

Age and gender wise distribution of cases presenting with cervical lymphadenopathy: A retrospective study

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Abstract

Introduction: Cervical lymphadenopathy is a common clinical presentation of various diseases its FNAC serves as an excellent clue to the underlying disease. The presentation of cervical lymphadenopathy varies in different age groups and in both the both the gender as well.

Objective: To analyze the spectrum of lesions causing cervical lymphadenopathy as well as to see the age and gender wise distribution of cases of tubercular lymphadenitis.

Materials and Methods: It is a retrospective study and included three years data. A total of 222 cases that underwent FNA for cervical lymphadenopathy were recorded with their clinical history. For all cases, MGG, Pap and AFB slides were re evaluated and results were recorded. Epidemiological variables were analyzed by cross tabulation to assess their relationship.

Result: Out of 222 cases 117 cases were of Tubercular lymphadenitis followed by 81 cases of reactive lymphadenitis, 10 cases presented as metastatic deposit of squamous cell carcinoma, 9 with Lymphoma (NHL) followed by 5 cases of adenocarcinoma deposits. Females to males ratio in Tuberculosis lesions was 1.3:1

Conclusion: In both pediatric and adult population Tuberculosis was an important cause of cervical lymphadenopathy while in children less than two years reactive lymphadenitis was more common. Tuberculosis was more common in females as compared to males and here FNAC is an inexpensive and valuable fist line tool in assessing cervical lymphadenopathies.

Keywords: Cervical lymphadenopathy, Tuberculosis, FNAC, Age and gender.

Introduction

Cervical lymphadenopathy is a common clinical presentation; the presentation could be either as an isolated lymphnode or as a part of generalized lymphadenopathy. An abnormal increase in size, number and consistency is known as lymphadenopathy.¹ Lymphadenopathy is the clinical manifestation of local or systemic diseases and its FNA serves as an excellent clue to the underlying disease. For extra pulmonary tuberculosis lymphadenopathy is the most common clinical presentation. There are approximately 600 lymphnodes in the human body which are submandibular, axillary or inguinal lymphnodes may normally be palpable in healthy people. Amongst all the lymphnodes cervical lymph nodes are the most common site of involvement and are reported in 60-90% cases. Cervical Lymphadenitis is noted in a wide spectrum of diseases ranging from infections, in tumors like Hodgkins and Non Hodgkins lymphoma, autoimmune diseases (SLE, rheumatoid arthritis) & in metastatic deposits of squamous cell & adenocarcinoma etc. Based on the duration cervical lymphadenopathy can be divided into acute, subacute and chronic lymphadenopathy. Acute lymphadenopathy is lymphadenopathy which persists for two weeks duration, subacute lymphadenopathy has two to six weeks duration and chronic lymphadenopathy is defined as any lymphadenopathy which does not resolve by six weeks.²

FNAC is now emerging as safe, rapid, simple, inexpensive and reliable method for diagnosing the enlarged lymphnodes with high degree of efficacy and thus help in

establishing the diagnosis of various masses and lesions at various sites and organs.³⁻⁷ FNA is now considered as a valuable diagnostic tool and provides an ease in the follow up of the patients presenting with malignancy and identification of recurrence or metastasis.

In lymphnodes malignancies are commonly metastatic in nature however lymphomas range from 2 to 15%⁸ and for their diagnosis the gold standard is the histopathological examination. In the developing countries like India amongst the inflammatory lesions tuberculosis is one of the most common infective causes of superficial lymphadenopathy.^{9,10} This article reviews the evaluation of patients with lymphadenopathy, evaluating the cause of it in different ages with the help of FNAC and to evaluate the variation in the presentation of cervical lymphadenopathy in both the genders.

Aims and Objectives

1. To analyze the cytological spectrum of lesions causing cervical lymphadenopathy.
2. To see the Age and Gender wise distribution of cases of tubercular lymphadenitis.

