

Original Research Article

# To evaluate the role of fine needle aspiration cytology in the initial assessment and the clinical management of patients of palpable mass lesions in anterior triangle of neck

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## Abstract:

**Background & Method:** The aim of the study is to evaluate the role of fine needle aspiration cytology in the initial assessment and the clinical management of patients of palpable mass lesions in anterior triangle of neck, study consists of 516 patients with palpable anterior triangle neck masses coming to the Department of Pathology at AIMS, Dewas, M.P. Procedure palpation of the swelling governs the placement of the needle tip. In small lesions (1 cm in diameter), it is generally desirable to aim for the center of the lesion. In very large lesions (>5 cm in diameter), there may be central necrosis, and thus the periphery is more likely to yield diagnostic material.

**Result:** Age wise tabulation shows maximum frequency of inflammatory lesions at younger age, of which tuberculous lymphadenitis were more common in 16 – 30 years of age. Maximum numbers of cases are of tuberculous lymphadenitis followed by reactive hyperplasia of lymph node. The incidence of malignancy was more in 46 – 60 years age group. Amongst all types of lesions of anterior triangle of neck, inflammatory lesions were found to be maximum followed by benign and malignant lesions.

**Conclusion:** FNAC is important diagnostic test for differentiating inflammatory from malignant lesions so that unnecessary surgical biopsy can be avoided and helps in proper management of the patients.

**Keywords:** FNAC, clinical, mass lesions & anterior triangle of neck.

**Study Designed:** Prospective Observational Study.

## 1. Introduction

The upper border of the neck is the floor of the mouth on anterior side and the skull base on posterior side[1]. The lower border is the upper border of the first rib and body of the first thoracic vertebra. The sternocleidomastoid divides the neck into anterior and posterior triangles;

the muscle itself is in neither triangle. The submental, submandibular, carotid and muscular triangles divide the anterior triangles[2].

Lymph node is a major anatomic part of immune system. It is a bean shaped organ, size measuring 2.0 mm – 20.0 mm in diameter. It is divided into three major regions as cortex, paracortex and medulla[3]. The cortex is situated beneath the capsule and contains largest number of follicles. Medulla is rich in lymph sinuses, arteries and veins with only minor lymphocytic component[4].

Primary follicles appear round aggregates of small, dark staining inactive (naïve) B lymphocytes, usually near the capsule, within a network of follicular dendritic cell processes[5]. Secondary follicles arises from primary follicle that develops germinal centres due to antigenic stimulation of B cells and production of antibodies and contains pale staining germinal centre which may be polarized towards site of antigen entry[6&7].

## 2. Material & Method

The study consists of 516 patients with palpable anterior triangle neck masses coming to the Department of Pathology at AIMS, Dewas, M.P. The period of study was 01 year. Outdoor as well as indoor patients from Department of Surgery, ENT, Medicine, CNBC, TB hospital & Cancer Hospital with palpable anterior triangle neck swellings were referred to Department of Pathology for FNAC.

Procedure palpation of the swelling governs the placement of the needle tip. In small lesions (1 cm in diameter), it is generally desirable to aim for the centre of the lesion. In very large lesions (>5 cm in diameter), there may be central necrosis, and thus the periphery is more likely to yield diagnostic material. In medium-sized lesions (2 to 4 cm in diameter), it is often advantageous to collect samples from two different areas: one to the side of the centre, and another one in the mirror-image position of the previous aspiration.

### Inclusion criteria:

1. All patients with palpable anterior triangle neck masses of both sexes and all age group.

### Exclusion criteria:

1. Suspected masses of vascular origin / pulsatile swelling. Swelling in other parts of neck.
2. Patients with bleeding disorders.

## 3. Results

**Table 1- Gender wise distribution of anterior triangle neck mass lesions**

Gender	Number of patients	%
Females	297	57.5
Males	219	42.5
<b>Total</b>	<b>516</b>	<b>100</b>

In the present study, which comprised of 516 patients, 219 were males & 297 were females. The numbers of female patients were more than male giving a male:female ratio of 1:1.36

**Table 2: Age wise distribution of inflammatory and malignant lesions of lymph node lesions of anterior triangle neck masses**

Age Group (in yrs)	Inflammatory%	Malignant %
0-15	25.0	00
16-30	48.0	5.0
31-45	16.0	21.0
46-60	7.0	48.0
>60	4.0	26.0
<b>Total</b>	100	100

Age wise tabulation shows maximum frequency of inflammatory lesions at younger age, of which tuberculous lymphadenitis were more common in 16 – 30 years of age. Maximum numbers of cases are of tuberculous lymphadenitis followed by reactive hyperplasia of lymph node. The incidence of malignancy was more in 46 – 60 years age group.

**Table 3: Organ wise distribution of cases of anterior triangle neck masses**

Organ	No. of Cases	%
Lymph Node	361	69.9
Thyroid	122	23.6
Others	33	6.5
<b>Total</b>	<b>516</b>	100

In the present study, out of 516 patients, maximum numbers of cases were from lymph nodes consisting of 361 cases, 122 were thyroid lesions, 33 were others from submandibular salivary gland, soft tissue & subcutaneous tissue of anterior triangle neck masses.

**Table 4: Showing organ wise distribution of lesions of anterior triangle of neck**

	Inflammatory	Benign	Malignant
Lymph Node	303	00	58
Thyroid	08	111	03
Others	17	16	00
<b>Total</b>	<b>328</b>	<b>127</b>	<b>61</b>

Amongst all types of lesions of anterior triangle of neck, inflammatory lesions were found to be maximum followed by benign and malignant lesions.

#### 4. Discussion

The result of cytology of aspirated enlarged lymph nodes indicates that inflammatory lymphadenopathy constitutes a significant proportion of findings. It is also proved that

cytological examination may not only help to distinguish between inflammatory and malignant types, but may also suggest the nature of the inflammatory process.

Jasmin H. Jasani et.al. [8] reported 11.3% and 25 % cases of metastatic lymph node respectively. 102 (94.5%) out of the 108 cases in our study with metastases were diagnosed to have metastatic squamous cell carcinoma.

In this study no benign lesion was misdiagnosed as malignant and vice versa thus making FNAC a very fast cheap and reliable tool for diagnosis of malignant lesions. This is consistent with findings by other researchers. Thus buttressing the fact that FNAC is very reliable, fast and cheap tool for diagnosis of malignancies and other benign lesions. Factors which could improve sensitivity, specificity and accuracy of FNAC includes the experience of the cytopathologist, availability of adequate clinical information including other investigation findings. For difficult cases, samples from FNAC can be used for further studies e.g immunohistochemistry.

Raju et.al. [9], have reported the percentage of squamous cell carcinoma metastasis to be 52% and 75% respectively. 6 cases (5.5%) of metastatic adenocarcinoma were reported in the present study. Shaha et.al.[10] have reported 15.21% and 13.87% cases of metastases of adenocarcinoma respectively.

## 5. Conclusion

Among the total number of 516 patients, 219 were males and 297 were females, giving a male : female ratio of 1:1.36. Out of the 516 FNAC, maximum number were from lymph node consisting of 361 cases (69.9%), 122 cases (23.6%) were thyroid lesions, 33 cases (6.5%) were miscellaneous lesions from the submandibular salivary gland, soft tissue and subcutaneous tissue of anterior triangle of neck region.

FNAC is important diagnostic test for differentiating inflammatory from malignant lesions so that unnecessary surgical biopsy can be avoided and helps in proper management of the patients.

## 6. References

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