

FNAC study of enlargement of cervical lymph node in government medical college, Dungarpur

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Abstract

Background: Lymph nodes enlargement are easily accessible on fine needle aspiration and hence it is a very simple and important diagnostic tool for lymph node lesions. Enlargement of lymph nodes in our country are predominantly infective in nature. It plays a significant role in developing countries like India, as it is cheap procedure, simple to perform and has almost no complications. The objective was to study the diagnosis of the underlying pathological variants, the incidence of the tuberculosis & malignancies, presenting with cervical lymphadenitis and also to diagnose various etiologies of cervical lymphadenitis in all age groups.

Aim: To highlight role of FNAC as a diagnostic tool in enlarged cervical lymphadenopathy.

Method: This study was conducted over Eight-month period from 1 January 2022 to 31 August 2022. The study material was taken from patients have enlarged cervical lymph nodes.

Results: This study has shown that the incidence of tubercular lymphadenitis is more in the age group of 1st and 2nd decade and in low socioeconomic status while Metastasis are more common in the elderly age group.

Conclusion: FNAC of lymph node is a very useful and simple tool in the diagnosis of lymph node enlargement. it may be more reliable tool in the diagnosis of infective lesion in the lymph nodes.

Keywords: FNAC, cervical lymph node, granulomatous lymphadenitis, metastatic malignancy

Introduction

Enlargement of cervical lymph nodes is a common clinical condition encountered by the clinicians. As enlargement of the lymph nodes more than 1 cm² indicates clinical manifestation of regional or systemic disease and serves as an excellent clue to the underlying disease [1]. Persistent enlargement of the lymph node necessitates detailed investigations to reveal an underlying pathology. Although reasonably accurate diagnosis can be made clinically, laboratory investigation, cytologically examinations to establish and confirm the

diagnosis. These can be overcome by doing FNAC, as it is obtained easily and quickly which is simple and cheap and requires only a specialist input (cytologist) [2].

The commonest causes for cervical lymphadenopathy are tuberculous lymphadenitis which is a common manifestation of extrapulmonary tuberculosis, secondaries in the cervical lymph nodes, Metastasis and nonspecific lymphadenitis [3]. In India tuberculosis is a major health problem due to enormous social and economic constraints. The human immunodeficiency virus (HIV) epidemic has been associated with an increase in the total incidence of TB and an increased proportion of miliary, disseminated and extrapulmonary TB cases including lymphadenitis [4].

The gold-standard biopsy modality in the workup of a neck mass is fine-needle aspiration (FNA). The sensitivity and specificity of FNA for both pediatric and adult head and neck masses have been reported to be approximately 97% when diagnostic material is obtained. FNA should always be done before the consideration of any open procedures. FNA can be used for both cytology and culture (in cases in which a suspected infectious neck mass does not respond to conventional antibiotic therapy) This study was carried out with a broad objective of assessing relative diagnostic efficacy of the clinical evaluation, fine needle aspiration biopsy and open biopsy. Thus, a protocol for early management of cervical lymphadenopathy can be evolved. The objective was focused to study the confirmatory diagnosis of the underlying pathological variants, the prognosis of the disease, the incidence of the malignancies of aerodigestive tract, presenting with cervical lymphadenitis and also to diagnose various etiologies of cervical lymphadenitis in all age groups.

Methods

The study was designed and conducted in pathology department at Government medical college and district hospital, Dungarpur, from 1 January to 31 August 2022 in patients outpatients and inpatients. Patients selected with history of cervical lymphadenopathy who came to hospital. Number of cases studied are 50. The diagnosis of cervical lymphadenopathy was made after taking detailed history, clinical examination and necessary investigations according to the proforma. All the patients were subjected to FNAC and in relevant cases biopsy was done.

Inclusion criteria

Selected patients who attend ENT, Surgical, Pediatric, Medicine OPD with cervical lymphadenopathy of all age groups and both sexes included.

Exclusion criteria

Acute infective lymphadenitis cases excluded from this study.

Results

This study was conducted in 50 cases cervical lymphadenopathy at in pathology department at Government medical college and district hospital, Dungarpur, from 1 January to 31 August 2022. The distribution of patients of cervical lymphadenopathy according to their age group is depicted in Table 1. From the selected patients 70% patients were in the age group of 1-20 followed by 10 cases (20%) in 21-50 years. Only 10% of patients found in age group 51-80. The youngest patient in study was 5 years and eldest patients 75 years as in Table 1. The 70% of the patients were males and 30% were females in the study as given in Table 2.