Materials and Methods

It is a retrospective study carried out in the Department of Pathology at a Tertiary care Centre. The study was conducted to evaluate the various cytomorphological features of inflammatory, neoplastic and non-neoplastic lesions of lymphnodes by FNAC; in patients presenting with

cervical lymphadenopathy. A total of 222 cases who underwent FNA for cervical lymphadenopathy were recorded with their clinical history who came to FNAC O.P.D during May 2014 to May 2017. For all cases, MGG, Pap and AFB slides were reevaluated and results were recorded. Epidemiological variables were analyzed by cross tabulation to assess their relationship. The data was statistically analyzed by frequency distribution and percentage proportion to see age and gender wise distribution in the cervical lymphadenopathy. Cases who were on anti-retroviral therapy or on corticosteroids were excluded from the study.

Results

In this 3 years study a total of 222 cases of cervical lymphadenopathy were studied. In our study, the most common cause of cervical lymphadenopathy was tubercular (53%) followed by reactive (36%), metastatic deposit of squamous cell carcinoma (5%), NHL (4%) and lastly metastatic deposit of adenocarcinoma (2%). Following table shows distribution of cases.

Distribution of cases according to lesion

Table 1

S. No.	Lesion	No. of cases (n=222)	Percentage (%)
1	Tuberculosis	117	53
2	Reactive lymphadenitis	81	36
3	Mets of SCC	10	05
4	N.H.L	09	04
5	Mets of adenocarcinoma	05	02

Distribution of cases according to the age

In our study in less than 2 years of age reactive lymphadenitis (37 cases) was more common whereas in the

age group of 21-40 years tuberculosis (72 cases) was the more commonly observed cause of cervical lymphadenopathy.

Table 2

S. No.	Lesion	<2yrs	2-14yrs	14-20yrs	21-40yrs	41-80yrs
1	Tuberculosis (117)	07	27	12	50	21
2	Reactive lymphadenitis (81)	30	11	20	10	10
3	Mets SCC (10)	00	00	00	04	06
4	Mets adenocarcinoma (05)	00	00	00	03	02
5	N.H.L (09)	00	02	01	05	01
6	Total (n)	37	40	33	72	40

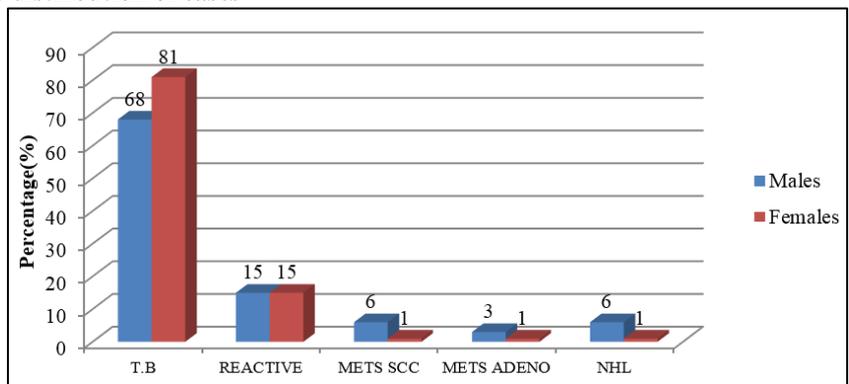
Gender wise distribution of cases

Out of 222 cases 92 females and 130 males were there, 61% females presented with tubercular lymphadenitis whereas in males the percentage was 47.

Table 3

S. No.	Lesion	Male (130)	Female (92)
1	Tuberculosis	61 (47%)	56 (61%)
2	Reactive lymphadenitis	48 (37%)	33 (36%)
3	Mets SCC	09 (7%)	01 (01%)
4	NHL	08 (6%)	01 (01%)
5	Mets adenocarcinoma	04 (3%)	01 (01%)

Graph 1: Gender wise distribution of cases



Females to males ratio having tuberculosis

Considering females to male ratio it is 1.3:1 for tubercular lymphadenitis.

