

# Comparison of FNAC Vs Excision Biopsy for Suspected Tuberculous Cervical Lymphadenopathy

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Although Excision Biopsy has traditionally been required to diagnose cervical tuberculous lymphadenitis fine needle aspiration cytology (FNAC) has also been found to be useful. This prospective study presents the comparison of FNAC vs Excision Biopsy for suspected tuberculous cervical lymphadenitis in 100 consecutive. The aim and objective of the study was to determine whether FNAC is helpful in diagnosing tuberculous cervical lymphadenopathy thus avoiding Excision Biopsy. Patients between 5-70 years of age with suspected tuberculous lymphadenitis were included. Among these 62% were female and 38% were male 74% belong to poor class and 26% to middle class. 86% were having history of immunization against tuberculosis with BCG. While 14% had no such history. The neck swelling was present in all 100 patients with some percentage of associated symptoms. The FNAC was positive for tuberculosis in 80(80%) patients and Excision Biopsy in 94(94%) patients. Excision Biopsy was more sensitive than FNAC (94% vs 80%) in diagnosing tuberculous cervical lymphadenopathy. So it was concluded that FNAC is a safe alternative to Excision Biopsy and it should be recommended as first line and Excision Biopsy as second line investigation only if results of FNAC are negative.

**Key Words:** Tuberculous cervical lymphadenopathy, FNAC, excision Biopsy

The significance of human mycobacterium Tuberculosis infections have been recognized since the beginning of recorded history known by a wide variety of names such as the "white plague" or "consumption or wasting disease" these infections were a common cause of illness and death prior to the industrial revolution. Mycobacterium Tuberculosis can infect virtually every site of the body and the most common involvement is lung. Enlargement of lymph nodes due to tuberculosis is encountered frequently in the surgical outpatient department and in fact it is the most common form of extra pulmonary tuberculosis. There are different modes of presentation of cervical lymphadenopathy like unilateral, bilateral enlargement of lymph nodes and cold abscess formation.

A definitive and accurate diagnosis of tuberculous cervical lymphadenopathy is important because satisfactory results can be achieved with anti tuberculous chemotherapy alone obviating surgery. Moderate approaches often fail to diagnose tuberculous cervical lymphadenitis conclusively, and this disease remains our diagnostic and therapeutic challenge because it mimics other pathological processes. Traditionally surgery has played a pivotal role in both the diagnosis as well as the treatment of cervical lymphadenopathy. This diagnosis can be established by nothing mycobacterium on either acid fast bacillus(AFB) smear or histopathology or by mycobacterium cultures. Although the presence of caseating granulomas on histopathology is highly suggestive of mycobacterial infections, it is not definitive as other processes like sarcoidosis can result in a similar histological picture.

Over the past 15-20 years, fine needle aspiration cytology(FNAC) has played an increasingly important role in diagnosing cervical tuberculous lymphadenopathy and it has provided an alternative and easy outdoor procedure for

collection of material for cytomorphologic and bacteriologic examination. In spite of frequent use of open biopsy and FNAC of cervical lymph nodes both have certain limitations and the results of these diagnostic parameters are variable among different institutions. Open biopsy can be misleading if it is performed by less trained junior surgical team members or when a small peripheral superficial lymph node is selected while the use of FNAC in evaluating lymph nodes involvement by tuberculosis has not been uniformly accepted by various surgeons so confusion arises among junior staff to how to proceed with a patient having suspected tuberculous cervical lymphadenitis. In this study we have compared the results of both these important diagnostic modalities and made our results and conclusions.

## Aims and Objectives

1. To compare efficacy of FNAC and Excision biopsy in tissue diagnosis of suspected tuberculous cervical lymphadenopathy.
2. To know whether FNAC is helpful in diagnosing tuberculous cervical lymphadenopathy thus avoiding excision biopsy.

## Material and Methods

This prospective study was carried out on 100 patients presenting in the surgical outdoor department Lahore General Hospital Lahore with suspected tuberculous cervical lymphadenitis. A thorough history of illness was taken. It was followed by general and systemic examination. In all these patients relevant investigations like blood C/E, X-Ray chest P.A view mantoux test were done on outdoor basis. Both FNAC and excision biopsy were also carried out in every patient on outdoor basis. FNAC was done by the cytopathologist and excision biopsy by one of the member of surgical team under local

anesthesia. All these information were recorded in the relevant performa.

**Inclusion Criteria**

In this study patients between age of 5-70 years with suspected tuberculous cervical lymphadenitis were included.

**Exclusion Criteria**

Patient with secondary metastatic lymphadenopathy, having cold abscess or sinus formation, or taking anti tuberculous treatment, or having cervical lymphadenopathy associated with systemic disease were excluded.

