

ORIGINAL RESEARCH

Clinicopathological Study of Cervical Lymphadenopathy

¹Dr. Anju Balakrishnan, ²Dr. Neeraj R Shetty, ³Dr. Ninad S Gaikwad, ⁴Dr Shashikant Mashal, ⁵Dr Vinod Gite

¹Senior Resident, ²Assistant Professor, ³HOD, ^{4,5}Associate Professor, Department of Otorhinolaryngology, HBT Medical College and Dr. R.N Cooper hospital, Mumbai, Maharashtra, India

Corresponding Author

Dr. Anju Balakrishnan

Senior Resident, Department of Otorhinolaryngology, HBT Medical College and Dr. R.N Cooper hospital, Mumbai, Maharashtra, India

Received: 15 November, 2023

Accepted: 17 December, 2023

ABSTRACT

Introduction: Lymph nodes are peripheral lymphoid organs and cervical lymphadenopathy is a common manifestation often overlooked. Proper and early diagnosis of lymphadenopathy is important for starting early and effective treatment as it requires further investigation with respect to its aetiology and diagnostic procedure since analysis of lymph node enlargement in the neck is difficult because most of the diseases resemble each other. **Objective:** Aim was to conduct a clinicopathological study of cervical lymphadenopathy with regard to age, sex, clinical mode of presentation and location of the lymph nodes, to study correlation between clinical and pathological findings and to emphasize the role of FNAC in etiological workup of cervical lymphadenopathy cases. **Methods:** The study was conducted among 126 patients visiting the ENT OPD &/or admitted in the IPD with Lymph node enlargements in the neck amongst other findings at "HBT Medical College and Dr. R..N. Cooper Municipal General Hospital," Mumbai; during the period September 2020 through August 2022. **Result:** Present study majority of enrolled cases were diagnosed with tubercular lymphadenitis 71 cases [56.34%] and mostly belonged to age group of 21-30 yrs and majority were males [68]. Second most common clinical diagnosis was found to be reactive lymphadenitis 34 cases [26.98%] followed by secondary metastasis 13 cases [10.32%]. Among secondaries, it was found that the primary carcinoma was most commonly of the oral cavity [SCC] (35.29%), followed by papillary carcinoma of thyroid (23.5%). **Conclusion:** Lymph nodes are strategically placed along the drainage of tissue and body fluids. The enlargement of these is a worrisome sign as there are multiple etiological agents and are common portal for the spread of infection and malignancy, so early diagnosis of lymphadenopathy is important for starting of early and effective treatment. FNAC is considered to be the first line invasive test for any case with cervical lymphadenopathy as its easy to perform, widely available, have high sensitivity and confirms clinical diagnosis accurately, especially when it comes to identifying tubercular lymphadenopathy. Though open biopsy with histopathological examination is definitive investigation particularly in diagnosing malignant cases.

Keywords: Cervical lymphadenopathy, FNAC, Metastatic.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution- Non Commercial- Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

INTRODUCTION

The human body has about 600 lymph nodes which play role of filtering the lymph fluid as it circulates throughout the body. The function of lymph node is to deal with antigen, in the form of organisms or other particulate material or even soluble antigen. The lymph nodes contain T and B cells along with antigen presenting cells which are called the dendritic cells. They form the part of the immune system and function to fight off disease and infections (1).

Lymphadenopathy (LAP) frequently occurs as a clinical symptom of an array of disorders and strategically placed along the drainage of tissue and body fluids with neck containing nearly 2/3rd of the total lymph nodes of the body (2). Cervical lymphadenopathy is described as an enlargement of

cervical lymph nodes, with a diameter greater than 1 cm. Cervical lymphadenopathy generally describes a transitory reaction to a non-malignant local or generalized infection. However, it might be a precursor to an underlying pathological state (autoimmune disorder/malignancy).

Lymphadenopathy is widely divided into 3 types-localized, generalized, and dermatopathic (3-4).

The main cause of benign LAP in tropical areas is tuberculosis with social and massive economic implications. Additionally, increasing cases of HIV in TB patients has increased the incidence of extrapulmonary TB to 50%. In general practice, less than one percent of patients with LAP have malignant disease, often due to leukemia in younger children and Hodgkin's disease in adolescents. It has been reported

that the prevalence of malignancy is 0.4% in patients under 40 years and 4% in those over 40 years of age in the primary care setting. The prevalence rises to 17% and it soars to 40-60% in highly suspicious patients in referral centers (5-6). When cervical lymphadenopathy is detected, a cause can be determined by careful medical history, thorough physical examination, judicious selection of laboratory tests and if necessary a lymph node biopsy. Imaging accurately identifies node characteristics. Ultrasonography assess number, size, site, shape, margins and internal structure in patients with peripheral LAP, whereas CT scan and magnetic resonance imaging (MRI) are more useful in the evaluation of the thoracic and abdomino-pelvic cavity and their accuracy mainly depends on the size of the lymph nodes (5). A normal or reactive node is oval with a hilum, whereas metastatic and lymphomatous lymph nodes generally emerge as round lesions (7).