Table 4

S. No.	No. of cases	Tuberculosis	Others
1	Males (130)	47%	53%
2	Females (92)	61%	39%

Ratio 1.3:1

Graph 2: Percentage of males and females having tuberculosis

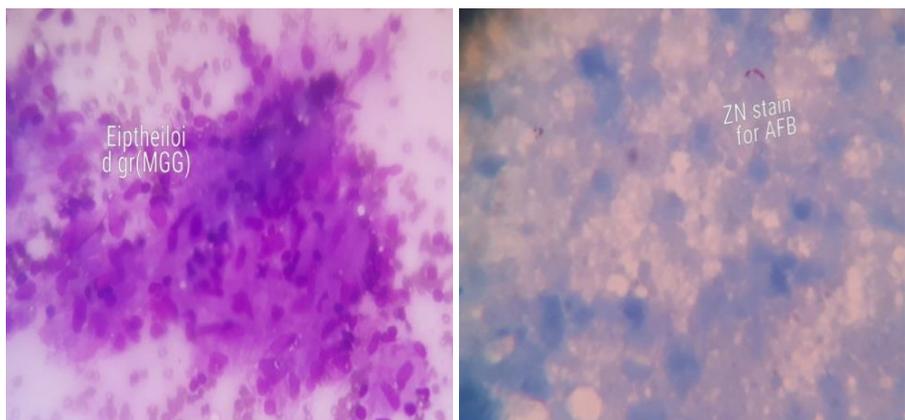
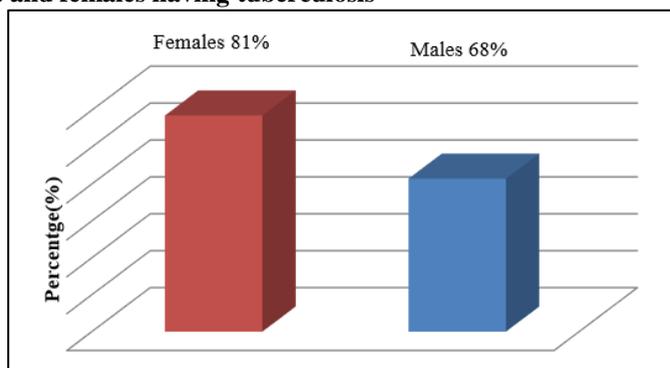


Fig. 1: Picomicrograph of smear of tubercular lymphadenitis showing epithelioid cells forming granuloma (MGG 400x) and AFB in ZNS

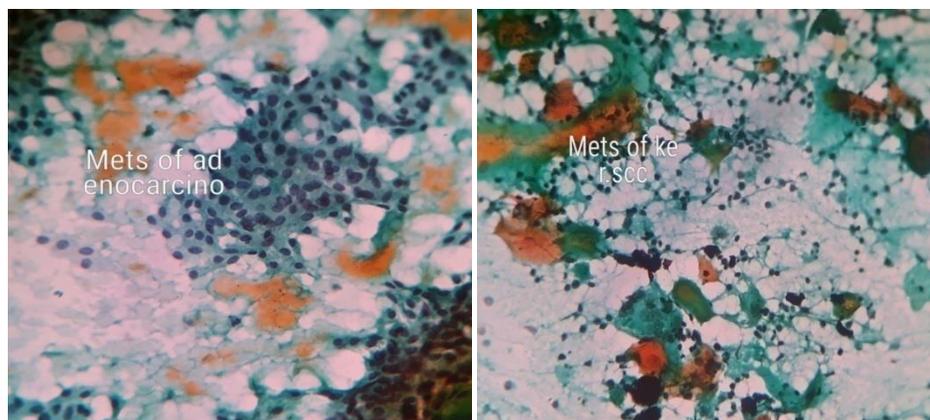


Fig. 2: Pictomicrographs of smears showing metastatic deposit of adenocarcinoma and squamous cell carcinoma. (pap 400X)

