



“ROLE OF FNAC IN THE DIAGNOSIS OF CERVICAL LYMPHADENOPATHY”

Pathology

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ABSTRACT

1. Background: Cervical lymphadenopathy is one of the commonest presentations in inflammatory and neoplastic disorders. Fine Needle Aspiration Cytology (FNAC) is simple, quick, inexpensive and minimally invasive OPD technique used for establishing the etiology of cervical lymphadenopathy¹. In this study we describe cytomorphological patterns of cervical lymph nodes and its utility in establishing diagnosis. Objectives of present study were to assess the distribution of various cytomorphological patterns of cervical lymphadenopathy and to assess the age specific distribution of various cytomorphological patterns of cervical lymphadenopathy¹. Early diagnosis and subsequent appropriate management carries good prognosis.

Methods- 198 Patients with suspected lymph node enlargements, who were referred for FNAC, were included in this study, which was done over a 2 year period in Shyam Shah Medical College & Hospital. FNAC was performed by using the standard procedure.

Results- In the present study overall benign lesion were 179(90.40%) and malignant lesion were 19(9.60%). In benign lesions, Tubercular lymphadenitis was the most frequently encountered lesion 98 (49.5%). No complications were registered during the FNAC analysis.

Conclusion- In conclusions it can be well accepted that FNAC is an extremely efficient and accurate procedure, and its usefulness is enhanced due to it being a relatively easy procedure which can be carried out even on outdoor patients.

KEYWORDS

Cervical, Cytomorphological, FNAC, Lymph Node, Cytology.

1. INTRODUCTION- Cervical lymphadenopathy often occurs in common in clinical practice. Cervical lymphadenopathy is usually defined as cervical node measuring more than 1 cm in diameter. It could be due to infection, autoimmune disease or malignancy². Cervical lymphadenopathy can be further classified into acute (2 weeks), subacute (2-6 weeks), and chronic (>6weeks) based on its duration.

Lymphadenopathy is the most common cause of swelling in the neck and is one of the commonest presentations in inflammatory and neoplastic disorders.³ FNAC has been successfully adopted as a routine technique to diagnose the cause of lymphadenopathy in our centre. FNAC is a simple, quick, and inexpensive and is equally reliable procedure which can be used as a routine OPD procedure for diagnosis of lymphadenopathy.⁴ FNAC does not give same architectural detail as histology but it can provide cells from the entire lesion as many passes through the lesion can be made while aspirating.⁵ The aim of this study is to evaluate the effectiveness of FNAC as a primary investigation tool in neck masses.⁶ As FNAC is a simple test, associated with minimal trauma and complication, and results can be rapidly available, it remain a valuable diagnostic tool and is a recommended first line investigations of suspected malignancy cases.⁷

Fine needle aspiration cytology is a economical and accurate first line investigation in lymphadenopathy.⁷ Because of early availability of results, simplicity, minimal trauma and complications, the aspiration cytology is now considered as a valuable diagnostic aid and it provides ease in following patients with known malignancy and ready identification of metastasis or recurrence.¹

FNAC is not only useful in planning definitive preoperative diagnosis but also can prevent unnecessary surgical procedure.⁸

Fine needle aspiration cytology (FNAC) is a cytodagnostic method based on morphologic findings of individual and small group of cells aspirated using a fine needle. FNAC was introduced in 1920's and soon it gained wide acceptance among clinicians due to ease of its performance and rapidity of diagnosis⁹. Nowadays FNAC has become a keystone diagnostic tool in head and neck swellings.

The role of FNAC in suspected lymph node swellings is two folds. Firstly to confirm the origin and secondly to get a preliminary diagnosis about the nature of the disease process before embarking on definite management plan. FNAC is a reliable method to differentiate between inflammatory and neoplastic lesions.

In patients undergoing radical surgery preoperative FNAC permits the clinician to evaluate the degree of earnestness and to plot the surgical tactics. A preoperative analysis also allows proper patient counseling.

