

Fine Needle Aspiration Cytology [Fnac] Technique As A Diagnostic Tool Of Tumours In The University Of Maiduguri Teaching Hospital, Nigeria.

AUTHORS: H.A. NGGADA FMCPath.; M.I.A. KHALIL MD. PhD.
*Department of Histopathology, University of Maiduguri Teaching Hospital
P.M.B.1414, Maiduguri, Borno State
Correspondence: Dr. H.A. Nggada*

ABSTRACT

Background: The Fine needle aspiration technique is frequently done in the University of Maiduguri Teaching Hospital for swellings from any anatomical site of the body.

Objective: This paper is aimed at highlighting the importance of the technique in the diagnosis of tumours in any health care institution.

Methods: A prospective study of 213 cases of fine needle aspiration cytology diagnosed tumours between December 2000 and February 2002 at the Histopathology Department. The patients presented with swellings at different anatomical sites, fine needle aspiration cytology was done and the diagnosis was interpreted as Benign, Malignant, Suspicious, and inflammatory or unsuccessful. Those that had tissue biopsy, the histological diagnosis are interpreted independently.

Results: Fine needle aspiration cytology represents 21.1% of all cytological specimens. The site of the lesions are in the order of frequency: Breast 73(34.6%); Lymph nodes 58(27.2%); Thyroid gland 30(14.1%); Liver 13(6.1%); Parotid 7(3.3%); Jaw 5(2.3%) and others 27 (12.7%). Fifty-seven (26.8%) cases were diagnosed malignant. A comparison of 12 patients that had both cytological and histological diagnosis independently shows a sensitivity of 92%.

Conclusion: The outcome of this study indicates that the diagnostic accuracy and sensitivity is high and no complication. Therefore, the benefit to it to the patient care management should be addressed.

KEY WORDS: FNAC; Tumours; Diagnosis

INTRODUCTION

The use of FNAC for the purpose of diagnosis can be trace back to 1847 when Kim described a new instrument for the diagnosis of tumour⁽¹⁾. The first real ideological and practical impetus to aspiration cytopathology came during the interwar period in the United Kingdom in 1927. Dudgeon and Patrick proposed needle aspiration of tumours as a means of rapid microscopic diagnosis⁽²⁾. Today's focus on FNAC is obtaining a satisfactory reliable diagnostic result, which provides a true reflection of the disease process in the patient. FNAC is a simple, inexpensive method for obtaining a tissue diagnosis of subcutaneous and other

tumours. The method is used most commonly for the pre-operative assessment of breast lumps, but it is also applicable to lymph nodes, thyroid and other lesions in the neck and with the aid of a special needle, the prostate⁽³⁾. FNAC is more accurate than the large bore biopsy needle owing to the greater length, flexibility and safety in procuring multiple samples⁽⁴⁾. Minor complications include abdominal tenderness and low-grade fever⁽⁵⁾. Wasastjerner reported a complication free series of 1500 patients' examined⁽⁶⁾. We present the analysis of our result with comparison between cytological and histological diagnostic techniques.

The paper is aimed at highlighting the impor-

tance of the technique in the diagnosis of tumour in any health care institution.

MATERIALS AND METHODS

A prospective study of 213 cases of FNAC diagnosed tumours between December 2000 and February 2002 at the Histopathology Department UMTH. All the patients were referred by the clinicians for cytopathological diagnosis of various swelling which include:-Breast lump, thyroid swelling, Hepatomegally, lymphadenopathy, Parotid swelling and other swellings at different anatomical sites. The Pathologists examined the patients and explain the procedure to the patients and a verbal consent is usually given. Each of the patients had one or two aspirates performed using a 10 ml plastic syringe and ordinary disposable 21-gauge needle. The technique used was essentially the same for every lesion except that of the liver where only a single aspiration was carefully done. The site of the lesion is clean with methylated spirit and no local anesthetics were required. The procedure took a little time. The aspiration contents of the needle were blown on to a clean glass slide and smears were made. Four slides smear were made, three were immediately fixed in 90% alcohol for about 30 minutes and one was air-dried and then fixed. The slides were stained with Haematoxyline and Eosin (H&E) and Giemsa respectively. The FNAC and histological tissues were examined independently. The microscopic diagnostic interpretation as: -Benign, Malignant, Suspicious of malignancy and Inflammatory were made 3.

RESULTS

A total of 213 FNAC cases were cytopathologically diagnosed between December 2000 and February 2002 in the Histopathology Department UMTH. FNAC represented 21.1% of all cytological specimens within the study period.

The site distribution of FNAC is as shown in Table-1. The breast is the frequent site which accounted for 73(34.6%) cases of all FNA which is followed by peripheral lymph nodes, (cervical and axillary are the common anatomical sites) which accounted for 58 (27.2%) cases. The other 27 cases (12.8%) were lesions from the chest, thigh, intraabdominal masses excluding the liver and spleen.