Tissue diagnosis is the gold standard in the evaluation of LAP. Fine needle aspiration cytology (FNAC) is a simple and safe procedure and is proved to be accurate in the diagnosis of reactive hyperplasia, infections, granulomatous lymphadenopathies, lymphomas, and metastatic malignancies. It is easily performed in both inpatient and outpatient settings with prompt results (8). FNAC has the maximum sensitivity and specificity for detecting metastatic cancers in lymph nodes, almost accuracy is 82-96% (9). Techniques like immunohistochemistry and flow cytometry can improve the accuracy of FNAC for the diagnosis of lymphomas (10). The important limitations of FNAC are inadequate specimen and high rate of false-negative diagnoses in Hodgkin's disease and incomplete classification of non-Hodgkin's lymphoma (11).

This study was conducted to highlight the various pathological conditions presenting cervical LAP, the spectrum of clinical presentation, demographic features, various patterns and relative diagnostic efficacy of FNAC.

AIM OF THE STUDY

1. To study the aetiology of the cervical lymphadenopathy.
2. To study the spectrum of clinical features of cervical lymphadenopathy.
3. To study a correlation between the histopathological findings and the clinical diagnosis.
4. To study the incidence of metastases among cases of cervical lymphadenopathy.

MATERIAL AND METHODS

Type of study: Prospective Observational study with sample size 126.

Source of Data: The study population was selected from patients visiting the ENT OPD & / or admitted in the IPD with Lymph node enlargements in the neck amongst other findings at "HBT Medical College and

DR. RN Cooper Municipal General Hospital," Mumbai; during the period September 2020 through August 2022 and approved by ethical committee.

INCLUSION CRITERIA

- Patients of all the age group and both genders presenting to ENT O.P.D / I.P.D with clinically enlarged cervical lymph nodes.
- Cases of cervical lymphadenopathy, with or without previous history of any medical or surgical treatment for the same. Cases which were regular for post treatment follow-up.
- Patients whose prior imaging study (ultrasonography or Computed tomography scan) has shown cervical lymphadenopathy are also included for thorough clinical evaluation and FNAC/Biopsy of the neck node.

In cases where FNAC was inconclusive and there was need for excision biopsy, had underwent biopsy.

EXCLUSION CRITERIA

- Acute lymphadenitis cases were excluded from the study.
- Patients not willing for study.
- Patients with lymph node <1 cm diameter, FNAC could not be carried out were excluded.

SAMPLING METHOD

The study was conducted in H.B.T Medical College and DR. R N Cooper Municipal General Hospital, Mumbai; during a period of 2 years from September 2020 through August 2022. It was conducted after obtaining adequate approval from the hospital ethical committee that includes both in-patients and ENT out-patients presenting with neck lymphadenopathy. A total of around 126 cases of cervical lymphadenopathy was included in the study after taking valid written-informed consent. The data was collected in a predesigned master chart regarding age and sex of patients, duration of lesion, other constitutional symptoms and any history of prior contact with tuberculosis, along with brief clinical history.

Detailed ENT clinical examination and a thorough local neck examination focusing especially on the various clinico-morphological features of the lymph nodes including the site, size, laterality, number, consistency, secondary changes and the level of the cervical lymph nodes was carried out. Systemic examination also carried out in an attempt to find out the primary site of tumour in cases of any suspicion of metastasis/ local invasion to cervical lymph nodes. After reaching clinical diagnosis it was followed by a comprehensive work up investigations including routine investigations and radiological investigations. FNAC was put as the front line cytological diagnosis at hand. So, all included cases were subjected to FNAC and in inconclusive cases Lymph node biopsy was carried out. Tissue specimen was sent to

pathologist for gross and microscopic evaluation without cutting specimen. Further test were carried out on the basis of histopathological diagnosis (for example, secondaries in the neck), contrast radiological investigations, endoscopy, etc. carried out in relevant cases only.

INVESTIGATIONS

• Routine Investigations:

Blood Hb %: Patients having tuberculosis and malignancy are malnourished, so it can be decreased.

TC: In patients with, lymphomas, tuberculosis, suppurative lymphadenitis, count can be increased.

DC: Eosinophilia in Hodgkin's disease. Lymphocytosis in tuberculosis.

ESR: It has limited role in diagnosis can be helpful in follow up of TB patients.

Liver: Function tests: in liver/ bone involvement of lymphomas serum alkaline phosphatase may be raised.

• Radiography

• X-ray neck –TB there may be calcification of neck nodes. Also posterior wall of nasopharynx evaluation.

• X-ray Chest – for evidence of pulmonary TB

• Skeletal survey or bone scan –in lymphomas

• Imaging

CT scan: Neck CT scan in diagnosis of deep-seated masses and lymph node metastasis.

Chest CT scan to detect abnormalities not detected by CXR and to Assess mediastinal disease.

Abdominal CT supplements staging in lymphomas.

Also can evaluated primary tumours in unknown neck secondaries.

