

## Cervical Lymph Node Biopsies in King Abdulaziz University Hospital

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**ABSTRACT.** Two hundred and sixty-two (262) patients underwent cervical lymph node biopsies at King Abdulaziz University Hospital (KAUH) over a seven-year period. Of those, 145 (55.3%) patients had tuberculosis, 59 (22.5%) had malignancy, 50 (19%) had reactive lymphoid hyperplasia, 6 (2.3%) patients had chronic non-caseating granulomatous inflammation, and 1 (0.4%) patient had acute suppurative lymphadenitis. Fine needle aspiration biopsy (FNAB) was performed in 23 (8.7%) patients only, which showed a positive correlation (78%) with the results of open biopsy. It is concluded that tuberculous cervical lymphadenitis is the most common cause of isolated cervical lymphadenopathy at KAUH and FNAB was underutilized, although it has a significant positive correlation of 78% with open biopsy.

**Keywords:** Tuberculosis, Cervical lymphadenitis, Incidence, Fine needle aspiration.

### Introduction

Chronic cervical lymphadenopathy (enlarged lymph node for more than 3 weeks) may result from a variety of different underlying diseases. Metastatic carcinoma from the head and neck is the most important of these and must be borne in mind of the clinician before embarking on an open lymph node biopsy. Open cervical lymph node biopsy is a common procedure in surgical practice. Traditionally, it plays an important role in

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the diagnosis as well as in the treatment of cervical tuberculous lymphadenopathy, especially the non-mycobacterial tuberculosis<sup>[1]</sup>.

Over the last ten years, fine needle aspiration biopsy (FNAB) has played an important role in the diagnosis of cervical lymphadenopathy with high sensitivity and specificity for malignancy, especially squamous cell carcinoma, and for tuberculosis<sup>[1,2]</sup>. The presence of caseous material, epithelioid cells on FNAB, and, less frequently, acid fast *bacilli* on the cytology of the aspirate and on Ziel Nielson stain can be used for the diagnosis of tuberculosis<sup>[3-6]</sup>.

The aim of the present study was to find out the most common cause of cervical lymphadenopathy at KAUH, and to know how many patients who had open biopsy underwent FNA prior to open biopsy.

### Patients and Methods

A total of 262 patients were studied retrospectively and who underwent an open cervical lymph node biopsy in the King Abdulaziz University Hospital over a seven-year period (1989-1995). All the patients who had cervical lymph node biopsy were reviewed. One hundred and five (105) patients had only histopathological reports available; the remainder had their hospital files and their histological reports reviewed. No pathological slides review had been performed, and the histopathological evaluation relied mainly on the final pathology reports pulled out from the medical records. Routine processing of the cases included paraffin embedding, hematoxylin, and eosin staining, as well as Ziel Nielson stain for acid fast *bacilli*. Cases of malignant lymphomas were confirmed by immuno-histochemistry. No frozen sections were performed.

### Results

One hundred and fifty-seven (157) patients out of the 262 patients who underwent cervical lymph node biopsies have completed files and were reviewed. There were 100 (63.7%) non-Saudi and 57 (36.3%) Saudi patients, respectively. One hundred fifteen (115) patients (73.2%) were females and 42 patients (26.7%) were males. Most of these patients came from low socio-economic classes. There was no previous personal history of tuberculosis. One hundred forty-one (141) (89.8%) patients were adults with an average age of 40.5 years and 16 (10.1%) were considered children between four months and 14 years with the average age of 9.5 years (Table 1). Deep cervical lymph nodes were affected in 116 (74%) patients; other cervical lymph nodes were affected less frequently (Table 2). Most (77%) of these patients had multiple and bilateral lymph nodes enlargements. The size of the enlarged lymph nodes were 3 cm and less in 114 (73%) patients, and > 3 cm in the rest. The consistency of the enlarged lymph nodes varied; it was solid in 125 (79.6%) patients and cystic with sinus formation in 32 (20.4%) patients.

TABLE 1. Age, sex, and nationality of 157 patients who had cervical lymph node biopsy at the King Abdulaziz University Hospital.