The diagnostic classification of tumour by FNAC is as shown in Table -2. Benign lesion are frequently diagnosed with 101(47.4%) cases and 57(26.8%) cases are malignant. Seventeen (8.0%) cases of the FNA were unsatisfactory or inadequate for diagnostic interpretation. The breast lesions diagnosis (Table-3) shows that Benign lesions accounted for 45(61.6%) of all cases. Seventeen (23.3%) cases were malignant. Table-4 shows the comparison of 12 patients that had cytological and histological diagnosis

independently.

Table-1. The site distribution of FNA

Site	Total	(%)
Breast	73	(34.3)
Lymph nodes	58	(27.2)
Thyroid	30	(14.1)
Liver	13	(6.1)
Jaw	5	(2.3)
Parotid	7	(3.3)
Others	27	(12.7)
TOTAL (%)	213	(100)

*CYT/HIS -CYTOLOGY/HISTOLOGY

Table 4. COMPARISON OF CYTOLOGICAL AND HISTOLOGIC DIAGNOSIS OF 12 PATIENTS WITH FNAC.

S/NO	LAB.NO	HOSP.NO *CYT/HIS	AGE	SEX	ANATOMICAL SITE	CYTOLOGY DIAGNOSIS	HISTOLOGY DIAGNOSIS
1	48/534/01	124837	33	F	THYROID	BENIGN	DIAGNOSIS
2	65/401/01	115050	56	F	BREAST	BENIGN	COLLOID GOITRE WITH FOCAL HYPERPLASIA
3	126/202/01	125664	18	F	BREAST	INFLAMMATORY	INVASIVE DUCTAL CARCINOMA
4	143/327/01	103432	45	F	BREAST	BENIGN	TUBULAR ADENOMA
5	150/517/01	126399	31	F	BREAST	POSITIVE	INVASIVE DUCTAL CARCINOMA
6	231/500/01	127365	35	M	LYMPH NODE	BENIGN	POSITIVE METASTATIC CARCINOMA
7	248/552/01	127531	32	F	THYROID	BENIGN	COLLOID GOITRE
8	396/970/01	129759	20	F	THYROID	BENIGN	COLLOID GOITRE
9	457/863/01	130745	22	F	BREAST	BENIGN	FIBROADENOMA
10	467/953/01	130939	39	F	BREAST	BENIGN	FIBROCYSTIC CHANGES
11	134/162/02	135067	60	F	THYROID	BENIGN	COLLOID GOITRE
12	120/167/02	SSH	23	M	LYMPH	NODE	MALIGNANT NON-HODGKIN'S LYMPHOMA
					LYMPH	NODE	INFLAMMATORY TUBERCULOUS LYMPHADENITIS

DISCUSSION

Since the introduction of FNAC, there is less awareness of the importance of this diagnostic method in the management of patient care in most health institutions. In this study, the breast, lymph nodes and thyroid gland are frequent sites for FNAC. These are more common in women because of their susceptibility to specific types of diseases.

Out of the 213 patients that had FNAC, 12 of them had histological diagnosis and therefore the sensitivity of the diagnosis is 92%. Other workers recorded 66%, 99% and 97% diagnostic sensitivity respectively in their series^(7,8,9). This shows that the diagnostic accuracy is higher and therefore the benefit of it to the patient care management should be addressed. One of the cases is a 56 year old woman, who presented with breast lump. The FNAC shows inflammatory cells, however, we recommended an open tissue biopsy for histology, which turned out to be an invasive ductal carcinoma. Hall-Craggs and Lees noted similar incidence in their series and suggested that necrotic tumour may also produce amorphous debris and inflammatory cells¹⁰. This may probably be the reason as in this study. However, the use of image-guided procedure may reduce such limitations in FNA in centers where there are adequate facilities. The emphasis is that for any tumour where the clinical and FNAC findings are paradoxical, a tissue biopsy should be requested for histology to confirm the diagnosis. The use FNAC will reduce the incidence and mortality of cancer in our environment because more than 90% of cancer cases can be confidently diagnosed. However, there is limitation of this procedure by failing to provide precise information of cell type and tumour origin. Well-differentiated carcinomas may pose particular difficulties. In some neoplastic conditions the clinician requires more accurate information before deciding on treatment modalities or indicating prognosis. Furthermore, the technique depends largely on the availability of a specialist cytology service and ideally, the presence of an experienced technician to make smears immediately on the spot. There are no complications recorded in this study.

CONCLUSION

In conclusion, the observations from this series show that FNAC has a high diagnostic accuracy and sensitivity with no complication. The technique is non-invasive, quick, cheap and convenient in the diagnosis of tumours in UMTH. This procedure can be

improved in any center as a means of tumour diagnosis.

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