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## A prospective study on clinicopathological study of cervical lymphadenopathy

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### Abstract

Cervical lymphadenopathy is a common clinical presentation in various departments of clinical practice. This study was done to know the correlation between clinical presentation of FNAC and histopathology of cervical lymphadenopathy, to emphasize the role of fine needle aspiration cytology (FNAC) in etiologic workup in cervical lymphadenopathy. 50 patients with cervical lymphadenopathy were assessed clinically, by laboratory and by FNAC study over a period of two years. In the present study, results revealed that tuberculous lymphadenopathy is the commonest cause of cervical lymphadenopathy with 68% followed by chronic non-specific lymphadenopathy with 32. Of the 35 patients whose fine needle aspiration cytology (FNAC) showed granulomatous changes, 50 had subsequent surgery and histological confirmation of the cytological appearance. 34 had TBLN (Tuberculous Lymphadenopathy), thus the specificity of FNAC was 94 per cent in diagnosing tuberculosis related granulomatous lymphadenopathy. One false positive FNAC was reported histologically to be non specificity. Present study had cervical lymph node swelling. Other common presenting symptoms were loss of weight and loss of appetite (20%), fever (30%), axillary and inguinal swellings (4%), cold abscesses (8%), pain (6%), sore throat, cough, discharging sinus, old sinus scars, caries tooth (2%). there was only unilateral involvement of node in 72% of cases right side was affected in 32% and left side was affected in 40% of cases bilateral involvement was seen in 14% of the cases. The lymph nodes were associated with other groups of lymph nodes in 10% of cases. In our study the sensitivity and specificity of FNAC of tuberculous cervical lymphadenopathy is 77 and 94 respectively. The results concluded that tuberculosis is the most common cause of cervical lymphadenopathy in the Indian population followed by reactive lymphadenitis and metastatic deposits. Reactive lymphadenitis is the commonest cause of cervical lymph node enlargement in different age group, infective in 11-40 yrs. age group including tuberculous and suppurative lymphadenitis, neoplastic lesions in more than 40 age group including metastatic disease and nonhodgkins lymphomas. FNAC is an important diagnostic modality for the etiologic workup in significant cervical lymphadenopathy and is almost as sensitive and specific as excision lymph node biopsy when an adequate aspirate is examined by expert eyes.

**Keywords:** Cervical lymphadenopathy, FNAC, tuberculous lymphadenitis, reactive lymphadenitis

### Introduction

The term lymphadenopathy refers to nodes that are abnormal in size, shape, consistency or number <sup>[1]</sup>. Cervical lymphadenopathy is one of the commonest presentations of underlying pathology of the head and neck region which has large number of differential diagnosis like neoplasms, infections (Specific and non-specific), immune deficiency disorders and also in rare disorders like inflammatory pseudo tumour (Plasma cell granuloma) disease. Various diagnostic modalities like fine needle aspiration cytology, ultrasonography (USG), computerized tomography and PET CT neck are now available to diagnose underlying disease in cervical lymphadenitis. These investigating tools have high sensitivity and specificity for cervical lymphadenopathy. The standard modality in the workup of a neck mass is fine needle aspiration (FNA). 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 unsuccessful or if sufficient information is not obtained from an initial FNA, the FNA should be repeated before open biopsy <sup>[2]</sup>. Aetiology and clinical presentation of cervical lymphadenopathy is certainly different in different groups of population. Understanding prevalent conditions and presentations of lymphadenopathy in population will make it possible to establish sound clinical protocol in evaluation and diagnosis of this condition preventing delay in treatment. Hence the present study, to know the correlation between clinical presentation, FNAC and histopathology of Cervical Lymphadenitis and also management.

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## Materials and Methods

### Study design and place of study

This study includes 50 patients who attended the surgical O P D of Dr. V.R.K. Women's Medical College, Teaching Hospital & Research centre, Hyderabad during July 2016– July 2018.

In this series 50 cases were studied taking detailed clinical history, physical examination and investigations were done. After physical examination and arriving at clinical diagnosis confirmation was done by FNAC and Biopsy. Lymph node biopsy was the most important of these.

### Inclusion criteria

Only inflammatory and infective cases were taken cases of other etiology were not included in this study Name, Age, Sex, Religion, Address, Occupation of the patients were noted cases were taken at random and only cases who gave consent for lymph node biopsy were taken for study.

### Exclusion criteria

All cases of neck secondaries and lymphomas excluded.

### Investigations

After clinical diagnosis was made investigations were done to confirm the diagnosis.

### Blood examination

Erythrocyte sedimentation rate (ESR)

Total white cell count

Differential count

Hemoglobin percentage

**Montoux test:** It was done by standard method and erythema of more than 12 mm after 48 hours is taken as positive.

### Chest x-ray PA view

### Sputum examination was done

### FNAC<sup>[3, 4, 5]</sup> was done in all cases

Photograph showing the smear technique for plating a sample aspirate. After a small drop of fluid is placed on a glass slide, a second slide is used to smear the aspirate evenly over the surface of the slide. The slide is then prepared for cytologic evaluation.