		Percentage
Age	141 adults (mean age 40.5 years)	89.8
	16 children (mean age 9.5 years)	10.2
Sex	115 females	73.2
	42 males	26.8
Nationality	57 Saudi	36.3
	100 non-Saudi	63.7

TABLE 2. Distribution of enlarged lymph nodes among the studied patients.

Group of Lymph Nodes	No. of Patients	Percentage
Deep cervical	116	74.0
Supraclavicular	27	17.4
Submandibular	7	4.1
Posterior triangle	5	3.2
Occipital	2	1.4
Total	157	100.0

Mycobacterium tuberculosis accounts for 55.3% of the patients since it was confirmed in 145 patients by the presence of tuberculous granuloma, characterized by the presence caseating necrosis, epitheloid cells, and Langhans multinucleated giant cells. Acid fast bacilli was seen by Ziel Nielson stain on three patients only. Tuberculosis (T.B) cultures were not performed in any of these patients since it was not available in KAUH at that time. Of those 145 patients positive for T.B., there were 47 (32%) Saudi patients and 98 (67.5%) non-Saudi patients from different nationalities. Ninety-five (95) (65.5%) patients were females and 50 (34.4%) were males. The majority of these patients were young adults since there were only five (3.4%) children.

Malignancy was diagnosed in 59 (22.5%) patients. Lymphoma was the commonest malignancy in 32 (12.2%) patients; other malignancies included: metastatic squamous cell carcinoma from the head and neck, papillary thyroid carcinoma, metastatic breast carcinoma, malignant melanoma, and metastasis from unknown primary site (Table 3). Reactive lymphoid hyperplasia was found in 50 (19%) patients; two of them had Human immunodeficiency virus (HIV) positive serology and four had toxoplasmosis positive serology.

Surprisingly, FNAB was performed in 23 (8.7%) patients only. Thirteen (56.5%) of them were found to have inflammatory changes with caseation and epitheloid cells, five (21.7%) patients had malignancy, and five (21.7%) patients' results were not conclusive. All patients who had FNAB cytology had an open cervical lymph node biopsy performed where the positive finding of FNAB was confirmed in all.

TABLE 3. Pathological diagnosis encountered in the biopsies.

Diagnosis	# of Patients	%	Remarks
Tuberculous lymphadenitis	145	55.3	
Malignancy	59	22.5	Lymphoma 32 patients (12.2%) * Hodgkin's 16 patients * non-Hodgkin's 16 patients Metastatic from known primary * metastatic from head and neck 4 patients (1.5%) * others (breast, thyroid, prostate, melanoma) 13 patients (5%) Metastatic from unknown primary 10 patients (3.8%)
Reactive lymphoid hyperplasia	50	19	2 patients has HIV positive serology 4 patients has toxoplasma serology positive 1 patient has histocystic necrotizing lymphadenitis (Kikuchi's Disease)
Others:			
Chronic non-caseating granulomatous inflammation	6	2.4	
Acute suppurative	1	0.4	
Castleman's disease	1	0.4	
Total	262	100.0	

### Discussion

Cervical lymphadenopathy is a common problem facing all clinicians treating different age groups. Although malignancy has to be considered, tuberculosis was found to be the commonest cause of isolated cervical lymphadenopathy at K.A.U.H. since it represents 55.3% of isolated cervical lymphadenopathy patients. The significance of human mycobacterium tuberculosis infections has been recognized since the beginning of recorded history<sup>[1]</sup>. Tuberculosis was a common cause of illness and death prior to the industrial revolution. Improved general public health and hygiene, as well as the introduction of anti-tuberculous treatment, had a dramatic effect on the reduction of tuberculosis in different countries. Cervical tuberculous lymphadenopathy has become an uncommon disease and even a rare disease in the western countries<sup>[1,7]</sup>. In the last decade the incidence of T.B. has been rising in the U.S.A. and other western countries, reflecting the increase risk of the infection in AIDS patients<sup>[1,7]</sup>. In India and other developing countries, the reported incidence of T.B. cervical lymphadenopathy is 75% of cervical lymphadenopathy<sup>[5]</sup>.