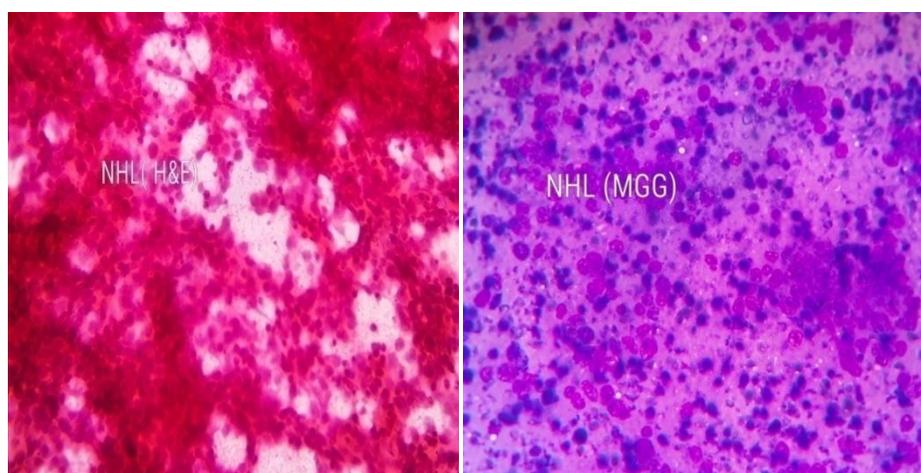


Fig. 3: Pictomicrographs of smears of N.H.L (H&E, pap 400X)

Discussion

The most common causes of regional lymphadenopathy which are benign in nature are bacterial, viral or mycobacterial infections. In many studies the role of FNAC in investigating lymphadenopathy has been discussed.¹¹ In our study from 222 cases; maximum cases were of tuberculosis i.e 117 (53%), followed by reactive lymphadenitis i.e 81 (36%). In children less than two years, most common cause of cervical lymphadenopathy was reactive hyperplasia since the draining lymph nodes are commonly affected from the infections from ear, nose, oral cavity, and paranasal sinuses its etiology is diverse and it commonly affects the children as compared to elders;¹² whereas in adults (21 to 40 years) tuberculosis was more common cause of lymphadenopathy. The high incidence of tuberculosis in the study may be due to the endemicity of the disease in India. In the extrapulmonary tuberculosis the most common clinical presentation is lymphadenitis and the commonly involved group are the cervical lymphnodes. In the study done by Ramesh Kumar on 1396 cases of cervical lymphadenopathy most common benign lesion was tuberculosis.¹³ Benzabih et al found FNAC reliable in helping to avert invasive surgical procedures in the diagnosis of tuberculous lymphadenitis. They suggested

adding Ziehl Neelsen stain for identification of acid-fast bacilli as an adjunct to aid the diagnostic accuracy of cervical lymphadenitis.¹⁴ The most common metastatic carcinoma in the lymphnodes in our study was squamous cell carcinoma since cervical lymphnodes drain head and neck and may harbor metastatic carcinomas seeding in the floor of mouth, nasopharynx, tonsillar fossa., thyroid, facial skin and scalp Hirachand et al also noted that the commonest type of metastatic carcinoma to lymphnodes was squamous cell variety.¹⁵

Considering the male to female ratio; in females tuberculosis was the common cause of cervical lymphadenopathy. Gender variation in the presentation of tubercular lymphadenitis has been explained by various studies. There is quiescent presentataion in women or they report multiple, vague and atypical constitutional symptoms, these observations reflect the hormonal, biological, environmental, social, or behavioral difference in immune system of men and women.¹⁶ Ramnathan et al in their studies suggested hormonal influence on immunity as the underlying cause for the different pattern of disease in women.¹⁷ In developing countries like India women have low socioeconomic as well as nutritional status, which can have an affect on the immune response of the disease. Some

other authors suggested that women are more conscious of their appearance so they approach the health care facilities earlier, while men ignore their disease until it is a more advanced stage.¹⁸⁻²¹ In our study also the female predominance was noted and the female to male ratio presenting as cervical lymphadenopathy with tuberculosis as the cause was 1.3:1.

Conclusion

Lymph node aspiration is of great value in diagnosing causes of lymphadenitis ranging from infections to malignancy. In our study the most common cause of cervical lymphadenopathy was tuberculosis both in adult males and females in the age group of 20 to 40 years. In children less than two years reactive lymphadenitis was more common. In females tuberculosis was a common cause of cervical lymphadenopathy as compared to males.

Conflict of Interest: None.