• Endoscopy

Triple endoscopy (direct laryngoscopy, nasopharyngoscopy, oesophagoscopy), indirect laryngoscopy, bronchoscopy, with or without biopsy to identify and evaluate in case of secondaries neck.

• FINE NEEDLE ASPIRATION CYTOLOGY (FNAC)¹⁹

Fine needle aspiration cytology (FNAC) is the accurate, sensitive, specific and cost –effective procedure in the diagnosis of lymphadenopathy and helps in the diagnosis of both neoplastic and non-neoplastic lesion of lymph nodes.

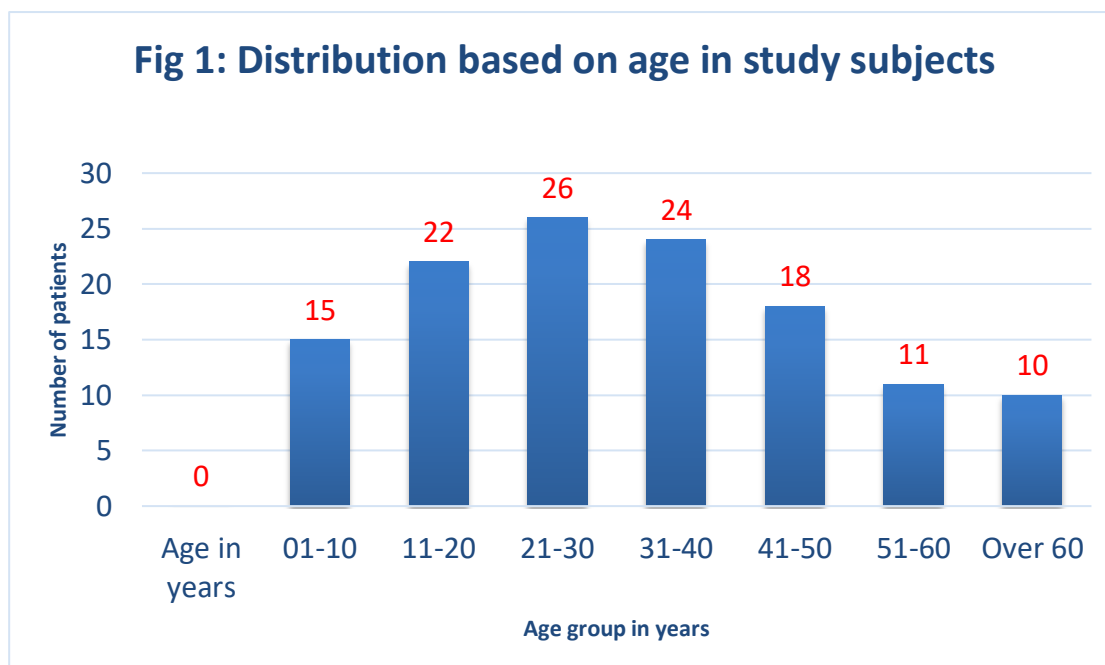
• EXCISION BIOPSY OF CERVICAL LYMPH NODE

The procedure of choice, because more tissue for diagnostic studies and facilitates multiple histologic section preparations for routine and special stains and confirms diagnosis. Done in cases where FNAC was inconclusive.

RESULTS AND OBSERVATIONS

1. Age details of enrolled participants

Majority of the enrolled cases belonged to the age group of 21-30 years (20.63%), followed closely by 31-40 years (19.04%), and 11-20 years (17.46%).



2. Gender details of enrolled participants

Most of the enrolled cases were males (n=68, 53.97%) while 58 cases were females (46.03%).

3. Presenting complaints noted in study

All the enrolled patients had presenting complaint of neck swelling. The second most-common clinical complaint which was noted was fever (61.11%), followed by loss of weight (46.03%), and malaise (34.92%). The complete description of presenting

complaints in study participants have been noted below in table 1.

Table 1: Distribution of cases of cervical lymphadenopathy according to presenting complaints

Presenting complaints	Number of cases	Percentage
Neck swelling	126	100.00%
Fever	77	61.11%
Cough	26	20.63%
Loss of appetite	29	23.02%
Difficulty in swallowing	11	08.73%
Loss of weight	58	46.03%
Malaise	44	34.92%
Change in voice	04	03.17%

