Fine Needle Aspiration Cytology of Ocular Lesions

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OBJECTIVE: Fine needle aspiration (FNA) biopsy of ocular lesions is an interesting method in cytology for identification of benign and malignant diseases.
STUDY DESIGN: FNA was performed on 30 patients with eyelid masses. Histopathologic study was performed in all but one of the cases.
RESULTS: FNA cytology made the diagnosis of eyelid conjunctiva malignant melanoma (4), extracranial meningioma (orbital region) (1), pseudotumour of conjunctiva (2), cyst of conjunctiva (3), squamous cell carcinomas (2) and basal cell carcinomas (18). The diagnostic accuracy of FNA cytology in evaluation of eyelid masses was 86.7%.
CONCLUSION: FNA cytology is a simple and useful method for the diagnosis of ocular neoplastic masses.

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Improved Screener Vigilance and Productivity with Automated Specimen Premapping

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OBJECTIVE: Screening for cervical cancer presents continued challenges to the clinical cytology laboratory. Among them are improving productivity while maintaining screener accuracy. Automated premapping of cervical cytology specimens has utility in decreasing the slide area to be examined by the screener and improving signal-to-noise ratio.
STUDY DESIGN: Routinely stained cervical cytology slides were automatically prescreened and mapped using the TracCell Specimen Mapping System. Material for subsequent human review was located, and a preferred routing plan was established for each slide. Variable slide focus and review speed were calculated. Bar codes were utilized to ensure patient/specimen identification. Premapped slides were then reviewed by cytotechnologists using an AcCell precision microscopy workstation, with review of each slide automatically guided by the TracCell map.
RESULTS: Slide area to be reviewed by the human screener was decreased, with the percentage of decrease depending upon specimen density, specimen coverage and staining. Screener attentiveness improved.
CONCLUSION: Premapping of cervical cytology specimens for the purpose of identifying location of material for screener review, when coupled with presentation of the mapped area using an automated precision microscopy workstation, decreases the slide area that must be reviewed by the human screener and may provide improved screener vigilance by increasing the signal-to-noise ratio.

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Computer-Assisted Image Analysis in the Discrimination Between Parathyroid Adenoma and Hyperplasia

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OBJECTIVE: Parathyroid aspirates were analyzed by morphometry on a computer-assisted image analyzer in order to obtain valuable parameters in differentiating between parathyroid adenoma and hyperplasia. There are no data on parathyroid morphometry by computer-assisted image analyzer, whereas our results showed this method to objectively discriminate between parathyroid adenoma and hyperplasia.
STUDY DESIGN: The nuclear area and perimeter were morphometrically analyzed in each smear of 10 pathohistologically confirmed adenomas and 10 hyperplasias; in the groups of adenomas and hyperplasias, 480 and 494 cell nuclei, respectively, were analyzed.
RESULTS: Results of the nuclear size measurements in the parathyroid aspirates showed a statistically significant difference in the values of area and perimeter of measured nuclei between adenoma and hyperplasia at the level of 1%.
CONCLUSION: Morphometric analysis confirmed the nuclear size and differences in the size of nuclei to be valuable parameters in the differentiating between parathyroid adenoma and hyperplasia in the cytologic smear. Using this method, it is possible to prove the diagnosis of parathyroid adenoma vs. hyperplasia with increased accuracy.

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Preoperative Determination of DNA Ploidy and Hormone Receptor Status (ER and PgR) on Cytologic Material from Breast Cancer Patients Using Image Cytometry