In the practice of FNAC, there are clear advantages to patients, doctors and to the hospital. The procedure is comparatively trouble-free, generate a speedy result and is economical. Its precision in many circumstances, when applied by experienced and well trained practitioners, matches that of histopathology in providing an explicit diagnosis. The aspiration cytology should be regarded as an enormously valuable accompaniment to it and is itself becoming just requisite.

AIMS AND OBJECTIVES-

(1) To evaluate the dispersal of several cytomorphological forms of cervical lymphadenopathy; (2) To evaluate the age specific distribution of several cytomorphological forms of cervical lymphadenopathy (a retrospective study).

MATERIAL AND METHODS-

The present study was conducted in the Department of Pathology, S.S. Medical College and associated G.M. & S.G.M. Hospitals, Rewa (M.P.).

Palpable neck masses were aspirated using 23G needle and 20 mL syringe. A negative pressure was applied to the syringe by pulling the syringe plunger and at least two dry specimens and two alcohol fixed specimen were taken. The alcohol fixed smears were immediately submerged in 95% ethyl alcohol. Alcohol fixed smears were subsequently stained with Haematoxylin and Eosin (H and E) stains.⁶ The research removed patients without an accompanying histopathological result. The study design was Retrospective.

RESULTS-

Retrospectively, the patients included were those referred to the Department of Pathology for Fine Needle Aspiration Cytology from the OPD and wards of various clinical departments at G.M. and S.G.M. Hospitals Rewa M.P., during the 2 years period. The results are as follows:-

Table No. 1 Age wise distribution of Cytomorphological Pattern

Cytomorphological Diagnosis	0-10 yrs	11-20yrs	21-30yrs	31-40yrs	41-50yrs	51-60yrs	>60yrs	Total

Reactive/Chronic/ Acute Lymphadenitis	13	18	15	11	7	2	1	67
Tuberculosis	4	29	21	18	16	6	4	98
Lymphoma/ Malignancy/ Metastasis	0	1	2	1	4	5	6	19
Others	3	4	2	1	1	2	1	14
Total	20	52	40	31	28	15	12	198

This analysis contained a total of 198 cases. The maximum number of cases 52 is in the 11-20 year age range.

Table No.2 Gender wise distribution of lymphadenopathy

Cytomorphological Diagnosis	Male	Female	Total
Reactive/Chronic/Acute Lymphadenitis	38	29	67
Tuberculosis	47	51	98
Lymphoma/Malignancy/ Metastasis	11	08	19
Others	05	09	14
Total	101	97	198

In 198 cases, 101 had been male and 97 had been female. Reactive hyperplasia and tuberculosis were the most frequent cause of lymphadenopathy.

Table No.3 Various lesions responsible for cervical lymphadenopathy

Lesion	Frequency	Percentage %
Reactive/Acute /Chronic Lymphadenitis	67	33.84%
TB Lymphadenitis	98	49.50%
Lymphoma/Malignancy/ Metastasis	19	9.59%
Others	14	7.07%
Total	198	100%

Table No. 4 Comparative study on causes of cervical lymphadenopathy

Author	Total cases	Reactive/Acute /Chronic Lymphadenitis	TB Lymphadenitis	Lymphoma/Malignancy/ Metastasis	Others
Tariq Ahmed ¹⁰ (2008)	50	9	18	17	6
Heera Chand ¹¹ (2009)	130	58	36	24	12
Harsh (2013) ¹²	214	95	102	15	2
Bhavani ¹³ (2014)	265	120	112	33	-
Vimal S. ¹⁴ (2016)	170	41	117	4	8
Farooq S. ¹⁵ (2018)	100	41	32	22	5
Mahendra ¹⁶ (2019)	1681	541	934	99	107
Present study (2019)	198	67	98	19	14

Total 198 cases were studied, out of these 98(49.5%) were of TB Lymphadenitis, 67(33.84%) were of Reactive/Acute/Chronic Lymphadenitis, 19(9.59%) were of Lymphoma/ Malignancy/ Metastasis and others were 14(7.07%). The results of present study are in accordance with other studies as shown in table no. 4

DISCUSSION-

Fine needle aspiration cytology (FNAC) is a simple, economical and relatively accurate procedure for initial diagnosis of all superficial lumps. It plays an important role as an early investigation in the management of patients with lymphadenopathy. This study was aimed to evaluate the role of FNAC in patients presenting with lymphadenopathy¹⁵.