*Overlapping complaints

4. History of contact with tuberculosis (TB) cases

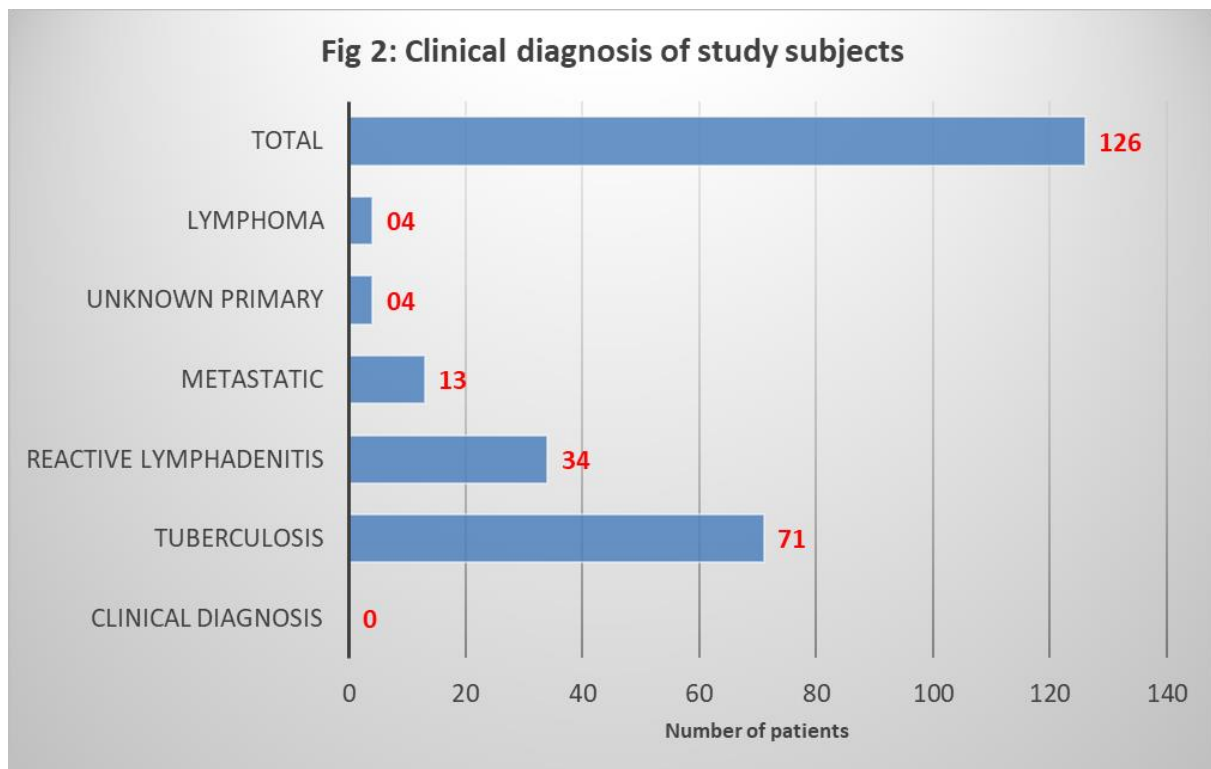
Out of a total of 126 enrolled cases, 16 cases (12.69%) had history of contact with TB cases, while 110 cases (87.31%) did not have history of contact with TB cases.

6. Clinical diagnosis noted in study

The commonest clinical diagnosis noted in study was tuberculosis (n=71), followed by reactive lymphadenitis (26.98%). Other less common diagnoses were metastatic (10.32%), unknown primary or lymphoma (3.17% each).

5. Lymph node involvement status in study

Out of a total of 126 enrolled cases, 15 cases (11.9%) had bilateral lymph node involvement while 111 cases (88.1%) had unilateral lymph node involvement.



7. Level of lymph node involvement in study

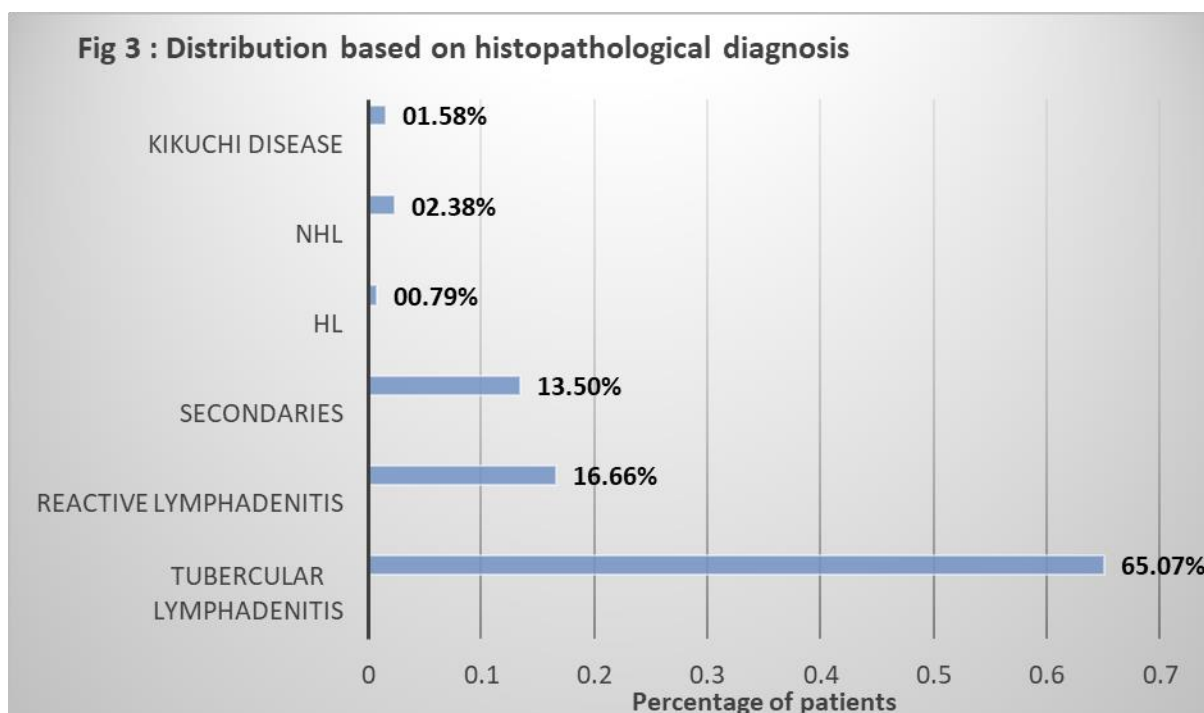
Majority of the enrolled patients in study had level II LN involvement (40.48%), followed by level V (19.84%) and level I (16.67%). More than one site involvement was noted in 13.49% cases. Total details are mentioned below in table 2.

