

Role of Fine needle aspiration cytology (FNAC) in patients presenting with cervically mphadenopathy referred to Gujarat Adani Institute of Medical Science, Bhuj, Kutch

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Abstract

Background and Aim: Fine Needle Aspiration Cytology (FNAC) is a simple, quick and inexpensive method that is used to sample superficial masses like cervical lymph node found in the neck and is usually performed in the outpatient clinic. Cervically mphadenopathy is a common clinical presentation across patients of all age group. The aetiology may range from a benign nonspecific inflammation to lymphoproliferative disorders and metastatic malignancy. The present study was undertaken to study non neoplastic and neoplastic lesions of enlarged lymph nodes by Fine needle aspiration cytology (FNAC) in patients presenting with cervical lymphadenopathy referred to pathology department from the Gujarat Adani Institute of medical science, Bhuj, Kutch over a period of two years. **Methods:** Total of 850 patients were subjected to FNAC of cervical lymph nodes over two years period. Since in 35 patients, the aspirate was inadequate the remaining 815 cases were analyzed. **Results:** Overall tuberculous lymphadenitis was the most common finding (42.45%), followed by reactive hyperplasia (35.09%). Malignant pathology accounted for 20.24% of cervical lymph node enlargement, most of which was due to metastatic squamous cell carcinoma (65.4%). **Conclusion:** This study highlights the usefulness of FNAC as a reliable method for diagnosis of cervical lymphadenopathy

Key words: Fine Needle Aspiration Cytology, Lymphadenopathy, Neoplastic, Squamous cell carcinoma

Introduction

Lymphadenopathy is an abnormal increase in size and altered consistency of lymph nodes. It is a clinical manifestation of regional or systemic disease and serves as an excellent clue to the underlying disease. Cervical lymphadenopathy is a common clinical presentation across patients of all age group. The aetiology may range from a benign nonspecific inflammation to lymphoproliferative disorders and metastatic malignancy. FNAC is widely used as first line investigation for the diagnosis of lymphadenopathy. This simple, easy and quick technique can diagnose reactive, infective and malignant conditions. Several studies in the past have documented the diagnostic accuracy of FNAC with reference to cervical lymphadenopathy among patients presenting to tertiary care institution to evaluate the diagnostic efficacy of FNAC [1-4].

Fine needle aspiration (FNA) cytology enables a simple and rapid diagnostic approach of patients with lymph node enlargement. Several studies in the past have documented the diagnostic efficacy of FNAC in lymphadenopathy. The present study was undertaken to study non-neoplastic and neoplastic lesions of enlarged lymph nodes by Fine needle aspiration cytology (FNAC) in patients presenting with cervically mphadenopathy referred to cytopathology department from the OPD/IPD of Department of Pathology, Gujarat Adani Institute of Medical Science, Bhuj, Kutch, Gujarat over a period of two years.

Materials and Methods

Study Design, Study Population and Study Duration- This study was carried out over a period of two years at a tertiary care institute Department of Pathology, Gujarat Adani Institute of Medical Science, Bhuj, Kutch, Gujarat, India.

Manuscript received: 28th December 2017
Reviewed: 6th January 2018
Author Corrected: 14th January 2018
Accepted for Publication: 18th January 2018

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Sampling Methods and Sample collection- A total of 850 patients with cervical lymphadenopathy was subjected to FNA Using 23 G needle and a 10ml disposable syringe. The slides were both air dried and wet fixed in alcohol for May-Grunwald Giemsa and Papanicolaou stain respectively.

Clinical records and details of information like of age, sex, site, size, duration, involvement of other lymph nodes and other investigations were done.

The cases were divided into following groups, viz.: (a) Reactive hyperplasia: Smears were very cellular, showing a polymorphous population of lymphoid cells and histiocytes. (b) Tuberculous lymphadenitis: showed epithelioid cell granulomas with or without caseous necrosis and giant cells. Smears showing only caseous necrotic material and lymphocytes were also grouped as tuberculous inflammation. (c) Metastatic malignancy: revealed malignant cells in clusters or scattered discretely along with other lymphoid cells.

Results

In this study 850 patients were subjected to FNAC for cervically lymphadenopathy. Among these patients, in 35 cases, the aspirate was inadequate despite repeated procedure. Hence these 35 cases were excluded from study and we proceeded to analyse the remaining 815 cases. The male: female ratio in this study was 1.36:1, the mean age of presentation being 30.9 years and 26.8 years for male and female patients respectively. The age at presentation ranged from 6 months to 70 years. We received the maximum number of patients (23.68%) in the 21-30 years age group, and the least (2.94%) in the >60 years age category (Table 1).

Table-1: Age wise distribution of cases.

Age groups	Reactive Hyperplasia	TB	NHL	Hodkins lymphoma	Metastasis	Others	Total
<10	58	11	1	0	0	4	74
11-20	101	35	0	2	1	2	141
21-30	43	137	1	0	8	4	193
31-40	29	70	2	1	11	7	120
41-50	27	52	5	4	39	1	128
51-60	22	34	9	1	60	1	127
>60	6	7	2	0	17	0	32
Total	286	346	20	8	136	19	815

Tubercular lymphadenitis (42.45%) was overall the most common cause of lymphadenopathy. Most of the cases occurred between 21-30 years.