Fine needle aspiration cytology (FNAC) offers clear advantages. It is minimally invasive, produces a speedy result and is inexpensive.¹⁷ Enlarged lymph nodes are a prime target for fine needle aspiration. It is accepted by most patients as a non-invasive method of lymph node

aspiration.¹⁸ FNAC is an outpatient procedure that is cost effective and results are obtained quickly.¹⁹ FNAC has revolutionized the diagnosis of cervical lymphadenopathy, decreasing the morbidity of excision or incision biopsy of lymph node.²⁰ Cervical lymphadenopathy is a common problem faced by health care professionals.²¹ Lymph node cytology is very beneficial for the clinicians to identify whether the lymphadenopathy is caused by infection, metastatic malignancy or lymphoma.

Despite being inferior to excision biopsy, there are advantages of FNAC. First, the sensitivity and specificity of FNAC is sufficiently high and is considered acceptable. Second, FNAC is cost effective. In the era of economic recession, cost savings is an important consideration. The cost of excision biopsy is much higher especially if a hospital stay is required and time off from work is needed. Furthermore, preoperative evaluations that include blood, radiological and occasional cardiac investigations generally required prior to general anaesthesia will incur additional cost. Third, FNAC also is safer; obviate the risks of anaesthesia, tumour seeding, postoperative complications and scarring. Cosmetic is certainly a very important issue to be considered when dealing with masses in the area of head and neck especially in female patients. Furthermore, results of FNAC are available faster than biopsy.⁶

FNAC of lymph nodes is a very useful and simple tool in the diagnosis of cervical lymphadenopathies. It is easy, maybe performed in OPDs, and serves as a rapid modality for the diagnosis of one of the common curable causes of cervical lymphadenopathy as tuberculosis. A cytological follow-up of the lesions is also easily possible by FNAC study. Tuberculosis stands out to be the most common cause of cervical lymphadenopathy in India. Patients with a heavy acid-fast bacilli load in the aspirate should be screened for HIV infection. FNAC may be the only tool available for the diagnosis of metastatic malignant lesions in lymph nodes in disseminated cancer and malignancies with an occult primary. For the diagnosis of lymphomas, FNAC can strongly suggest a preliminary diagnosis, which can be followed up by biopsy for histopathology and immunohistochemistry for confirmation and final classification¹³

CONCLUSION-

In conclusions it can be well agreed that FNAC is an enormously effectual and precise practice and its expediency is enhanced due to it being a comparatively easy procedure which can be carried out even on outdoor patients. The annotations discovered are encouraging especially due to the fact that many patients are spared of the monotonous & risky technique of excision biopsy just because reasonably accurate and quick diagnosis is securely made by Fine Needle Aspiration Cytology. We conclude that males and females have almost equivalent predilection to develop lymph node diseases.

FNAC should be preference of investigation in estimating the lymph node pathologies. History and physical examination complement FNAC and aid in diagnosis. FNAC is an precise, modest, hasty, inexpensive investigation and well tolerated by the patients. Henceforth, the appropriate therapeutic management could be deliberated earlier, whether it is, conventional management for non-neoplastic lesions, surgery for tumors and radiotherapy and/or chemotherapy for metastasis.

It is concluded that tuberculous lymphadenitis is still the commonest condition in patients presenting with neck swellings followed by non-specific lymphadenitis and malignant neoplasms especially metastatic carcinoma. FNAC is an easy and suitable tool for the assessment of patients with neck swellings in the outpatient clinics. Although its diagnostic accuracy is limited as compared to tissue biopsy but it is a good test for both screening and follow-up.¹⁰

Conflict of Interest: None

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