In the present study, tuberculous lymphadenopathy continues to be a major health problem since it represents 55.3% of cervical lymphadenopathy in this report. Most of the cases of tuberculous lymphadenitis occur in young females since it was diagnosed in 95 (65.5%) female patients and this is consistent with what has been reported by others<sup>[5-10]</sup>.

FNAB plays a very important role in the diagnosis of cervical lymphadenopathy due to malignant conditions with high specificity and sensitivity as well as for tuberculosis

[1-6]. In a study from India, FNAB was done in 180 cases of cervical lymphadenopathy followed by open biopsy<sup>[5]</sup>. The diagnostic accuracy was 84.4% for tuberculous lymphadenitis; caseous necrosis was found in 84.2% and epithelioid cells in 73.6%. These two cytological findings were the most characteristic diagnostic features in the aspirated smears. Acid fast *bacilli* were observed in 45.6% of the cases. In the U.S.A. where the prevalence of tuberculous lymphadenitis is relatively low, a definitive diagnosis requires microbiological confirmation<sup>[1]</sup>. In HIV-infected individuals, FANB was reported to be effective<sup>[11-20]</sup>. FNAB specimens from HIV-seropositive individuals, unlike those from HIV-seronegative individuals, usually demonstrate the presence of abundant mycobacterium--most commonly, mycobacterium *avium intracellulare*. Mycobacterial burden correlates directly with the level of immunè dysfunction. In addition, individuals with advanced immunodeficiency are less likely than their uninfected counterparts to form granulomata.

FNAB was performed in less than 10% of the patients in the present study. It showed a 78% positive correlation consistent with open biopsy and non-conclusive results in 22%. FNAB was underused in the diagnosis of cervical lymphadenopathy in this series, especially with the finding of high prevalence of tuberculous lymphadenitis in the local population. FNAB should be performed first (before open biopsy) in all cases of cervical lymphadenopathy because it is simple, non-invasive, and it requires no hospital admission. The presence of caseous necrosis and epithelioid cell granulomata on the cytology of the aspirate should be an indication for the start of anti-tuberculous therapy and open cervical lymph node biopsy should be reserved for non-conclusive FNAB results or other special situations as in the case of lymphoma.

In conclusion, tuberculous lymphadenopathy continues to be a major health problem in the local population since it represents the most common cause of isolated cervical lymphadenopathy. FNAB is a very simple, cost-effective procedure with high sensitivity and specificity in both benign and malignant conditions. It must be performed first in all cervical lymphadenopathy cases. Open cervical lymph node biopsy should not be the first diagnostic tool in this country.

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## إجراء مسحة للعقد الليمفاوية العنقية في مستشفى الملك عبدالعزيز الجامعي

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المستخلص. لقد تم إجراء مسحة للعقد الليمفاوية العنقية  
لمئتين واثنين وستين مريضاً (٢٦٢) في مستشفى الملك عبد  
العزیز الجامعي خلال سبع سنوات. لقد وُجد أن ١٤٥ من  
إجمالي الحالات كانت تعاني من الدرن، و٥٩ حالة (٥٠.٥٪) كانت  
تعاني من فرط النمو النسيجي، و٦ حالات كانت تعاني من  
الالتهاب الحبيبي اللاتجسبي المزمن، وحالة واحدة كانت  
تعاني من التهاب العقد الليمفاوية القيحي الحاد. لقد تم  
إجراء السحب بالإبرة الدقيقة على ٢٣ حالة فقط (٨.٧٪)، مما  
أظهر تنسباً طردياً (٧٨٪) مع نتائج العينة المفتوحة.  
نستخلص من ذلك أن التهاب العقد الليمفاوية هو من أكثر  
حالات اعتلال العقد الليمفاوية العنقية شيوعاً في  
مؤسستنا، كما أنه لم يتم الاستفادة من طريقة السحب  
بالإبرة الدقيقة على الوجه الأفضل، مع أنها أظهرت تناسباً  
طردياً مع العينة المفتوحة.