Table 1: Distribution of patients of cervical lymphadenopathy according to their age group

Age (in years)	Tubercular lymphadenitis	Nonspecific lymphadenitis	Secondaries in neck	Total (%)
1-10	6	4	-----	10(20%)
11-20	18	7	-----	25(50%)
21-50	5	4	1	10(20%)
51-80	1	-----	4	5(10%)
Total	30	12	5	50(100%)

Table 2: Cervical lymphadenopathy patients with respect to sex distribution

Sex	Number of cases	Percentage
Male	35	70
Female	15	30
Total	50	100

The study of their socioeconomic status was depicted in Table 3. Among 30 patients affected by Tuberculous lymphadenitis 25 were low socioeconomic patients. No high socioeconomic patients were observed in those selected patients. Total 40 (80%) patients were low socioeconomic status out of selected patients in the study.

Figure 1 presents consistency of lymph nodes in cervical lymphadenopathy. 45 cases were found firm and no soft consistency of lymph nodes were observed.

Matting and fixity of lymph nodes in cervical lymphadenopathy patients are presented in Table 4. Among the patients 35 (70%) were having the condition of mobile lymph node where 5 (10%) were having fixed lymph nodes. Group of lymph nodes involved in patients involved in this study is portrayed in Figure 2. Middle deep cervical nodes were in maximum cases (35 out of 50, 70%) followed by Upper deep cervical nodes (14%). Only one case was found Submental nodes.

Figure 3 showing incidence of malignant and benign lesions in cervical lymphadenopathy, in this study in which 90% cases were benign and remaining 10% cases were malignant. Various diseases in cervical lymphadenopathy patients are presented in Figure 4. Among the patients 30 cases (60%) were tuberculous lymphadenopathy and were the major.

Table 3: Socioeconomic status in patients of cervical lymphadenopathy

Socio economic status	Low	Middle	High	Total (%)
Tubercular lymphadenitis	25	5	-----	30(60%)
Metastasis in neck	4	1	-----	5(10%)
Nonspecific lymphadenitis	10	5	-----	15(30%)
Total	40	10	-----	50

Table 4: Matting and fixity of lymph nodes in cervical lymphadenopathy

Condition of lymph node	No. of Patients	Percentage
Matting	10	20
Fixed	5	10
Mobile	35	70
Total	50	100

