



Fine Needle Aspiration Cytology

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ABSTRACT: Fine needle aspiration cytology is a simple quick and inexpensive method used to sample superficial masses like those found in the neck and usually performed in the outpatient clinic. The objective of this descriptive study was to see the fnac used in clinicals. The advantages and Staining methods and the patients presenting with the swellings coming to the surgical outpatient. It causes minimal trauma to the patient and carries virtually no risk of complications.

Keywords: Fine needle aspiration cytology, Staining,

I. INTRODUCTION:

The management of any disease a definitive diagnosis is mandatory. Oral lesion often pose a diagnostic dilemma , so as it decide the definitive line of treatment. Fine needle aspiration cytology is a safe simple and reliable method of diagnosing suspect lesion in head and neck region and greatly aids in implementation of appropriate therapy.

Martin and Ellis considered the proper of FNAC. The history FNAC dates back 19th century. The first recorded utilization of FNAC was in 1833.

St.Bartholomew's hospital London, aspiration was undertaken by Stanley and Frale on a large mass in liver of 62 years old women.

The aspiration was performed by 18 gauge needle but now a days, larger gauge 22 advocated by France and EE AL.

FNAC will not gained much popularity for diagnosis of oral lesion.

It will be regularly used in the disease of thyroid gland, salivary gland and lymph node[1]

CYTOLOGY DEFINITION:

The cytology or cell biology is a biological science which deals with the study of cells from morphological biochemical, physiological, developmental genetically, pathological and evolutionary point of views.

Types:

- Exfoliative cytology
- FNAC[2]

EXFOLIATIVE CYTOLOGY:

The study of cells which exfoliate or abraded from the body surfaces-these exfoliative cells as well as cells which are scrapped off by means of specific instruments can be studied quantitatively or qualitatively.[3]

DEFINITION:

Fine needle aspiration is a diagnostic procedure used to investigate lumps or masses. In this technique a thin, hollow needle is inserted into the mass for sampling of cells that after being stained, are examined under a microscope.[4]

ARMAMENTARIUM:

Equipment used for aspiration;

- 20 ml disposable syringe
- 1 inch long 23-25 gauge needle
- Cameco syringe holder
- 5% providing
- Disposable gloves
- Slides and papanicolaou
- Gumsa stain[5]

PROCEDURE ;

Under aseptic condition needle was fixed to a syringe and held firmly in cameco holder.

With the holder in the right hand the needle was pulled back to the most distal position



to maintain a negative pressure in the syringe. the needle was moved forward and backward in the lesion so as to traumatized the tissue.

The negative pressure was then slowly and completely released and the needle was taken out of the lesion. firm pressure at the site of puncture given with cotton for atleast 5 minutes to prevent hematoma formation. Patient prescribed analgesics, if needed.

The needle and syringe will removed from the cameco syringe holder. the needle was detached from the syringe and reattached after the plunger back was pulled back.

The aspirated material was pushed onto the marked clean side .a minimum of 4 slides were prepared by spreading the material along the length of the side.

Two slides were prepared with may Grunwald giemsa Staining and 2 were stained with papanicolaon Staining. The slide were in 95% ethanol for 15 to 30 minutes for papanicolaon Staining and in methanol for 15 minutes for may Grunwald giema Staining the stained slides were examined by an experienced cytopathologist so as to make the cytology diagnosis.

All the lesion subjected to excisional or incisional biopsy. Histopathological examination of the biopsy specimen was carried out by an experienced pathologist.

The results of cytology and histopathologic diagnosis were analysis and compared. sensitivity of 100% suggest the practice of FNAC with selective CNB .it is more sensitive than the average sensitivity of alone 80% and CNB alone 92% where its specificity of 92.3%.

AREAS COLLECTING SMEAR:

The most common area for collecting smears within the oral cavity,buccal mucosa,hard and soft palate line dorsum of tongue,bottom of mouth and lower labia region.

FNAC AS A TOOL IN CLINICAL INVESTIGATION:

- FNAC was initially means to conform a clinical suspicion of local recurrence or metastasis of known cancer without subjecting the patient to further surgical intervention.
- The clinic value of fnac is not limited to neoplastic conditions.in which samples can be used for microbiological and biochemical analysis in addition to cytological preparation.
- This is particularly important in patients with Aids

- FNAC has proven useful in diagnosis and monitoring of graft rejection in transplantation surgery.

ADVANTAGES:

- This advantages to patient doctors and tax payers.
- Thus technique is minimally invasive produce a speedy result and inexpensive
- The method is applicable to that are easily palpable in the skin,and soft tissue and thyroid ,breast, salivary gland and superficial lymph nodes.
- This is less demanding technology than surgical biopsy
- As a lower risk of complication and can be performed as a office procedure in out patient department and in radiology theaters saving expensive days in hospitals. [6]

STAINING METHODS;

PERIODIC ACID SCHIFF STAIN:

It was introduced by Mala prade about 20 years ago. Periodic acid oxidises glycols with vicinal OH groups to molecules of aldehyde.It is popularly used for true facts.

1. It gives information of a chemical nature of structure stained
2. It discloses morphological details impossible to visualize with any other methods.

PAPANICOLAOU STAINING:

Contents:

- Hattie hematoxyin
- Orange G6
- EN 50

The pap stain uses a standard nuclear stain, haematoxylin and two cytoplasm counterstrike OG-6 and EA.

A pap stain as fast as differential quick diff-quick yet with cytomorphology as exquisite as that prosses by thin preparation for optimal evaluation of fnac was described by yang.

Satisfactory results where obtained after three modification were made.

1. Rehydration of air dried smears with normal saline.
2. Use of 4% formaldehyde 65% ethanol fixative
3. Used of Richard Alan haemotoxylin 2 and cyto stain.

Pap procedure;

Step 1:to make the cell larger

2:to haemolyse the background blood

3:to bring the vibrant colours in the cells which stain red.



ROMANOWSKY STAINING

Mixture of eosin and methyl blue or a family of polychrome stain that achieve the effect by production of azure dyes as a result of demethylation of thiazines and the acidic component eosin.

Used for air-dry fnac material

Advantage of this Staining are in good definition of cell outline and cytoplasm contents. Nuclear detail may also be seen.^[7]

CELLS SEEN UNDER FNAC:

1. Pleiomorphic adenoma
2. Round cell tumour
3. Ameloblastoma
4. Papilloma
5. Cyst
6. Fibromxoma
7. Verrucous carcinoma
8. Tuberculosis
9. Single cell lesion
10. Squamous call carcinoma
11. Cyst with atypical changes^[8]

II. LIMITATIONS:

- Firstly results and accuracy are highly dependent on the quality of sample and smears, appropriate training and experience is essential to consistently achieve optimal material for diagnosis.
- Secondary many pathological processes are heterogeneous and the tiny sample obtained with a fine needle may not be representative even when the biopsy is guided by imaging. Multiple biopsies help but the number of passes is limited by the need to minimize trauma.^[9]

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