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EVALUATION OF CERVICAL LYMPH NODE SWELLING-CLINICALLY, PATHOLOGICALLY & MICROBIOLOGICALLY IN A TERTIARY CARE CENTRE IN WESTERN UTTAR PRADESH

Pulmonary Medicine

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ABSTRACT

Objective: To evaluate cervical lymph node swelling clinically, pathologically, microbiologically. **Methods:** All cases of swelling in the neck or cervical lymphadenitis were selected after giving conservative treatment in the form of antibiotics and were reviewed after 2 weeks. If neck swelling persists, FNAC, CBNAAT & USG was done and in relevant cases with written consent biopsy were performed. **Results:** It was observed that in majority 76.0% patients were belong to Tubercular Lymphadenitis followed by 12.0%, 10.0%, and 2.0% patients were belonging to Reactive Lymphadenitis, Chronic Non-Specific Lymphadenitis, Secondary (malignant) respectively. **Conclusion:** Present study shows that the commonest cause of cervical lymphadenopathy is tuberculosis (83%). Majority 40.0% patients were belonging to 21 to 30year age group with mean age 26.41±14.18 years. Tuberculous Cervical Lymphadenopathy was more common in females than male patients. Tuberculous cervical lymphadenopathy is commonly presented as swellings in the neck; other symptoms like fever, loss of weight, loss of appetite and cough are also found in the present study. FNAC should be included as the first line investigation and it should be compared with CBNAAT to get more accurate results.

KEYWORDS

FNAC, CBNAAT, USG

INTRODUCTION

Enlargement of cervical lymph nodes is a common clinical condition encountered by the clinicians. As enlargement of the lymph nodes more than 1cm[2] indicates a 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, histo pathological examinations are mandatory 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, lymphomas 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).

OBJECTIVE

To evaluate cervical lymph node swelling clinically pathologically, microbiologically.

Inclusion Criteria

Patients presenting with cervical lymph node swelling irrespective of gender, caste, religion, socio-economic status, duration & severity of illness were included in the study.

Exclusion Criteria

- Acute infective lymphadenitis.
- Pregnant women
- Children below the 5 years of age

METHODOLOGY

After approval from institutional ethical committee, a written and informed consent was obtained from all patients, prospective clinical study was carried out in Saraswathi Institute of Medical Sciences, Anwarpur, Hapur (U.P.) Duration Of Study was 2 years (from November 2020 to October 2022) after the college research committee and the ethical committee gives the approval and 100 cases were included in the study Sample size.

The diagnosis was made after taking detailed clinical history, examination and necessary investigations. All cases of swelling in the neck or cervical lymphadenitis were selected after giving conservative treatment in the form of antibiotics and were reviewed after 2 weeks. If neck swelling persists, FNAC, CBNAAT was done and in relevant cases with written consent biopsy were performed.

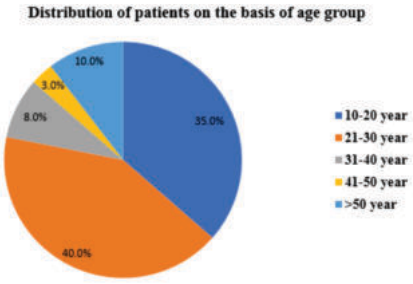
The following investigations were carried out for all patients: CBC (routine) Sputum for AFB Chest X-ray FNAC NAAT HIV antibodies USG Neck (was done in machine SIEMENS ACCUSION X300 & PHILIPS HD 15) LYMPH NODE BIOPSY (if required) CT SCAN (if required) performed using GE light speed 16 Slice & contrast will be given when indicated. CT-chest, lower abdomen and pelvis, from xiphoid to the pubic symphysis 49 BONE MARROW STUDY (if required)

RESULTS

Below table show the distribution of studied patients on the basis of age group. Majority 40.0% patients were belonging to 21–30-year age group followed by 35%, 10%, 8% and 3.0% patients were belonging to 10-20 year, >50 year, 31-40 year and 41-50 year age group respectively. The mean age was 26.41 years.

Table No. 01: Distribution of studied patients on the basis of age group.