Table 2: Level of Lymph Node Involvement in study subjects

Levels of lymph nodes	Number of cases	Percentage
I	21	16.67%
II	51	40.48%
III	08	06.35%
IV	04	03.17%
V	25	19.84%
More than one site	17	13.49%
Total	126	100.00%

8. Distribution of patients based on histopathological diagnosis in study

The commonest histopathological diagnosis in study was tubercular lymphadenitis (65.07%), followed by reactive lymphadenitis (16.66%), secondaries noted in 13.5% cases, NHL (2.38%), Kikuchi disease (1.58%) and HL (single case). (Figure 3)



9. Comparison of clinical and histopathological findings in study

The commonest condition diagnosed by both histopathology (65.07%) and clinical diagnosis (56.34%) was tubercular lymphadenitis. This was followed by reactive lymphadenitis (16.66% by histopathology and 26.98% by clinical diagnosis). No significant difference was noted between both the diagnostic modalities for any condition ($p > 0.05$). (Table 3)

Table 3: Comparison of clinical and histopathological diagnosis in study

Diagnosis	Histopathological diagnosis (number)	Histopathological diagnosis (%)	Clinical diagnosis (number)	Clinical diagnosis (%)	p-value
Tubercular lymphadenitis	82	65.07%	71	56.34%	0.19
Reactive lymphadenitis	21	16.66%	34	26.98%	0.07
Secondaries	17	13.50%	13	10.32%	0.55
Unknown primary	00	00.00%	04	02.38%	0.13
HL	01	00.79%	04	03.17%	1
NHL	03	02.38%			
Kikuchi disease	02	01.58%	00	00.00%	0.47
Total	126	100.00%	126	100.00%	-

P value calculated by chi-square test

10. Distribution of primary among malignant secondaries in neck

Among secondaries, it was found that the primary carcinoma was most commonly SCC of the oral cavity (35.29%), followed by papillary carcinoma of thyroid (23.5%). Complete distribution is mentioned below in table 4.

Table 4: Distribution of primary among malignant secondaries in neck (N=17)

Primary site of malignancy	Histopathological diagnosis	Number of cases	Percentage
Oral cavity	SCC	06	35.29%
Larynx	SCC	02	11.76%
Thyroid	Papillary carcinoma	04	23.50%
Parotid	Mucoepidermoid carcinoma	01	5.88%
Unknown primary	Adenocarcinoma	01	5.88%
Unknown primary	SCC	03	17.64%
Total		17	100.00%

Sensitivity and specificity of clinical diagnosis versus pathological finding for tubercular lymphadenitis diagnosis

For clinical assessment, the diagnosis of tuberculous lymphadenitis was noted to be 76.82% sensitive, 81.81% specific, 88.73% PPV and 65.45% NPV. The accuracy was found to be 78.57%. (Table 5)

Table 5: Sensitivity and specificity of clinical diagnosis versus pathological finding, in diagnosis of tuberculous lymphadenitis

Pathological finding	Clinical diagnosis		Total
	Positive	Negative	
Positive	63	19	82
Negative	8	36	44
Total	71	55	126
Statistics	Value		95% CI
Sensitivity	76.82%		68.21% to 83.54%
Specificity	81.81%		72.35% to 88.76%
Positive Predictive Value	88.73%		83.89% to 92.34%
Negative Predictive value	65.45%		60.32% to 71.97%
Disease prevalence	65.07%		57.24% to 69.83%
Accuracy	78.57%		71.56% to 84.82%

DISCUSSION

- The analysis of lymph node enlargement in the neck is tricky due to similar presentations of many diseases. In developing countries like India aetiology still appears to be infectious whereas in the western world malignancy is the most common cause. (Mutiullah S, Ahmad Z, Yunus M, Marphani MS. Evaluation of tuberculous cervical lymphadenopathy. Pak J Surg. 2009;25(3):176-8.)
- It can be a manifestation of pulmonary tuberculosis in the form of extra-pulmonary tuberculosis or a rare manifestation of metastasis with unknown primary which accounts for 3% to 5% of head-neck cancers. (Iqbal MA, Subhan AN, Aslam AS. Frequency of tuberculosis in cervical lymphadenopathy. J Surg Pak (International). 2010;15(2):107-9.) Clinical presentation can be different based on different causes. 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).
- If FNA is inconclusive should be repeated before open biopsy, with the latter being considered as

gold standard. (Cummings Otolaryngology Head & Neck Surgery, Fifth Edition. Vol 2, Section 6. Chapter 116. Differential Diagnosis of Neck Masses.)

