Technical methods

"Cell-block" technique for fine needle aspiration biopsy

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Fine needle aspiration biopsy for the diagnosis of various neoplastic lesions is a well established procedure.¹ However, its use is still far from being universal, probably because of the pathologists' unfamiliarity with the type of cellular elements in the cytological preparations of aspirated material. The technique described below reduces the aspirates to the accustomed formalin-shrunk appearance of cells and tissues stained with one's own routine histological stain.

Material and methods

The aspirate is expelled into a tapered centrifuge tube filled with 10% formalin solution. The syringe and the needle are thoroughly rinsed with formalin to remove the remnants of the aspirate. The tube is centrifuged for two to three minutes at 2500-3500 rpm without braking to avoid resuspension of the aspirate. The formalin is decanted and replaced with 0.02% toluidine blue solution in isotonic saline. The tube is centrifuged again and the supernatant decanted.

Two drops of plasma are placed on the bottom of the tube, followed by four drops of Simplastin (General Diagnostics; Warner-Lambert Ltd). When clot is formed the tube is filled with formalin and the clot is handled as a surgical specimen.

Comment

Although the cell-block technique is not new, handling of the specimens in a conventional manner² occasionally results in considerable loss of material and is inconvenient. Some use agar to bind the sedimented cells and tissue particles (MJP Schryer, personal communication, 1981) but, since the agar has to be kept hot, the procedure is also inconvenient.

The technique described here is similar to that described by Graves.³ However, because the material in our method is fixed in formalin at the time of aspiration, it does not require immediate attention. Also, the use of a commercial plasma and activation of thromboplastin with calcium are eliminated. In addition, Graves does not use toluidine blue stain which enables the histotechnologist to see the aspirated material during embedding and cutting and consequently to conserve it. The toluidine blue does not interfere with subsequent staining of sections.

The technique has two advantages over the usual cytological smears. Thick tissue particles which cannot be properly examined on a smear provide sufficient material for a good section (Figure). Some

Section of an aspirate from female breast. Haematoxylin-phloxine-saffron stain $\times 400$.

particles may even provide enough material for further routine sections or special stains. Also, the cellular elements in this type of preparation are concentrated in a small area of the slide, making their examination less time-consuming. The technique was successfully used for processing of bronchial washings and can be used whenever the specimens consist of minute, barely visible particles floating in a fluid.

References

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