Age group	Number of patients (n=100)	Percentage
10-20 year	35	35.0%
21-30 year	40	40.0%
31-40 year	8	8.0%
41-50 year	3	3.0%
>50 year	10	10.0%
Mean±SD (min to max)	26.41±14.18	

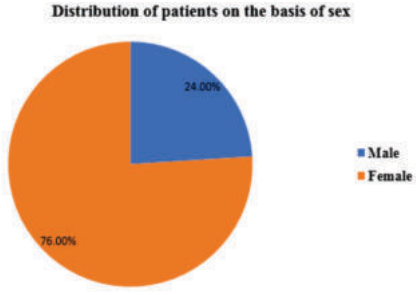


Graph No. 01: Distribution of studied patients on the basis of age group.

It was observed that majority 76.0% patients were belongs to female sex group and 24.0% patients were belong to male sex group.

Table No. 02: Distribution of studied patients on the basis of gender.

Sex	Number of patients (n=100)	Percentage
Male	24	24.0%
Female	76	76.0%



Graph No. 02: Distribution of studied patients on the basis of gender.

Most common symptoms was neck swelling 100% followed by 82%, 55%, 25%, 15% and 3% patients had fever, pain, weight loss, cough and sinus symptoms respectively.

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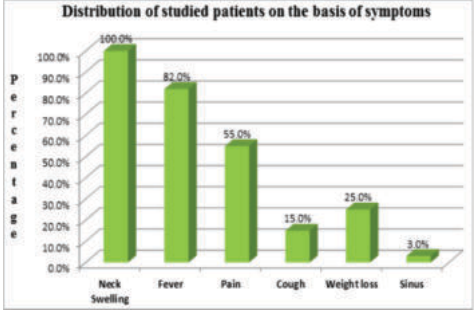
Table No. 03: Distribution of studied patients on the basis of symptoms.

Symptoms	Number of patients (n=100)	Percentage
Neck Swelling	100	100.0%
Fever	82	82.0%
Pain	55	55.0%
Cough	15	15.0%
Weight loss	25	25.0%
Sinus	3	3.0%

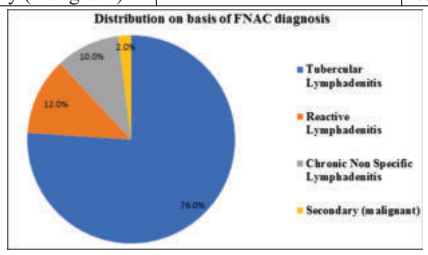


Graph No. 03: Distribution of studied patients on the basis of symptoms.

Below table shows the distribution of studied patients on the basis of FNAC diagnosis. It was observed that majority 76.0% patients were belong to Tubercular Lymphadenitis followed by 12.0%, 10.0%, and 2.0% patients were belonging to Reactive Lymphadenitis, Chronic Non Specific Lymphadenitis, Secondary (malignant) respectively.

Table No. 04: Distribution of studied patients on the basis of FNAC diagnosis.

FNAC Diagnosis	Number of patients (n=100)	Percentage
Tubercular Lymphadenitis	76	76.0%
Reactive Lymphadenitis	12	12.0%
Chronic Non Specific Lymphadenitis	10	10.0%
Secondary (malignant)	2	2.0%



Graph No. 04: Distribution of studied patients on the basis of FNAC diagnosis.

It was observed that majority 76.0% patients were belongs to MTB detected and 24.0% patients were belonging to not detected cases.

Table No. 5.1: Distribution of studied patients on the basis of CBNAAT diagnosis.

CBNAAT Diagnosis	n=100 (%)	Tubercular	Reactive Lymph nodes	Secondary (Malignant)	CNSL
MTB Detected	76 (76%)	69 (90.8%)	2 (2.6%)	-	5 (6.6%)
Not Detected	24 (24%)	7 (29.2%)	10 (41.7%)	2 (8.3%)	5 (20.8%)
Total	100 (100%)	76 (76.0%)	12 (12.0%)	2 (2.0%)	10 (10.0%)

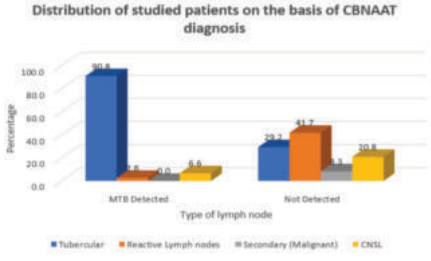
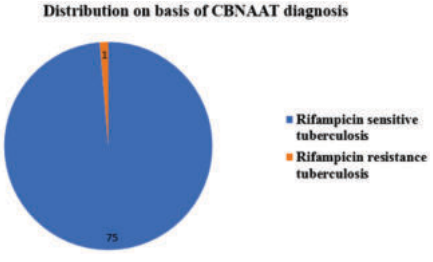