References

- Celeste NP, Williams JF. Fine needle aspiration biopsy of the head and neck. USA: Butterworth Heinemann; p1-13.
- Allhiser JN, McKnight TA, Shank JC. Lymphadenopathy in a family practice. *J Fam Pract* 1981;12(1):27-32.
- Malakar D, Jajoo IL, Swarup K, Gupta OP, Jain AP, Poflee VW. Clinical evaluation of fine needle aspiration cytology in the diagnosis of lymphadenopathy. *Indian J Tuberc* 1991;38:17-19.
- Rajwanshi A, Bhambhani S, Das DK. Fine – needle aspiration cytology diagnosis of tuberculosis. *Diagn Cytopathol* 1987;3:13-6.
- Metre MS, Jayaram G. Acid- fast bacilli in aspiration smears from tuberculosis lymph nodes. An analysis of 255 cases. *Acta Cytol* 1987;31:17-19.
- Bailey TM, Akhtar M, Ali MA. Fine needle aspiration biopsy in the diagnosis of tuberculosis. *Acta Cytol* 1985;29:732-736.
- Das DK. Cytomorphological, cytochemical and immunological Characterization of Lymphomas. Doctoral Thesis, Post Graduate Institute of Medical Education and Research, Chandigarh, India; *J Tuberc* 1990;37:29-31.
- Singh K, Dubey VK, Khajuria R. Diagnostic accuracy of fine needle aspiration cytology when compared to histopathology. *J Cytol* 2003;20:22-27.
- Martin DA, Janes OA, Allen SL, John nd EN. *Clinical Oncology* 2 Ed. London (UK): Churchill Livingstone Inc. 2000:2620-9.
- Martin se, Zhang HZ, Magyarosy E. Immunologic methods in cytology: definitive diagnosis of non-hodgkin's lymphoma using immunological markers of T and B cells. *AM J Clini Pathol* 1984;80:666-673.
- McAdams HP, Rosado-de-1.A.G.Gonshal. Diagnosis of Tuberculosis. *J Indian Med Assoc* 2000;98 (3):57-61.
- Shakera N Baji, Vaishali Anand, Richa Sharma, Kunal S Deore, Mital Choksi. Analysis of FNAC of cervical lymphnodes: experience over a two years period. *Int J Med Sci Public Health* 2014;3(5):607-609.
- Kumar RK. Tuberculosis lymphadenitis in children –role of fine needle aspiration cytology. *J Assoc Physic India* 1999;47(10):976-997.
- Bezabih M, Mariam DW, Selassie SG. Fine needle aspiration cytology of suspected tuberculosis lymphadenitis. *Cytopathol* 2002;13(5):284-290.
- Hirachand S, Lakhey M Akhter J, Thapa B. Evaluation of fine needle aspiration cytology of lymphnodes in Kathmandu Medical College, Teaching hospital. *Kathmandu Univ Med J* 2009;7(26):139-142.
- Bothamley G. Sex and gender in the pathogenesis of infectious tuberculosis. A perspective from immunology, microbiology and human genetics. In: Diwan VK, Winkvist A, editors. Gender and tuberculosis. NHV report. Goteborg, Sweden: Nordic school of Public Health 1998,p.41-53.
- Ramanath, V.D, Jawahar, M.S, Paramasivan, C.N, Rajaram, K, Chandrasekar, K, Kumar, V. et al. a histological spectrum of host responses in tuberculosis lymphadenitis. *Indian J Med Res* 1999;109:212-220.
- Long, N.H. Diwan, V.K and Winkvist A. Difference in symptoms suggesting pulmonary tuberculosis among men and women. *J Clin Epidemiol* 2002;55:115-120.
- Kheiry, J. Ahmed, M.E. Cervical lymphadenopathy in Khartoum. *J Trop Med Hyg* 1991;95:416-419.
- Seth, V. Kabra, S.K Jain, Y, Semwal, O.P, Mukhopadhyaya, S, Jensen, R.L. Tubercular lymphadenitis: clinical manifestations. *Indian J Pediatr* 1995;62:565-570.
- Dean, K. Self-care components of lifestyles: the importance of gender, attitudes and the social situation. *Soc Sci Med* 1989;29:137-152.

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