- However, Indian studies which have evaluated the various clinical presentations and histopathological findings of cervical lymphadenopathies are scarce. Hence, current study was planned to do a clinico-pathological assessment of cervical lymphadenopathies at a tertiary care teaching hospital in India. The present study was also done to evaluate the sensitivity, specificity and accuracy of clinical diagnosis in identifying tuberculous lymphadenitis, in comparison to the gold standard of pathological diagnosis.

DEMOGRAPHIC DETAILS OF STUDY PARTICIPANTS

- In the present study, majority of the enrolled cases belonged to the age group of 21-30 years (20.63%), followed closely by 31-40 years (19.04%), and 11-20 years (17.46%). In the study by **Narender et al.**, common age of presentation was second and third decades (32.6%, 23.9%)

followed by first decade (17.3%), a finding very identical to our study. (**Narender NR, Rao YJ. A prospective clinico-pathological study of cervical lymphadenopathy. Int Surg J 2017;4:3967-70.**)

- On assessing the gender distribution, most of the enrolled cases were males (n=68, 53.97%) while 58 cases were females (46.03%). Majority of the males in the study belonged to 31-40 years' age group, followed by 11-20 years and 21-30 years. For female sub-group, commonest age group noted was 11-20 years, followed by 21-30 years and 31-40 years respectively.
- However, no significant association was noted between age groups and gender. The study by **Shakya et al.** also had identical gender distribution (51.4% males versus 48.6% females). In the study by Motiwala et al., 61.73% cases were males while 38.27% were females.

CONTACT WITH TB CASES

- Out of a total of 126 enrolled cases, 16 cases (12.69%) had history of contact with TB cases, while 110 cases (87.31%) did not have history of contact with TB cases. This is important to note for the clinician, as a positive history can definitely strengthen the case of a possible TB lymphadenitis. In the study by Narender et al., 13% of the enrolled cases with cervical lymphadenopathy had history of TB contact, very similar to our study.

LATERALITY OF LN INVOLVEMENT

- Out of a total of 126 enrolled cases, 15 cases (11.9%) had bilateral lymph node involvement while 111 cases (88.1%) had unilateral lymph node involvement. In the study by Narender et al., 73.9% cases were having unilateral cervical lymphadenopathy and 26.1% were having bilateral lymphadenopathy. In the study by **Gorle et al.**, 80.3% cases had unilateral involvement while 19.7% had bilateral LN involvement. In the study by **Motiwala et al.**, unilateral involvement was noted in 92.17% while bilateral cervical LN involvement in 7.83%.

CLINICAL PRESENTATION OF ENROLLED CASES

- All the enrolled patients had presenting complaints of neck swelling. The second most-common clinical complaint which was noted was fever (61.11%), followed by loss of weight (46.03%), and malaise (34.92%). The other less common clinical complaints included loss of appetite (23.02%), cough (20.63%), difficulty in swallowing (8.73%) and change in voice (3.17%).

- In the study by Motiwala et al., neck swelling was present in all cases (100%). Fever was the second most common symptom in 69 cases (60%), followed by loss of weight in 54 patients (46.96 %), malaise in 42 patients (36.52%), loss of appetite in 27 patients (23.48%), cough in 21 cases (18.26%), difficulty in swallowing in 8 patients (6.96%), and change in voice was present in 8 (6.96%) respectively.

LEVEL OF LN INVOLVEMENT IN STUDY PARTICIPANTS

- Majority of the enrolled patients in study had level II LN involvement (40.48%), followed by level V (19.84%) and level I (16.67%). More than one site involvement was noted in 13.49% cases. In the study by **Kokkonda et al.**, the Level 5 (posterior triangle group) was most commonly affected (31.3%) followed by Level 2 (upper jugular group) at 21.5%. Fifteen cases (29.4%) had more than one site involved in the neck and 90% of lymphoma cases had more than one site involvement. In the study by **Jha et al.** upper deep jugular group was the most commonly involved. (**Jha BC, Dass A, Nagarkar NM, Gupta R, Singhal S. Cervical tuberculous lymphadenopathy: changing clinical pattern and concepts in management. Postgrad Med J 2001;77:185-7.**) In the study by **Baskota et al.**, posterior triangle was the most common at 51% (comparable to the present study).

DIAGNOSIS OF ENROLLED CASES

- The commonest clinical diagnosis noted in study was tubercular lymphadenopathy (56.34%), followed by reactive lymphadenitis (26.98%). Other less common diagnoses were metastatic (10.32%), unknown primary or lymphoma (3.17% each). The commonest histopathological diagnosis in study was tubercular lymphadenitis (65.07%), followed by reactive lymphadenitis (16.66%), secondaries noted in 13.5% cases, NHL (2.38%), Kikuchi disease (1.58%) and HL (single case).