Table No. 5.2: Distribution of studied patients on the basis of CBNAAT diagnosis

CBNAAT Diagnosis	Tubercular lymph node
Rifampicin sensitive tuberculosis	75
Rifampicin resistance tuberculosis	1

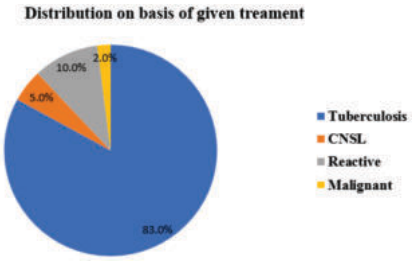


Graph No. 5: Distribution of studied patients on the basis of CBNAAT diagnosis.

Below table shows the distribution of studied patients on the basis of given treatment. It was observed majority 84.0% patients were belong to ATT treatment followed by 14% and 2% patients were belong to Antibiotic treatment and Referred category respectively.

Table No. 6: final diagnosis out of 100 cervical lymph nodes

Final Diagnosis	n=100 (%)	Percentage
Tuberculosis	83	83.0%
CNSL	5	5.0%
Reactive	10	10.0%
Malignant	2	2.0%



Graph No. 6: Distribution of studied patients on the basis of given treatment.

DISCUSSION

In the present study the majority of the cases were in the age group ranging between 21 to 30 years (40.0.%) followed 10-20 years (35.0%) with mean age 26.41±14.18 years with female predominance (76.0%). Our findings were in accordance with the findings of **Narayana ML et al** who studied correlation of clinical, radiological and histopathological cervical lymph node involvement in oral cancer and reported that of 24 patients were included, among which 20 (83.3%) were females, and 4 (16.7%) were males. **Rao NK et al** reported that 10,17 and 23 children were having lymphadenopathy in the age groups of 0–3-year, 4-8 year and 9-12 year respectively comprising of 20.0%, 46.0% and 34.0% which shows that as the children move toward their teen age, they are more prone to lymph node swelling. **Gulati HK et al** reported that the age range of the studypopulationwas1-89 years (mean-28.9±12.7 years) with most patients (40.0%) presenting in the age group of 20-30 years. Fourteen cases were in the paediatric age group. The majority (60.2%) of our patients were females with a male to female ratio of 1: 1.7. This was also in accordance with most other studies that have reported that most patients present within the second or third decade by **Thakur B et al** and **Rana S et al** However, some studies show presentation in the higher age groups with a mean age of 39.2 years and 59.5 years by **Guler SA et al** and **Gautam H et al** Female preponderance was noted in our study with a male to female ratio of 1: 1.7. This was also in accordance with most of the Indian studies like **Gautam H et al**[12] **Monga S et al.**

In our study the most common symptoms were neck swelling 100.0% followed by 82.0%, 55.0%, 25.0%, 15.0% and 3.0% patients had fever, pain, weight loss, cough and sinus symptoms respectively. Our findings were consistent with the findings of **Atas E et al** who did a study on children and reported that the complaint at presentation was swelling in the neck in 86 patients (88.0%), swelling in the axilla in 8 patients (8.0%), swelling ng in the anterior and posterior part of the ear in 2 patients (2.0%), swelling in the nape in one patient (1.0%) and swelling in the groins in one patient (1.0%). In addition, abdominal and chest pain accompanied in two patients. Sore throat (26.0%) of their patients. According to **Rao NK et al**[7] the most common symptom in my study is palpable swelling in the neck seen in 88% (44 cases), followed by fever 44.0% and cough in 42.0%. In study done by **Reddy MP et al**, in which 52.0% cases were presented with swelling in the neck followed by 48% of cases with fever and cough each. In study done by **Mohan MS et al**, 90.0% of cases had patients with presenting symptom as swelling in the region of neck followed by fever in 90.0% and cough in 52.9%.

In the present study the distribution of studied patients on the basis of FNAC diagnosis was performed and it was observed that majority 76.0% patients were belong to Tubercular Lymphadenitis followed by 12.0%, 10.0%, and 2.0% patients were belonging to Reactive Lymphadenitis, Chronic Non-Specific Lymphadenitis, Secondary respectively. **Rao NK et al**[7] revealed that FNAC was done in 47/50 cases in the evaluation of children with lymphadenopathy for proper establishment of diagnosis and institution of appropriate treatment.