Photograph showing an aspirate being placed on a glass slide. After the 20-mL disposable syringe with an attached 21-gauge needle is placed under the skin surface and the mass is aspirated, a small drop of aspirated fluid is placed on a glass slide.

Lymph node biopsy<sup>[6, 7]</sup> was done in all cases. Macroscopic appearance of the specimen noted down and sent for histopathological examination.

Presence of Langhan's type of giant cells was taken as the criteria for diagnosing tuberculosis of lymph nodes.

All the specimen was processed by standard procedure like fixing in formalin, slicing by microtome and staining by gram's and zeihl-Neelson stain. All the slides were examined under 10X, 60X & 100X power using standard microscope. Aspiration material from cold abscess was stained by gram stain and special stain.

Chest x-ray was done in all cases.

### Biopsy procedure

Lymphnode biopsy was done under local anesthesia by infiltrating 1% lignocaine. If multiple lymph nodes are there large lymph node was biopsied. If anterior and posterior groups involved, posterior were preferred. Lymph node taken along with capsule. Care is taken in the supraclavicular area regarding haemeostasis.

## Treatment

All patients were given antituberculous drugs using DOTS strategy with 2 months intensive therapy and 4 months with continuation phase therapy with drugs Isoniazid, Rifampicin, Ethambutol and Pyrazinamide.

## Statistical analysis

Statistical analysis was done by calculating sample percentage value.

## Results

**Table 1:** Aetiology of cervical lymphadenopathy

No of Patients	Tuberculosis adenopathy	Non-specific adenopathy	Fungal infection
50	34 (68%)	15 (30%)	1 (2%)

**Table 2:** Shows various symptoms in present study

Symptoms	Number	Percentage
Swelling in the Neck	50	100%
Axillary swelling	2	4%
Inguinal swelling	2	4%
Fever	15	30%
Loss of weight	10	20%
Loss of appetite	09	18%
Soar throat	01	2%
Cough	01	2%
Discharging sinus	01	2%
Cold abscess	04	8%
Old sinus scar	01	2%
Pain	03	6%
Carries tooth	01	2%

**Table 3:** Shows affected side of the neck.

Affected side of the Neck	Number	percentage
Unilateral right	16	32%
Unilateral left	15	30%
Bilateral	14	28%
Other group of lymphnodes	5	10%

**Table 4:** Affected group of lymph nodes in the present study

Lymph nodes present study	Percentage
Submandibular and submental	6%
Upper anterior and deep cervical	20%
Upper posterior deep cervical	30%
Lower anterior deep cervical	20%
Lower posterior & deep cervical	24%

**Table 5:** Shows incidence of active tuberculosis

Findings	Number	Percentage
Normal	42	(84%)
Evidence of active tuberculosis	08	(16%)

**Table 6:** Shows co-existing of active tuberculosis

Number of cases co-existing tuberculosis patients	Number	Percentage
Present	8	16%
Absent	42	84%

**Table 7:** Diagnosis

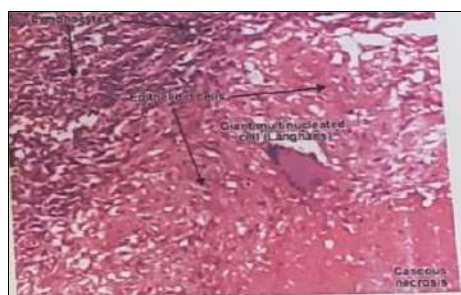
	Diagnosis		Total
	Disease	Not Disease	
Positive	a	b	a +b
Negative	c	d	c +d
Total			

**Table 8:** Diagnosis total

	Diagnosis		Total
	Disease	Not Disease	
Positive	22	01	a +b
Negative	12	15	c +d
Total	34	16	50

$$\text{Sensitivity} = a/a + c \times 100 = 26/34=77$$

$$\text{Specificity} = d/b + d \times 100 = 15/16=94$$

**Fig 1:** Showing tuberculous cervical lymphadenopathy**Fig 2:** Fine needle aspiration with the aid of a Cameco syringe holder is used mainly for cystic lesions.**Fig 3:** Histopathology slide of cervical lymphadenopathy**Fig 4:** Histopathology slide of cervical lymphadenopathy

## Results and Discussion

The total number of cases studied is 50. The patients were attending the surgical outpatient department of Dr. V.R.K. Women's Medical College, Teaching Hospital & Research center, Hyderabad.

From the above table it can be seen that tuberculous lymphadenopathy is the commonest cause of cervical

lymphadenopathy with 68% followed by chronic non-specific lymphadenopathy with 32%.