Among secondaries, it was found that the primary carcinoma was most commonly SCC of the oral cavity (35.29%), followed by papillary carcinoma of thyroid (23.5%). A similar study by **Gorle et al.** had evaluated that primary carcinoma in malignant secondaries where commonest noted causes were SCC of the larynx and followed by papillary carcinoma of thyroid (25% each), and mucoepidermoid carcinoma of parotid (12.5%). The findings were similar to that noted in other identical studies, where in tubercular cause was predominant reason for cervical lymphadenopathy.

Study evaluated	Tubercular cause	Other causes
Present study	65.07%	34.93%
Narender et al.	54.3%	45.7%
Jha BC et al.	63.5%	36.5%
Arora B et al.	62%	38%
Sreenidhi GM et al	72.22%	27.78%
Khan AH et al.	52%	48%
Gorle et al.	51%	49%
Motiwala et al.	54.78%	45.22%

Table 6 above shows the comparison of present study versus other similar studies, with respect to aetiologies of cervical lymphadenopathy confirmed by pathology.

The commonest condition diagnosed by both histopathology (65.07%) and clinical diagnosis (56.34%) was tubercular lymphadenitis. This was followed by reactive lymphadenitis (16.66% by histopathology and 26.98% by clinical diagnosis). No significant difference was noted between both the diagnostic modalities for any condition ($p>0.05$).

SENSITIVITY, SPECIFICITY, PPV AND NPV OF CLINICAL DIAGNOSIS OF CERVICAL LYMPHADENOPATHY VERSUS PATHOLOGICAL DIAGNOSIS

For clinical assessment, the diagnosis of tuberculous lymphadenitis was noted to be 76.82% sensitive, 81.81% specific, 88.73% PPV and 65.45% NPV. The accuracy was found to be 78.57%. This was a **novelty factor** of our study as other studies in scientific literature have not evaluated the utility of clinical diagnosis versus pathological testing. Present study considered FNAC or biopsy (wherever biopsy reports available) as gold standard for assessing utility of clinical diagnosis. The neoplastic lesions of lymph nodes require biopsy followed by adherence to site specific oncology protocols. FNAC is considered highly sensitive and specific when it comes to identifying tubercular lymphadenopathy.

The study by Motiwala et al. noted that sensitivity and specificity of FNAC was 79.36% and 100% respectively for tubercular lesion. In the study by Kokkonda et al., sensitivity of FNAC was 80.3% for tubercular lymphadenitis while specificity was 100%. Prasad et al. reported a sensitivity of 83.3% and specificity of 94.3% in diagnosing tubercular lymphadenitis in their study. **(Prasad RR, Narasimhan R, Sankaran V, Veliath AJ. Fine-needle aspiration cytology in the diagnosis of superficial lymphadenopathy: An analysis of 2,418 cases. Diagn Cytopathol 1996;15:382-6.)** Considering the promising sensitivity, specificity, PPV, NPV and accuracy of clinical diagnosis for tubercular cases as well, it can hold promise especially in centres where biopsy will not be a possibility.

SUMMARY

- This study included 126 cases of cervical lymphadenopathy visiting the ENT OPD & or admitted in HBT Medical College and DR. RN Cooper Municipal General Hospital Mumbai from September 2020 to August 2022. In present study majority of enrolled cases were diagnosed with tubercular lymphadenitis 71 cases [56.34%], mostly belonged to age group of 21-30 yrs and majority were males [68], among them 16 patients [12%] had history of prior exposure to TB. Second most common clinical diagnosis was found to be reactive lymphadenitis 34 cases [26.98%] followed by secondary metastasis 13 cases [10.32%].
- Among secondaries, primary carcinoma was most commonly SCC of oral cavity while 4 patients were found to be suffering with lymphoma [1- Hodgkins lymphoma and 3- Non Hodgkin lymphoma]. Majority cases presented with enlargement of level 2 cervical lymph nodes [40.48%] with bilateral lymph node involvement seen in 11% of tuberculous lymphadenitis cases, though all cases of lymphomas were associated with involvement of multiple levels of neck nodes.
- FNAC is considered to be the first line invasive test for any case with cervical lymphadenopathy. Its easy to perform, widely available, high sensitivity and confirms clinical diagnosis accurately, especially when it comes to identifying tubercular lymphadenopathy. Though open biopsy with histopathological examination is definitive investigation particularly in diagnosing malignant cases.

REFERENCES

1. King D, Ramachandra J, Yeomanson D. Lymphadenopathy in children: refer or reassure? "Archives of disease in childhood. Education and practice. 2014; 99:101-10.
2. Verma R, Khera S. Cervical lymphadenopathy: a review. Int J Health Sci Res. 2020; 10:292-8.
3. Saeed S, Hasan S, Panigrahi R. Cervical Lymphadenopathy-A Clue to Systemic Diseases: A Recent Update. Medico-legal Update. 2020 Oct;20(4):3521.
4. King D, Ramachandra J, Yeomanson D. Lymphadenopathy in children: refer or reassure?

