oblongata, and occasional cells of the spinal trigeminal nucleus (caudal nucleus). We also confirm that Pax-5 is regularly expressed in poorly-differentatiated neuroendocrine tumors, but never in well-differentiated classical carcinoid tumors. In addition, Pax-5 expression was also readily found in benign and malignant mesonephric tissues and focally in rare Mullerian duct-derived tumors. Expression of Pax-5 in the pre-B lymphoma cell line Daudi and the small cell carcinoma cell line NCL-H128 was confirmed by western blot analysis and immunocytochemistry.

Conclusion: Together, these results are of major importance for correct interpretation of results in immunophenotyping of undifferentiatiated tumors, for diagnosis of mesonephric carcinoma and potentially for correct classification of neuroendocrine tumors in small biopsy samples.

602 NORDIC IMMUNOHISTOCHEMICAL QUALITY CONTROL (NORDIQC)

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Background: An expanding part of tumour diagnoses rests largely upon the outcome of immunohistochemistry (IHC). However, IHC is far from standardized, and the staining quality can vary greatly between different laboratories depending on the technical expertise and protocols employed, hampering the reliability of IHC. While internal quality control (IQC) procedures are essential for reproducibility of the immunohistochemical (IHC) performance in the individual laboratory, they will not necessarily identify a poorly calibrated IHC system giving insufficient stains. In contrast, external quality assessment (EQA), which retrospectively and objectively compares staining results from many laboratories by means of an external agency, allows the identification of insufficient stains and inappropriate protocols.

Design: NordiQC has established an EQA consisting of three annual runs each catering for 6-8 markers selected among those commonly used for diagnostic purposes in pathology laboratories. Participants enrol by completing a web-based questionnaire detailing the technical variables. Multi-tissue blocks are made from several normal and tumour tissues selected to include cells with varying content of the epitopes to be detected. During 2002-05, NordiQC has accomplished EQA of staining for 65 epitopes one to three times, while the number of participating laboratories has reached 100. All general results are detailed on www.nordiqc.org.

Results: The over-all assessment results from about 3500 stained sections were: optimal 35%, good 33%, borderline 21%, and poor 12%. In about 90% of the stains deemed insufficient (i.e., borderline or poor), the staining reaction was too weak or false negative. For the large majority of markers, the probable main causes of insufficient stains were: Less successful antibody; inappropriate choice of antibody; the antibody being too diluted or too concentrated; the epitope retrieval insufficient or inappropriate; and false positive staining due to endogenous biotin. Often a combination of several of these factors was identified. The specific suggestions given by NordiQC for improvement of insufficient protocols seem to have some effect. For instance, when submitting stains for the second estrogen receptor (ER) run thirteen out of 25 laboratories, which had insufficient stains in the first ER run, changed their protocols according to the NordiQC recommendations. Of these ten (77%) improved their score. Among the twelve laboratories, which did not follow the recommendations, only three (25%) improved their score.

Conclusion: EQA serves as an early warning-system for problems, identifies methodological errors, provides objective evidence of laboratory quality, serves as an indicator of where to direct improvement efforts, identifies training needs, and provides a platform for identification of important research questions. EQA should be implemented as a standard in the IHC laboratories.

Infectious Disease

603 ELDERLY WITH CYSTICERCOSIS: EPIDEMIOLOGICAL AND MORPHOLOGICAL CHARACTERISTICS

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Background: Aging determines alterations, such as a reduction in immunity, associated with chronic-degenerative diseases and subnutrition. Cysticercosis is a parasitic disease caused by the larval stage of Taenia solium, and has variable manifestations according to development phase of the parasite and host immune response. The aim of this study was to compare epidemiological and anatomopathological characteristics of the cysticercosis in elderly and non-elderly patients.

Design: We reviewed 74 protocols of autopsies performed at School Hospital. We selected four groups: elderly or non-elderly with cysticercosis, or without cysticercosis.

Results: From the patients with cysticercosis, 27.8% were elderly. Of these, 80% presented neurocysticercosis and 20% cardiac cysticercosis. In the elderly, the early stages of the parasitic development, Vesicular and Colloidal Vesicular, prevailed (60%). Most of the elderly and non-elderly with cardiovascular cause of death presented cardiac manifestations of Chagas disease. Among the causes of death in the elderly, cardiovascular represented 55%, and neoplastic 40%, in non-elderly, cardiovascular 63.5%, and infectious 25%. There was a significant difference between groups with relation to neoplastic and infectious causes.

Conclusion: Therefore, cysticercosis was frequent in elderly patients and perhaps, related to the immunodeficiency in the aging associated with immunological alterations caused by cysticercosis, forming favorable conditions to the development of neoplasias. Probably the patients continue becoming infected with cysticercosis as they age.

604 DISSEMINATED HERPES SIMPLEX VIRUS INFECTION IN A STILLBORN: AN AUTOPSY CASE REPORT SUGGESTING AN ASCENDING ROUTE OF INFECTION

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Background: The majority of reported Herpes simplex virus (HSV) infections in pregnancy are transmitted to the neonate via passage through an infected birth canal. Intra-uterine infection by HSV also occurs either via the transplacental (hematogeneous) route or across the amniotic membranes, from the vagina or cervix. Most reports of intra-uterine infection are associated with primary maternal genital herpes during the first trimester. However, such infections may be asymptomatic. The fetal consequences include an increased frequency of spontaneous abortions, stillbirths, and congenital malformations.

Design: The clinical record was reviewed, followed by gross and microscopic examination of the 24+1 week stillborn. H&E-stained slides of multiple organs were examined, and immunohistochemical staining for HSV type I and/or HSV type II was performed on selected organs.

Results: The 20 year-old primagravida did not have a history of genital herpes. The fetal demise occurred between 22-24 weeks gestation. Gross examination of the stillborn male revealed marked intrauterine growth restriction. The stillborn weighed 325 grams with an expected weight of 535 grams. The placenta was also very small for gestation weighing 97.5 grams with an expected weight of 233 grams. Tan-yellow discolorations on the liver capsule, in the liver parenchyma, and on the lung pleurae were grossly identified. Microscopy of the liver, adrenal glands, lungs, and heart showed areas of necrosis and calcification with few cells showing viropathic changes of eosinophilic intra-nuclear inclusions with margination of host chromatin. Immunohistochemical staining for HSV type I and/or HSV type II revealed intense intranuclear and some intracytoplasmic staining in these organs, confirming an HSV infection. Histopathologic examination of the placenta revealed mild, acute chorionitis but no villitis or virus infected cells. Immunohistochemical staining of the placenta failed to reveal viral infection. The umbilical cord had a nearly circumferential subamniotic condensation of Wharton's jelly with increased numbers of macrophages, confirmed with immunohistochemical staining for CD68. This finding suggests a resolved funisitis.

Conclusion: The intrauterine demise of this 24+1 week male fetus was due to severe disseminated HSV infection involving at least the liver, adrenal glands, lungs, and heart.