Reactive lymphoid hyperplasia was the second most common finding (35.09%) predominantly in the age group of 11-20 years. As expected, the percentage of malignant cases rose steadily with age and accounted for 42.30% cases of cervical lymphadenopathy in patients more than

50 years of age. Malignant pathology accounted 20.24% cases of cervically lymphadenopathy (Table 1). Of these neoplastic lesions, metastatic lymphadenopathy (82.42%) was most common. Rests of the neoplastic cases were NHL 12.72% and Hodgkins lymphoma 4.84%.

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Among the metastatic lesion, squamous cell carcinoma topped the chart with 65.4%, as opposed to metastatic adenocarcinoma 29.41% found in only cases. Other than these, there were 2 cases of metastatic nasopharyngeal carcinoma (1.47%), 4 undifferentiated carcinoma 2.94% and a single case of metastatic malignant melanoma. Besides the above mentioned causes of lymph node affliction, we noted three cases of Cat scratch disease, six cases of Rosai Dorfman disease (sinus histiocytosis with massive lymphadenopathy). All 6 patients were less than 15 years of age. Malignant lesions were more in the >50 years age group whereas in all other age groups tuberculous lesions predominated.

Discussion

Cytology of cervical lymph node is the first investigation in diagnosis of many diseases in tertiary care settings [5]. FNAC of cervical lymph nodes helps to explore the various lesions that involve these. In the present study males were more commonly involved than females with male:female ratio of 1.36:1. Age of patients showed a wide range starting from as early as 6 months to 70 years old, most of the cases occurring between 20-29 years of age group. Similar findings were observed by Pandav AB et al. [5] and Shakera N Baji and co-workers [6]. Since infections from oral cavity, ears, nose, and para nasal sinuses drain into cervical nodes, reactive lymphoid hyperplasia is a common finding [7]. However, in our study tuberculous lymphadenitis emerged as commonest (42%) cause of cervical lymphadenopathy.

Lymphadenopathy presents an opportunity for a quick and efficient way to reach an early diagnosis through fine needle aspiration cytology (FNAC) of the involved lymph node. Lymph nodes react to a variety of micro-organism and non specific stimuli by expansion of follicle centers and / or intrafollicular tissue. Since infections from oral cavity, ears, nose and paranasal sinuses drain into the nodes, reactive lymphoid hyperplasia is a common finding. Germinal centres may be very large in some cases of reactive follicular hyperplasia. If the aspirate derives from such a large germinal centre, the proportion of large cells (centroblasts, dendritic reticulum cells) and the number of mitoses may be impressive enough to suggest malignant lymphoma. However, the full range of lymphocyte transformation is still present, including small lymphocytes and the various cell types occur in logical proportions. Small lymphocytes are numerically predominant. A variable number of plasma cells can usually be found. The presence of macrophages with tingible bodies favors reactive hyperplasia.

Most of the cases occurred between 20-29 years of age. A declining trend in cases has been observed after 30 years of age. This corroborates with other studies conducted by other studies [8]. The high incidence of tuberculosis may be explained by the fact of low

socioeconomic condition, poor hygiene and lack of awareness in the region. Reactive lymphoid hyperplasia was the second most common lesion, commonly in the younger age group. Males were affected more than females. These findings correlate with study by Shakera N Baji and coworker [8]. The incidence of reactive lymph node enlargement fell steadily the 5th decade onwards and malignant lesions being most common. Among the malignant lesion, metastatic lymphadenopathy (80%) was the most common and predominant cause in patients ranging from 40 years and above. Rest of the cases were that of NHL (12.8%) and Hodgkins lymphoma (4.9-%). These findings are similar to studies by K. Bhuyan Medhi et al [9]. Among the metastatic lesions, squamous cell carcinoma (65%) was the commonest. Metastatic squamous cell carcinoma was found to be more common in males and most of the cases occurred between 50-59 years of age. Similar observation was noted in studies done by Nath s et al [10] Metastatic adenocarcinoma and few cases of undifferentiated carcinoma constituted the rest of malignant lesions. The high incidence of metastatic lymphadenopathy may be due to high incidence of malignancy of Head and neck region in this geo-economic block. We noted 8 cases of Rosai Dorfman syndrome. It is a benign condition and some rare causes of cervical lymphadenopathy [11]. It usually occurs in the first decade of life and manifest as massive enlargement of cervicallymph nodes.

Conclusion

The most frequent causes of cervical lymphadenopathy are tuberculosis, reactive lymphadenitis, and metastatic malignancies. In large number of cases FNAC alone is enough for diagnosis in proper clinical setting and surgical procedures like biopsy can be avoided even in tertiary care settings.

What this study adds to existing knowledge? This study highlights the usefulness of FNAC as a reliable method for diagnosis of cervical lymphadenopathy. Exact early diagnosis can save the patient from high mortality and morbidity especially in malignant diseases.

Original Research Article**Funding:** Nil, **Conflict of interest:** None initiated**Permission from IRB:** Yes**References**

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How to cite this article?

Upadhyay J, Shingala A. Role of Fine needle aspiration cytology (FNAC) in patients presenting with cervically lymphadenopathy referred to Gujarat Adani Institute of Medical Science, Bhuj, Kutch. *Trop J Path Micro* 2018;4(1):113-116. doi: 10.17511/jopm.2018.i1.20