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OBJECTIVE: FNAB of breast masses is a commonly performed diagnostic test. DNA ploidy, along with estrogen (ER) and pro-

gesterone (PgR) receptors, is becoming increasingly useful as a prognostic adjunct to conventional staging and histologic grading. These prognostic parameters could be assessed preoperatively by using FNAB material.
STUDY DESIGN: Sixty-three breast cancer aspirates were assayed for DNA distribution patterns and hormone receptor status with the CAS 200 Image Analyzing System. Consequently, their relations with well-established conventional prognostic factors in breast carcinoma (tumor size, lymph node status and histologic grade) were analyzed.
RESULTS: The majority of the primary invasive breast carcinomas were aneuploid (43/63). Most of the aneuploid tumors had histogram type IV (31/43). The data showed that breast carcinomas in which the DNA amounts of the tumor cells were euploid (histograms of types I and II) were characterized by high levels of ER and PgR, while aneuploid types (histograms of types III and IV) had low levels of ER and PgR. Of the aneuploid breast carcinomas, 86.1% (37/43) had lymph node involvement, while only 40% (8/20) of the euploid carcinomas had lymph node involvement. The majority of the aneuploid carcinomas were of ductal type (29/43), while most of the lobular carcinomas were euploid (9/20).
CONCLUSION: Our results strongly indicate a correlation between nuclear DNA distribution patterns, hormone receptor levels and postsurgical factors of prognosis in primary breast carcinomas. By determining the DNA ploidy and hormone receptor status preoperatively, the planning of treatment options available to breast cancer patients could be improved.

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US-Guided FNAB: A Useful Method of Diagnosing Hydatid Cysts and Actinomycotic Abscesses of the Liver and Pancreas

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OBJECTIVE: In the four presented cases, US-guided FNAB was performed for expansive liver and pancreatic lesions mimicking malignant tumors.
RESULTS: In the smears of two liver lesions, *Echinococcus* hooklets were demonstrated. Later, these hydatid cysts were removed without complications. The smear from the liver lesion of the third patient contained necrotic material, masses of neutrophil granulocytes and *Actinomyces* sulphur granules. The control FNAB following powerful antibiotic therapy showed neither residual microorganisms nor acute inflammatory cells. The lesion transformed into granulation tissue. In the fourth case, several abdominal operations were performed for recurrent pancreatitis. Many years from the first operation a tumor mass replacing the pancreas was found on CT scan and ultrasonography. Although the lesion was reported as inoperable, FNAB was performed and showed masses of *Actinomyces* sulphur granules. Appropriate antibiotic therapy cured the disease.
CONCLUSION: Our four cases are proof of the usefulness of cytology in finding special (and diagnostic) pathogenic agents in inflammatory processes of the liver and pancreas.

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Giant Cell Bone Tumor in a Child: A Differential Diagnostic Dilemma

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OBJECTIVE: To discuss the diagnostic problems in the differentiation of giant cell tumor of bone from giant cell tumors of soft tissue and tendon sheath.
CASE: A 5-year-old boy had a tumorous swelling on the proximal phalanx of the left second toe. The tumor was aspirated, and a cytological diagnosis of giant cell tumor of bone was established. Four weeks later the tumor was excised, and a pathohistological diagnosis of xanthogranuloma histiocyticum was made: a moderate number of syderophagocytic and xanthomatous cells was found among the great number of fibrocytic cells and giant cells (as in the cytological smears).
CONCLUSION: Although the age of the patient, as well as the location of the tumor, could have been in favor of the diagnosis of tendon sheath tumor, the absence of histiocytic cells in the cytological smears suggests that those cells in tissue sections were the result of fine needle aspiration and that it really was a bone tumor, as could be seen radiographically.

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Cytology of Mediastinal Tumours

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OBJECTIVE: Diverse tumours arise in the mediastinum, and they are accessible by transthoracic fine needle aspiration biopsy (TFNAB). We report our experience with cytological specimens of mediastinal tumours. The aim of the study was to determine the efficacy of the method used and reliability of cytological diagnoses.
STUDY DESIGN: We analysed patients with mediastinal tumours who underwent TFNAB from 1986 to 1995. All TFNAB were performed under radiological guidance. In the latter years a cytopathologist was present to evaluate the quality of the specimen using toluidine blue stain. The specimens were smeared