The results of a study series of fine needle aspiration (FNA) biopsies from the head and neck region of 50 patients has been reviewed in order to evaluate the efficacy of this method in the diagnosis of tuberculous lymphadenopathy (TBLN). Of the 35 patients whose fine needle aspiration cytology (FNAC) showed granulomatous changes, 50 had subsequent surgery and histological confirmation of the cytological appearance. 34 had TBLN, thus the specificity of FNAC was 94 per cent in diagnosing tuberculous related granulomatous lymphadenopathy. One false positive FNAC was reported histologically to be non specificity.

Of the 50 patients, 34 patients had subsequently TBLN confirmed histologically. Of these 34 patients, FNA from 34 showed granulomatous changes or acid fast bacilli (AFB), thus the sensitivity of FNAC in detecting tuberculous lymphadenopathy was 77 per cent. It is evident from this review that FNAC is an efficient way to detect cervical tuberculous lymphadenopathy.

All the 50 patients who presented to the outpatient department were subjected to through clinical examination, FNAC and Histopathology. Out of the 50 patients 24 were suspected to have tuberculous cervical lymphadenopathy. All the patients were subjected to FNAC and Histopathology. With the help of FNAC we were able to make out the diagnosis of tuberculosis to 28 patients with the help of FNAC and histopathology combined we can diagnose tuberculosis in 34 patients out of 50 patients in our study.

In our study series the sensitivity and specificity of FNAC of tuberculous cervical lymphadenopathy is 77 and 94 respectively and also had similar results in other studies.

## Primary symptoms

As shown in table, all patients in the present study had cervical lymph node swelling. Other common presenting symptoms were loss of weight and loss of appetite (20%), fever (30%), axillary and inguinal swellings (4%), cold abscesses (8%), pain (6%), sore throat, cough, discharging sinus, old sinus scars, caries tooth (2%) [8, 9].

## Group of lymph node involved

As shown in the table there was only unilateral involvement of node in 72% of cases right side was affected in 32% and left side was affected in 40% of cases bilateral involvement was seen in 14% of the cases. The lymph nodes were associated with other groups of lymph nodes in 10% of cases [10, 11].

Our results accordance with the previous studies there was bilateral neck node involvement in 54.5%, unilateral in 45.5% and neck nodes associated with other group of lymph nodes in 28.5% of cases [10].

## Various groups involved in cervical lymphadenopathy

It is evident from the table that the upper anterior deep cervical groups of nodes are the most commonly involved. Jugulodigastric nodes were the commonest in this group because tonsils are the common route of entry for the tuberculous bacilli [11]. In the present series upper posterior deep cervical nodes were the commonest (40%) affected followed by upper anterior and lower anterior deep cervical groups (28%).

## Chest radiography findings

Generalized tuberculosis is very common and may or may not be associated with a known focus in the body. It is characterized



by simultaneous enlargement of all the palpable lymph nodes. Previous results showed 20% had associated active lesion on chest x-ray. This study accordance with that of S.D. Purohit's studies 33% of patients had associated active pulmonary tuberculosis as shown by chest x-ray<sup>[12]</sup>.

The incidence of coexisting tuberculosis in the parts of body is low as shown in table. The higher incidence was found in Faber's studies (20%), lowest in Wiimont's studies (5%). In the present study the incidence was 16%.

### Primary or Secondary

Whether the origin of tuberculous lymphadenopathy is a part of primary complex or haematogenous lesion still remains uncertain. The insidious onset and the absence of constitutional symptoms favour the opinion that the lesion is of primary haematogenous origin. The commonest striking feature reported by all was the insidious onset. In the present study 68% of cases were of insidious onset.

The disease is mainly confined to the cervical group of lymph nodes. Incidence of associated active lesions in other parts of the body was found to be very low.

When the primary complex occurs in the lungs, the disease may also be generalized with lesions elsewhere in the body. The behavior of these nodes closely resembles that of the peripheral adenitis following infection or injury at the drainage site.

### Incidence of co-existing active tuberculosis lesions

#### Investigations

The diagnosis of cervical lymphadenopathy was made clinically and the tuberculous etiology was confirmed after lymph nodes biopsy and histopathological examination, various investigations done are as follows.

#### Blood

Blood examination was done in all cases. 78% of cases showed low hemoglobin percentage. The white blood cell count was normal in most of the cases. Some patients had lymphocytosis. Erythrocyte sedimentation rate was raised in 66% of cases. Though ESR is a nonspecific investigation and not diagnostic, it is useful as a prognostic indicator, while monitoring the patient with anti tubercular chemotherapy.

In our study series the sensitivity and specificity of FNAC of tuberculous cervical lymphadenopathy is 77 and 94 respectively and also had similar results in other studies<sup>[13, 14]</sup>.

### Conclusion

In our study tuberculosis, reactive lymphadenitis and malignancy are the most important cause of cervical Lymphadenopathy in our population under study. They present in different age groups with strikingly different clinical feature. Careful clinical examination should be able to reveal the diagnosis. Fine Needle Aspiration Cytology is extremely sensitive and highly specific investigation for early diagnosis.

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### Conflict of interest

The authors declare that they have no conflict of interest.

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