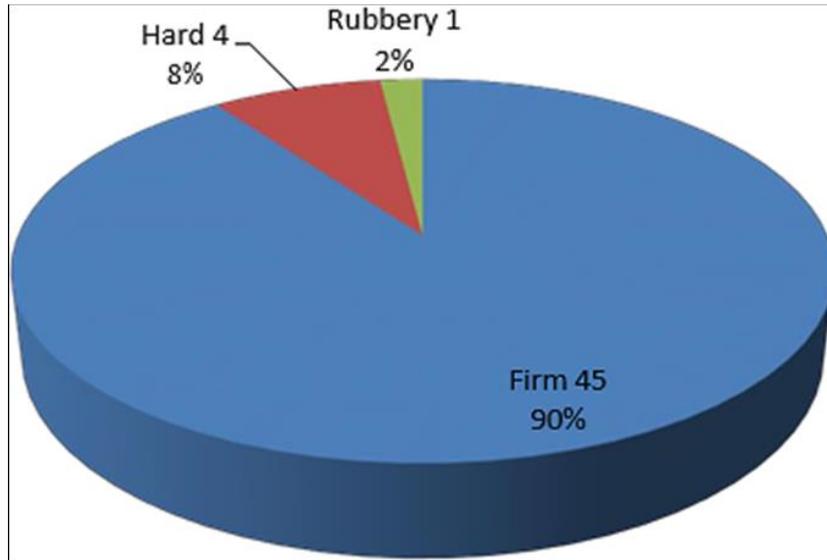


Fig 1: Consistency of lymph nodes in cervical lymphadenopathy

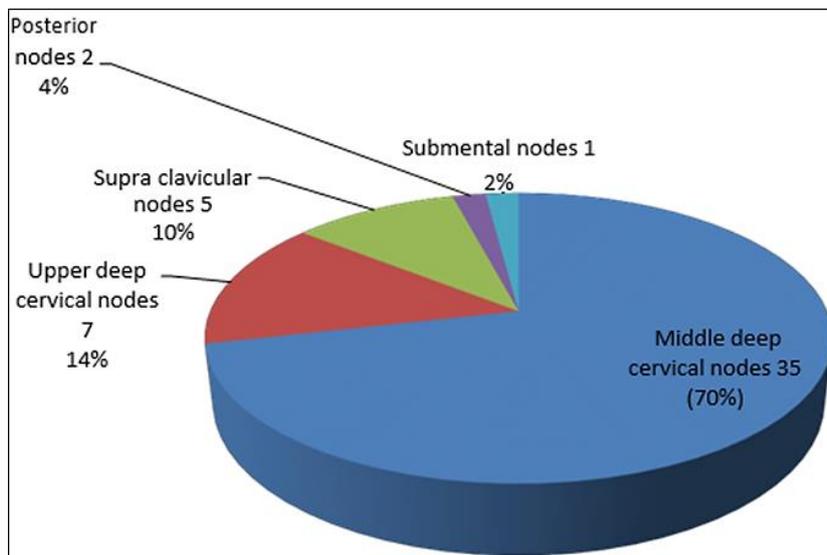


Fig 2: Group of lymph nodes involved in patients

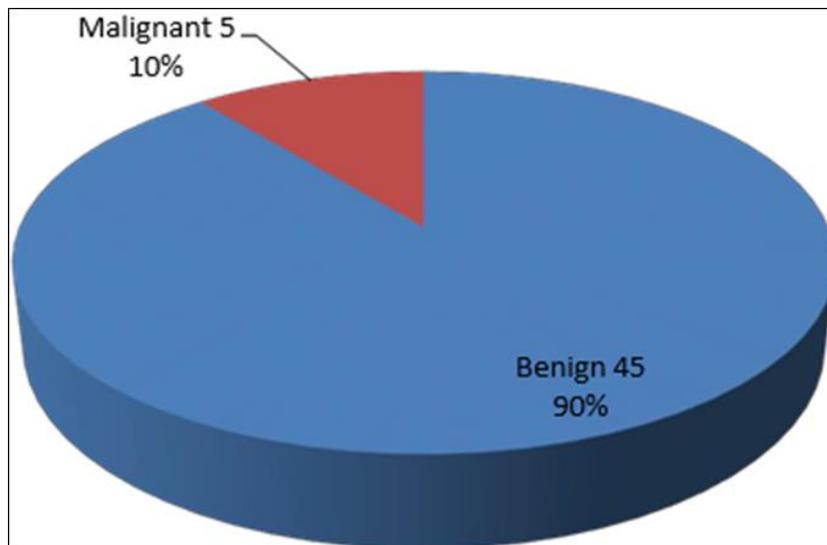


Fig 3: Benign and malignant lesions in cervical lymphadenopathy

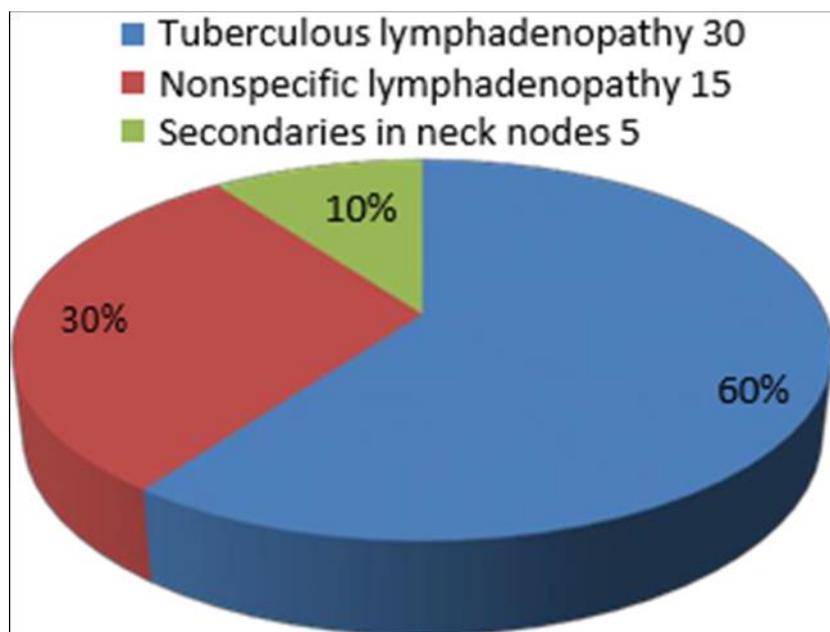


Fig 4: Various diseases in cervical lymphadenopathy

Matting and fixity of lymph nodes in cervical lymphadenopathy patients are presented in Table 4. Among the patients 35 (70%) were having the condition of mobile lymph node where 5 (10%) were having fixed lymph nodes. Group of lymph nodes involved in patients involved in this study is portrayed in Figure 2. Middle deep cervical nodes were in maximum cases (35 out of 50, 70%) followed by upper deep cervical nodes (14%). Only one case was found submental nodes.

Discussion

More number of cases was in age group of 1-20 years followed by 20% in the age group of 21-50 years and 10% in 51-80 years. TB lymphadenitis is observed more in age group of 11-20 years and Metastasis observed in 51-80 years.

Melkundi RS *et al.* conducted a study in 2017 and observed that more number of cases was seen in 11-20 age group 13 cases amounting to 26%. 26% in 11-20 years age group, 6% in 31-40 group. TB lymphadenitis was more in 11-20 age, secondaries observed in 61-70 age group [5].

In the series of Chamyal *et al.* 1997 incidence of cervical lymphadenopathy was highest in 41-60 age followed by 1-20 years [6]. Pranshu Bhargave *et al.* 2002 in their series observed TB Lymphadenitis has highest incidence and in age group of 21-40 (95%) [7].

In this study males and females are affected with M:F ratio being 7:3. While study conducted by Melkundi RS *et al.* in 2017, ratio was 1:1, Bharghave *et al.* M.F. ratio was 1:16. Richard Swarz *et al.* 1990 had a male: female ratio of 1.43: 1 [7],[8]. The observations made by Sarda *et al.* 1990 had M.F. ratio of 1.3:1 [9].