- Archives of Disease in Childhood-Education and Practice. 2014 Jun 1;99(3):101-10.
5. Shahrzad M, Abolfazl S, Zhamak K, Shahriar A, Ali G, Ali G. Peripheral lymphadenopathy: approach and diagnostic tools. Approach and Diagnostic Tools. Iran J Med Sci. 2014;39(2):158-170.
 6. Ferrer R. Lymphadenopathy: differential diagnosis and evaluation. American family physician. 1998 Oct 15;58(6):1313.
 7. Chang DB, Yuan A, Yu CJ, Luh KT, Kuo SH, Yang PC. Differentiation of benign and malignant cervical lymph nodes with color Doppler sonography. AJR. American journal of roentgenology. 1994 Apr;162(4):965-8.
 8. Lioe TF, Elliott H, Allen DC, Spence RA. The role of fine needle aspiration cytology (FNAC) in the investigation of superficial lymphadenopathy; uses and limitations of the technique. Cytopathology. 1999; 10:291-7.
 9. Nasuti JF, Yu G, Boudousquie A, Gupta P. Diagnostic value of lymph node fine needle aspiration cytology: an institutional experience of 387 cases observed over a 5-year period. Cytopathology. 2000 Feb;11(1):18-31.
 10. Solano JG, Bascuñana AG, Pérez JS, Fernández JC, Parra DM, Sánchez CS, Romero SM, Pérez-Guillermo M. Fine-needle aspiration of subacute granulomatous thyroiditis (De Quervain's thyroiditis): a clinico-cytologic review of 36 cases. Diagnostic cytopathology. 1997 Mar;16(3):214-20.
 11. Van de Schoot L, Aronson DC, Behrendt H, Bras J. The role of fine-needle aspiration cytology in children with persistent or suspicious lymphadenopathy J Pediatr Surg. 2001; 36:7-11.
 12. Grau C, Johansen LV, Jakobsen J, Geertsen P, Andersen E, Jensen BB. Cervical lymph node metastases from unknown primary tumours: results from a national survey by the Danish Society for Head and Neck Oncology. Radiotherapy and Oncology. 2000 May 1;55(2):121-9.
 13. Osama G, Peter R, Charles E, Joseph J. Metastatic malignant disease of unknown origin. Am J Surg Pathol 145, 493-7.
 14. Arora B, Arora DR, FNAC in diagnosis of tubercular lymphadenitis: Indian J Medical Research May; 91: 189-92.
 15. A clinico-pathological study of cervical lymph nodes Gaurav Batni, Sushil Gaur, ON Sinha, Siddhant Priya Agrawal, Abhinav Srivasatva Indian Journal of Otolaryngology and Head & Neck Surgery 68 (4), 508-510, 2016.
 16. Clinico-pathological correlates of cervical lymphadenopathy: a hospital based study Gautam Biswas, Anjan Das, Dibakar Haldar, Ankur Mukherjee, Sirshak Dutta, Ramanuj Sinha Indian Journal of Otolaryngology and Head & Neck Surgery 65 (1), 42-47, 2013.
 17. Clinico-Pathological Study of Cervical Lymphadenopathy in a Tertiary Care Centre Hemantkumar Borse, Aakash Bhamre MVP Journal of Medical Sciences, 22-27, 2019.
 18. Cervical lymphadenopathy: a clinicopathological study Mohammed Ali Motiwala, Deepak Dalmia, Sanjaya Kumar Behara Int J Otorhinolaryngol Head Neck Surg 3 (2), 210-215, 2017.
 19. A clinicopathological study of cervical lymphadenopathy–A hospital-based cross-sectional study Pavan Kumar Kokkonda, Koilakonda Ajay Kumar, Vivian Anandith Paul, Kameshwari Prasad, Nagarjun Nelluri, Sushmita Reddy Pulim MRIMS Journal of Health Sciences 9 (3), 132, 2021.
 20. Clinicopathological study of cervical lymphadenopathy Kulal R Pradeep, Sharvan R Shanbhag, VVMS Kumar Dontamsetty, SB Madhu, BK Ramu Journal of Evolution of Medical and Dental Sciences 4 (54), 9437-9449, 2015.
 21. Clinico pathological study of cervical lymphadenopathy Renuka S Melkundi, Sateesh Melkundi International Journal of Otorhinolaryngology and Head and Neck Surgery 3 (2), 244, 2017.
 22. V. Vijayalakshmi, L. Manohar Reddy, K. Koteswar Rao, C. Bhavani. Evaluation of cervical lymphadenopathy among patients attending a tertiary care centre. International Journal of Contemporary Medicine Surgery and Radiology. 2020;5(3):C125-C128.
 23. Gorle VK, Inamdar P. A clinicopathological study on cervical lymphadenopathy: an institutional experience. Int Surg J 2018;5:2841-5.
 24. .Paikrao YM, Deshpande PM, Chintale KN. Clinicopathological study of cervical lymphadenopathy at rural tertiary health care centre. Int J Adv Med 2018;5:154.