**Results**

In this study a total number of 100 patients were included. In all these patients first FNAC by cytopathologist and then excision biopsy under local anesthesia was done on outdoor basis by surgeon. From this study following results were derived. Out of 100 patients 62(62%) were female while 38(38%) were male, thus female to male ratio was 1.8:1 as shown in figure 1 & 2. The range of age was 5-70 years with median age 37.5. The 74 patients (74%) belonged to poor class and 26 patients (26%) belonged to middle class as shown in figure 3. 14(14%) patients had positive family history of tuberculosis and 86 patients (86%) having no family history of tuberculosis as shown in figure 4. 86 patients (86%) had history of immunization for tuberculosis and in 14(14%) having no immunization as shown in figure 5.

Table 1 Frequency of associated symptoms

Symptoms	Frequency	%age
Neck Swelling	100	100
Pain	20	20
Sputum Cough	20	20
Fatigue/Fever	64	64
Weight Loss anorexia	80	80

Table 2. Frequency distribution of FNAC

FNAC	Frequency	%age
Positive	80	80
Negative	20	20

Table 3. Frequency distribution of excision biopsy

Excision biopsy	Frequency	%age
Positive	94	94
Negative	6	6

The neck swelling in form of lymphadenopathy was present in all patients (100%) and pain in 20(20%), sputum/cough 20(20%), fatigue/fever in 64(64%) and weight loss with decreased appetite 80(80%) patients as shown in table 1. The FNAC was positive for tuberculosis in 80(80%) patients and negative in 20(20%) patients as shown in table 2. While excision biopsy was positive for tuberculosis in 94 patients (94%) and negative in 6 patients (6%) as shown in table 3. Depending upon statistical alternative hypothesis the excision biopsy was more sensitive than FNAC 94%) vs (80%) in diagnosing tuberculous cervical lymphadenopathy.

Fig. 1

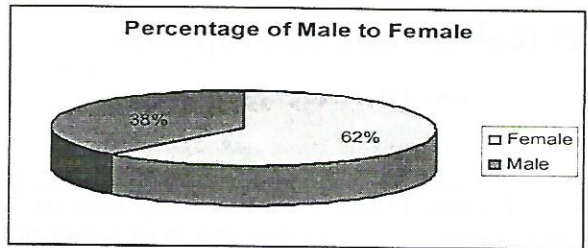


Fig.2 Male female ratio

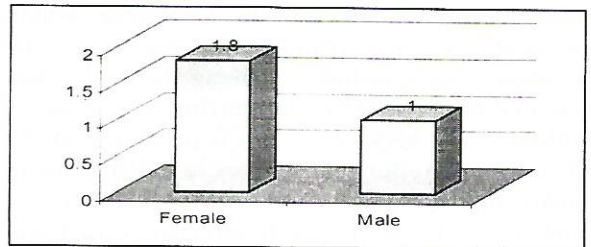


Fig.3

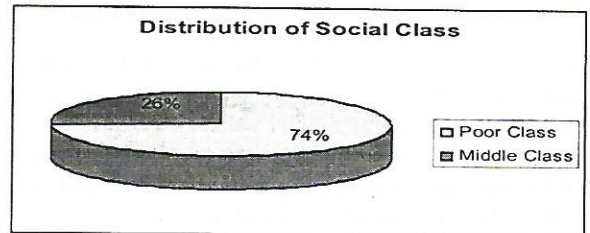


Fig.4

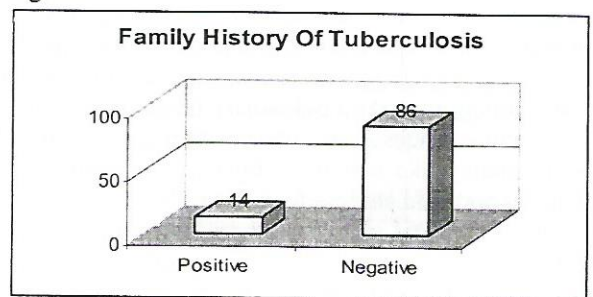
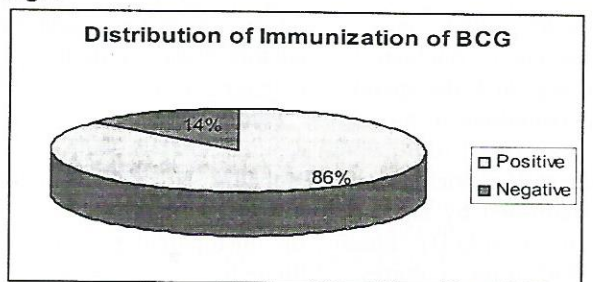


Fig. 5



**Discussion**

Tuberculous lymphadenopathy is the commonest for of extra pulmonary tuberculosis and frequently encountered by general surgeon<sup>1</sup>. In these clinical situations diagnosis is often made after considering the patient history, physical examination, routine investigation, radiological evaluation, purified protein derivative, skin test result, FNAC and finally excision biopsy<sup>2</sup>. The cytodagnosis of tuberculosis

depends on demonstration of epitheloid cells and langhan type Giant cells in smear<sup>3</sup>.