High incidence of cervical lymphadenopathy is seen in low socioeconomic status patients (80%). 62.5% of TB lymphadenitis belonged to low socioeconomic status which is comparable to 55.26% by Melkundi RS *et al.* in 2017 and of Dandapat *et al.* 1990 where they found TB incidence in low socio-economic status patients amounting to 73% [5, 10].

Among the 50 cervical lymphadenopathy cases clinically examined 45 patients had firm consistency (90%), 4 had hard consistency accounting for (8%) and in one case rubbery consistency. In study conducted by Melkundi RS in 2017 firm constituted 78%, hard 20% [5]. In Chamyal *et al.* series firm nodes constituted 65.5%, hard 29.1%, cystic 3.6% and soft 1.87% [6].

Among 50 cases studied, it has been observed that 10 cases has matting of lymph nodes, 5 cases are fixed to the underlying structures and remaining 35 cases are mobile which is accounting for 20%, 10% and 70% respectively. Whereas it has been seen that in Chamyal and Sabarigirish series matting of cervical lymph nodes were noted in 16.4% of cases and 23.6% of cases fixity was noted. This shows that fixity of lymph nodes were much higher compared to our study ^[6]. In this study it has been seen that more number of cases have been involved in middle deep cervical lymph node i.e. 70% followed by involvement of upper deep cervical in 14% of cases, 10% in supraclavicular group, 4% in posterior triangle and 2% involving submental lymph nodes i.e. more common in level III group of cervical lymph nodes.

Study by Melkundi RS *et al.* in 2017 shows upper deep cervical lymph nodes were involved in 20 cases middle deep cervical lymph nodes in 22 cases and supraclavicular nodes in 5 cases ^[5]. In this study of 50 cases with cervical lymphadenopathy 45(90%) were benign and 5 were malignant (10%). Study by Haque *et al.* in the year Nov 2001 to April 2002, have seen 25.3% were malignant and remaining were benign which is comparable with our study ^[6, 11].

In Melkundi RS *et al.* study of 50 cases with cervical lymphadenopathy 38 cases (76%) were benign and 12 were malignant (24%) ^[5]. In the study of Chamyal and Sabarigirish, benign constituted 57.2%, malignancy accounted for 40.9% ^[6].

