A-50 CYTOLOGIC DIAGNOSIS OF LYMPHOMA IN SEROUS EFFUSIONS

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OBJECTIVE: The cytodiagnosis of malignant lymphoma in serous effusions can be challenging, and classification of lymphomas by cytologic means in extranodal sites is controversial. This study was undertaken to evaluate how often specific classification of lymphoma was achieved in serous effusions using a combination of morphology and immunophenotyping.
METHODS: Case files from 2002 to 2006 were searched for cases of serous effusion on which an unequivocal diagnosis of lymphoma was rendered. Cases were reviewed for the completeness of investigation including morphologic assessment and immunoprofiling to determine the contribution of these parameters to specific lymphoma classification.
RESULTS: There were 67 confirmed cases of lymphoma in 56 pleural and 11 peritoneal fluids from 45 patients (19 women, 26 men). Immunophenotypic analysis (laser scanning cytometry, flow cytometry, immunocytochemistry), molecular analysis, or a combination of these techniques was triggered by morphologic assessment and performed in a majority of cases. Cytologic diagnoses rendered for patients were 17 (37.8%) large cell lymphoma, not otherwise specified (NOS); 11 (24.4%) large B-cell lymphoma; 3 (6.7%) small B-cell non-Hodgkin lymphoma; 4 (8.9%) small lymphocytic lymphoma; 2 (4.4%) follicular lymphoma; 2 (4.4%) Burkitt's lymphoma; 2 (4.4%) peripheral T-cell lymphoma; 1 (2.2%) primary effusion lymphoma; 2 (4.4%) non-Hodgkin lymphoma (NHL) NOS; and 1 (2.2%) T-cell lymphoblastic lymphoma or leukemia (T-ALL). Lymphoma diagnosis without subtype was usually associated with incomplete immunophenotypic data due to inadequate or inappropriate material, but occasionally was due to ambiguous immunophenotype in marginal zone lymphomas or unsuccessful immunophenotyping due to antigen loss.
CONCLUSION: Using a combination of morphologic criteria and ancillary investigations specific lymphoma subtype diagnosis is possible in serous effusions. Successful ancillary studies are dependent on history or clinician request triggering rapid assessment screening of samples so that material can be optimized for appropriate studies.

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A-51 THIS ABSTRACT WITHDRAWN FROM THE PROCEEDINGS

A-52 CYTOMORPHOLOGY OF EPITHELIAL CELLS ON CONVENTIONAL CERVICAL SMEARS FROM HUMAN IMMUNODEFICIENCY VIRUS–INFECTED WOMEN

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The detailed cytomorphologic changes of cells on conventional cervical smears from human immunodeficiency virus (HIV)-positive women have not been intensively studied or documented. It has been suggested that concurrent infection by HIV, human papillomavirus (HPV), and other sexually transmitted diseases make the accurate diagnosis and management of cervical intraepithelial lesions difficult. In a retrospective pilot study, 175 smears from HIV-positive women at Groote Schuur Hospital Cape Town, were reviewed. A total of 16 atypical squamous cells of undetermined significance (ASCUS), 50 low-grade squamous intraepithelial lesions (LSILs), 22 high-grade squamous intraepithelial lesions (HSILs) and 1 squamous carcinoma were found. Three were unsatisfactory and 84 were normal or reactive. Prominent abnormal cytologic features were noted: macrocytic cells (23×133 μm), intense widespread orangeophilia, multinucleation, phagocytosis, engulfed parabasal cells and cells with "dendritic processes." Florid sexually transmitted infections and retroviral drugs could also cause some of these changes. Spermatozoa were noted on several smears. Causes for macrocytosis may be HPV infection, vitamin B6 or B12 deficiency, pregnancy and retroviral effect. Macrocytosis is seen in bone marrow and brain smears in association with HIV infection. Intense orangeophilia (keratinization) in bizarre cells is seen in vitamin A and E deficiency. HIV-infected patients suffer from multiple vitamin deficiencies that are resistant to dietary vitamin therapy. Recognition, study and discussion of these exaggerated cellular changes may be useful in reducing inappropriate referrals to colposcopy and poor histologic correlation. HIV and acquired immune deficiency syndrome (AIDS) is the only killer epidemic infection in human history that we can study while the patients are still relatively well. Cellular material from the cervix from these women yields valuable biologic material for ongoing studies in molecular biology, virology, microbiology and development of vaccines.

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A-53 CELL-MEDIATED IMMUNITY AND ENERGY PRODUCTION DEFECTS IN PRECANCEROUS CERVICAL LESIONS

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OBJECTIVE: Comparison of cell-mediated immunity failure using different antigens with cytology and histology of cervical lesions might indicate mitochondrial energy production defects in progress of human papillomavirus (HPV) infection.
MATERIALS AND METHODS: Pap smears, histology, and colposcopy methods are used for diagnosis of precancerous cervical lesions. In vitro leukocyte adherence inhibition (LAI) assay based on observation of T lymphocyte adherence to substrates is understood to correlate with cell-mediated immunity. T lymphocytes prepared from blood taken from healthy women and precancerous patients were examined. Effects of specific (prepared from corresponding tumor) and of nonspecific (prepared from blood of mice infected with LDH virus invading energy production system in cells) antigens on cell-mediated immunity were evaluated and compared.
RESULTS: Immunity failure is displayed in the majority of precancerous cases. The average number of nonadherent T lymphocytes with specific and nonspecific antigens are 67% and 79% (low-grade squamous intraepithelial lesion [LSIL]) and 68% and 85% (high-grade squamous intraepithelial lesion [HSIL]), respectively. Effects of nonspecific (specific) antigen correspond to (are smaller than) those observed in all types of cancer investigated.[1,2] We may conclude that LDV and HPV infections cause very likely similar damage to the cellular energy production system and that in precancerous stages the energy-producing system is completely transferred to the malignant type. Reduction of energy excitation of en-

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dogenous electromagnetic vibrations is assumed to take significant part in malignity of cells.[3]
CONCLUSION: Cell-mediated immunity in precancerous cervical patients examined with nonspecific antigen does not differ from that of cancer patients. Malignant transformation of glycolytic and mitochondrial energy production systems is very likely completed to start invasive growth.