Histopathological examination revealed reactive hyperplasia in 55.4%, tuberculosis in 23.4% and suppurative lymphadenitis in 12.7%. In 3 cases FNAC was not done because peripheral smear examination revealed that the patients are suffering from acute lymphoblastic leukemia. The cytological evaluation in the present study was comparable to the studies observed by **Singh N et al** According to **Gulati HK et al**[8] a total of 540 consecutive clinically suspected cases of tuberculosis undergoing FNAC were analysed. of 492 cases were benign with most cases being diagnosed cytologically and microbiologically as tuberculosis (49.0%), while other cases included reactive lymphadenitis (30.0%) and acute necrotizing lesion (4.0%). Malignancy was reported in (9.0%) cases

In present study the majority 52.5.0% patients were belonging to Level V followed by 27.5%, 7.5% and 2.5% patients were belonging to Level III, (Level I & Level IV) and (Level II & Level VI) respectively. Our findings were consistent with the findings of **Narayana ML et al**[6] who found the majority of 44.4% lymph nodes at level Ib, which is the primary echelon for oral cancer. In a study done at Bareilly by **Mehta N et al** reported most common cervical metastasis was found at level 1 and only 10% of level IV involvement. A similar study **Essig H et a**l also had most common level 1 involvement that is to be 66.7%.2 A study by **Byers RM et al** showed skip metastasis at level IV in 16.0% of cases without any disease of level I, II.

In this study we performed the CBNAAT diagnosis and it was observed that MTB was detected in 76.0% of the total studied patients. Rifampicin sensitive tuberculosis was the preferred treatment option in 75.0% and Rifampicin resistance tuberculosis in 1 case only. We also compare the results of CBNAAT with FNAC and the association was found to be statistically significant ($p<0.05$). Our findings were comparable to the findings of **Singh KG et al** who reported that statistical difference in diagnostic yield of FNAC (47/57 i.e., 82.4%) and CB-NAAT (44/57 i.e., 77.2%) in tubercular peripheral lymphnode sample was not significant. This implies that there was not much difference in these two test results. There was no rifampicin resistance in the population studied. In a study by **Ligthelm LJ et al** in 2011 South Africa, CB-NAAT was positive in 96% (29 of 30 patients) of the cases with tubercular peripheral lymphadenopathy in FNA sample. In a study conducted by **Denkinger CM et al** found that sensitivity of CB-NAAT is 83.1% and specificity of CB-NAAT is 93.6% as compare to TBLN culture.

Deb N in their study on role of CBNAAT in FNAC negative cases for detecting tuberculosis reported that and their study were comparable to similar studies by **Aruna L et al** (40.0% CB-NAAT positive among the FNAC negative cases). Also, a surge in the age group 16-30 years was seen in the similar study. In **Deb N**[30] study, we demonstrate the role of CBNAAT in the diagnosis of tuberculosis in FNAC negative cases in a tertiary care centre. Among a study population of 39 individuals who were FNAC negative,13 (33.0%) cases reported a CB-NAAT positive. Also 1 out of the 13 cases showed rifampicin resistance and others were non-resistant.

CONCLUSION

Present study shows that the commonest cause of cervical lymphadenopathy is tuberculosis (83%). Majority 40.0% patients were belonging to 21 to 30year age group with mean age 26.41±14.18 years**.** Tuberculous Cervical Lymphadenopathy was more common in females than male patients. Tuberculous cervical lymphadenopathy is commonly presented as swellings in the neck; other symptoms like fever, loss of weight, loss of appetite and cough are also found in the present study. FNAC should be included as the first line investigation and it should be compared with CBNAAT to get more accurate results. Negative results in CBNAAT for FNAC positive cases may not necessarily be non-TB cases & must be evaluated by other diagnostic modalities. CBNAAT being the latest technique is less time consuming can detect TB even if bacilli are less in number and also provide information about rifampicin resistance. FNAC is cost effective in the diagnosis of EPTB but combining it with CBNAAT can add advantage of detection of FNAC missed cases and for detecting rifampicin resistance EPTB. We recommend for both cytomorphological investigation and CBNAAT for the fine needle aspirates from suspected TBLN and subsequent treatment to reduce the disease burden.

Compliance with Ethical standard
Conflict of interest – None
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