On clinical diagnosis of 50 cases 45 cases were benign of which 30 cases were TB lymphadenitis (66.66%), and 15 cases (33.33%) nonspecific lymphadenitis noted. Remaining accounted for malignancy i. e. Metastasis in the neck accounted for 5 cases (10%).

In the reports of Sarda *et al.* of 359 patients 253 cases (86%) had tuberculous lymphadenitis 42 had nonspecific lymphadenitis 36 had secondaries and 18 had Lymphomas ^[9].

As all 50 cases were subjected for FNAC, 90% were benign lesions and 10% malignant lesions. In the benign lesions, TB lymphadenitis accounted for 66.66%, nonspecific lymphadenitis 33.33%. In malignancy 5 cases i.e. 10% were Metastasis in neck.

Total 50 cases were studied of which 30 cases consisted of tuberculous lymphadenitis, 5 cases of Metastasis in neck, 15 cases of nonspecific Lymphadenitis.

It is noted from this study data that FNAC forms an important diagnostic tool to aid in the diagnosis of cervical lymphadenopathy as FNAC is very cost effective. Safe and easily done. From all the above observations a protocol can be formulated for evaluation of the cervical lymphadenopathy cases.

Table 5: Comparison with other similar studies

Author	Total cases	Tubercular lymphadenitis	Nonspecific lymphadenitis	Metastasis	Others
Melkundi <i>et al.</i> 2017 ^[5]	50	31	3	14	2
Chamyal <i>et al.</i> 1997 ^[6]	110	26	37	28	19
Prabhu Bhargave 2000 ^[7]	100	53	66	1	7
Present study 2022	50	30	15	5	--

Conclusion

From this study it can be concluded that in cervical lymphadenopathy clinical evaluation followed by FNAC is most reliable diagnostic tool, which is easy to perform, cost effective, speedy results can be obtained and accurate. The main requirement for this is the specialist input. Culture and CBNAAT are very useful in cases of TB lymphadenitis which acts as the diagnostic tool and also when FNAC report is inconclusive, in nonspecific lymphadenitis it is very much helpful to get an accurate diagnosis and aids in an appropriate management.

Hence this study is very helpful for the patients of Durgapur region which is a backward and tribal area and will aid in appropriate management with minimal investigative procedures and also create an awareness regarding the highest incidence of tubercular lymphadenitis in this area.

References

1. Bhatt JV, Shah F. Clinico-pathological profile of cervical lymphadenopathy: A Prospective. *J Appl Basic Med Sci.* 2002;2(2):35-9.
2. Watkinson JC, Wilson JA, Gaze M, Stell PM, Maran AGD. Stell and Maran's Head and neck surgery. Chapter 2. 4th edition. Oxford: Butterworth-Heinemann, 2000, 20-21.
3. Giles GR. Bailey and Love's Short Practice of Surgery. 19th Edition. London: HK Lewis & Co., 1985, 601-610.
4. Hill AR, Premkumar S, Brustein S, Vaidya K, Powell S, Li PW, *et al.* Disseminated tuberculosis in the acquired immunodeficiency syndrome era. *Am Rev Respir Dis.* 1991;144:11-64.
5. Melkundi RS, Melkundi S. Clinicopathological study of cervical lymphadenopathy. *Int J Otorhinolaryngol Head Neck Surg.* 2017;3:244-9.
6. Chamyal PC, Sabarigirish K. Clinico pathological correlation study of cervical lymph node masses. *Int J Otolaryngol Head Neck Surg.* 1997;49(4):404-5.
7. Bhargave P, Jain AK. Chronic cervical lymphadenopathy a study of 100 cases. *Ind J Surg.* 2002;64:344-46.
8. Schwarz R, Chan NH, MacFarlane JK. FNAC in evaluation of H & N masses. *Am J Surg.* 1990;159(5):482-5.
9. Sarda AK, Bal S, Singh MK, Kapur MM. FNAC as preliminary diagnostic procedure for asymptomatic cervical lymphadenopathy. *JAPI.* 1990;38(3):203-5.
10. Dandapat MC, Mishra BM, Kar PK. in peripheral lymph node: A review of 80 cases. *BJS.* 1990;177:911-2.
11. Haque MA, Talukder SI. Evaluation of fine needle aspiration cytology (FNAC) of lymph node. *Mymensingh Med J.* 2003;12(1):33-5.