References

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A-54 A MOBILE FINE NEEDLE ASPIRATION CYTOLOGY CLINIC IN RURAL UGANDA

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OBJECTIVE: To illustrate the value of fine needle aspiration cytology (FNAC) in providing pathologic diagnoses in a low-resource rural setting of a developing nation.
MATERIALS AND METHODS: We present our experience with a mobile FNAC clinic in Hoima, in rural western Uganda, during the annual volunteer surgical camp of the Association of Surgeons of Uganda. In the past, patients were treated without pathologic diagnoses, since this service was unavailable. In 2005, for the first time, 2 accompanying pathologists assessed patients referred to the FNAC clinic. We brought all the required materials and equipment, including a double-headed microscope. Patients were examined, their lesions were photographed and fine needle aspiration was performed. Smears were prepared, and selected slides stained for immediate microscopy and a preliminary cytologic diagnosis. All the slides were saved and restained for a final cytologic diagnosis after we returned to Kampala.
RESULTS: A total of 28 patients were assessed. Aspirated sites included soft tissue (9), thyroid (6), skin (4), breast (3), male genitalia (3), abdomen (2) and lymph node (1). Many lesions were advanced, reflecting the inaccessibility of adequate medical care. FNAC usually supported the clinical impression. Occasionally, it yielded clinically unexpected diagnoses, such as metastatic melanoma, low-grade cutaneous sarcoma and tuberculous epididymitis. This last diagnosis was made intraoperatively and resulted in surgical sparing of the testis. Most final cytologic diagnoses agreed with the preliminary cytologic diagnoses (96%). Follow-up surgical specimens were available in 2 patients. In one of them, an ulcerating lactating adenoma of ectopic breast was overdiagnosed cytologically as carcinoma. In the other, a large scalp tumor was diagnosed cytologically as a low-grade cutaneous sarcoma, with subsequent histologic confirmation.
CONCLUSION: Our experience in Uganda shows that a mobile FNAC clinic can play an important role in providing pathologic diagnoses in low-resource rural settings of developing nations.

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DIAGNOSTIC CYTOLOGY: LUNG

A-55 IMPACT OF MICROPAPILLARY CLUSTERS ON LUNG CANCER TREATMENT

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BACKGROUND: Cytologic micropapillary clusters (MPCs) are round, 3-D and cohesive clusters of cancer cells with a pseudopapillary configuration. Recently, we clearly demonstrated that MPCs from early-stage lung adenocarcinomas can be considered useful aids to assessing prognosis. We here demonstrate the clinical impact of MPCs on lung cancer treatment.
STUDY DESIGN: Study I examined MPCs and prognosis of early-stage lung adenocarcinomas. We reviewed the clinical course, preoperative cytologic specimens and histologic materials in 110 cases of stage I lung adenocarcinomas presenting during 1986–1995. The frequency of MPCs on the slides was investigated, and patients were subclassified into MPC-positive and -negative groups. Survival of the latter for 5 years was 91%, whereas in the positive group it was 76%, the difference being statistically significant. Thus the MPC is a distinct prognostic marker for early-stage lung adenocarcinomas. Study II examined MPCs and the response of lung adenocarcinomas to gefitinib. Between June 2002 and October 2003, 36 adenocarcinoma patients who experienced a relapse after surgical resection were treated with gefitinib. Associations between the response to gefitinib and cytologic characteristics were then investigated. As a result, a significant inverse link between gefitinib efficacy and MPCs was observed ($p = 0.0021$). Study III examined the surgical impact of MPCs in preoperative cytologic specimens. We reviewed the metastatic status of dissected lymph nodes and presence of MPC in cytologic specimens in 203 cases with "clinical" stage I lung adenocarcinomas undergoing surgical resection during 2004–2006. As a result, significant associations between the existence of MPCs and the frequent lymph node metastasis and vascular infiltration on pathologic examination were observed ($p < 0.05$).
CONCLUSION: Preoperative detection of MPCs, therefore, should alert the surgeon to the necessity for radical lymph node dissection and the clinician to the need for close follow-up and use of gefitinib in patients with recurrence.

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A-56 CYTOLOGIC FEATURES OF PULMONARY FEATURES OF PULMONARY LARGE CELL NEUROENDOCRINE CARCINOMA: COMPARISON WITH SMALL CELL CARCINOMA

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OBJECTIVE: The 1999 World Health Organization classification of lung and pleural tumors described large cell neuroendocrine carcinoma (LCNEC) as a subtype of neuroendocrine tumors, although it was subcategorized as a type of large cell carcinoma. However, it is difficult to diagnose LCNEC pathologically and cytologically. The purpose of present study was to establish cytologic features of pulmonary LCNEC.

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