Despite of it's growing popularity and gaining increasing confidence of Doctor's working in various specialties the people doing FNAC have failed to produce near 100% diagnostic results. In this non-invasive technique the situation becomes more worse in those institutions where trained cyto pathologists are not doing or at least supervising the procedure. This may be a contributing factor for negative results of FNAC. In our study the ratio of female to male was 1.8:1 which is comparable to Kamran study done in Mayo hospital Lahore in 1999<sup>4</sup>. This genrally reflect the poor health status and lower immunity of our female population. The median age in our study was 37.5 years this shows that younger population is more affected as compared to adult probably the poverty and poor nutritional status is responsible for this. This is quite comparable to study of Dandapat in 1990<sup>6</sup> and Mumtaz study in 1999<sup>5</sup>. Again the 74% of our patients belong to poor class shows them to be of low health status because of poverty.

Majority of patients 86% in our study had no positive family history of the disease whereas only 14% patients has positive family history of tuberculosis. This is in contrast to study of Thompson at (1992) who showed 54% patients of Indian subcontinent group has positive family history<sup>7</sup>. The probable reason for this is that during the past decade the people have become more health conscious and there is improvement in hygiene, immunization and treatment programs. All the patients included in our study had neck swelling either in form of unilateral enlargement or bilateral enlargement along with some form of constitutional symptoms. The degree of involvement these associated symptoms are more close to the patients of Dandapat et al (1990)<sup>6</sup>, Kamran 1999<sup>4</sup>, Mumtaz study 1999<sup>5</sup>. Showing almost the similar class and nature of these patients of this region. Again the high percentage (86%) of immunised population reflects the effectiveness of immunization programme nationwide.

80(80%) of our patients were reported positive and 20(20%) patients were negative for tuberculosis by cytopathologist while 94(94%) patients were reported to having tuberculosis and 6% patients having chronic non-specific inflammation. All the 80 patients which were positive for tuberculosis with FNAC were also turned out positive for tuberculosis by histopathologist reflecting 100% specificity of FNAC for tuberculosis. According to Abid (2000) the diagnostic accuracy of FNAC in superficial lymph node is influenced by multiple factors including the size of lymph node, inflammatory reaction, necrosis and technical limitation<sup>8</sup>. This same probably true with our study and these similar factors do account for less accuracy rate with FNAC. According to Lee et al (1987) some misdiagnosis on FNAC was due to sampling error rather than interpretation errors. So the high rate of inadequate smear may be on one hand due to lack of

personal experience and on the other hand due to nodal fibrosis and extensive necrosis, secondary to tuberculosis as reported by Kline et al<sup>10</sup>.

In our study, the excision biopsy was positive for tuberculosis in 94% patient and negative 6% patients. Thus, excision biopsy confirmed the diagnosis of cervical tuberculous lymphadenopathy. These findings are similar to study of SAMI et al (1999)<sup>11</sup> who showed that the diagnosis of tuberculosis was made clinically and confirmation of diagnosis was done on histopathology. This is also in accorandance with study carried out by Lan et al (1990) showed that open biopsy was done to confirm tuberculosis. Furthermore study of Abid (2000) also had excision biopsy after FNAC of patient and cytological diagnosis was confirmed in granulomatous lymphadenitis.

### Conclusion

Excision biopsy was more sensitive (94%) as compared to FNAC (80%) in our study therefore we concluded that excision biopsy is more helpful and definitive in diagnosing the tuberculous cervical lymphadenopathy. However, FNAC is also useful in diagnosing cervical tuberculous lymphadenopathy as well as its specificity is 100%, although its sensitivity is less which is probably because of lack of experience of FNAC in our hospital as compared to excision biopsy. However FNAC is less traumatic and avoids an operative trauma to the patient, therefore, excision biopsy could have been avoided in those cases at least, where FNAC was positive.

It is realized that FNAC is a safe alternative to Excision Biopsy and it should be recommended as first line and excision biopsy as second line investigation only if results of FNAC are negative. This may avoid unnecessary operative procedure in many patients with cervical lymphadenopathy.

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