

## TO ASSESS THE SPECTRUM OF LESIONS IN LYMPH NODES IN HEAD AND NECK REGION

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### Abstract

**INTRODUCTION:** Lesions in head and neck have always been a diagnostic dilemma for a pathologist and a treating clinician. Being on the exposed part of body, they become cosmetically unacceptable. These include lesions arising from the regional group of lymph nodes. Most commonly lymphadenopathy is a common clinical presentation. The diagnostic probability ranges from infections to developmental abnormalities, from inflammatory to malignant lesions. None the less all the lesions in lymph nodes of the head and neck region cannot be limited to a particular age group and gender. Routine staining procedures like PAP, Giemsa, Field and even H & E has been used to clinch the pathogenesis of the lesion. It can be said without any fear of contradiction that FNAC is certainly a very important tool for an early diagnosis of not only head and neck lesions but also other lesions elsewhere in the body.

**MATERIAL AND METHODS:** This is a comparative study which was conducted in the department of pathology. The patients were subjected to detailed history and thorough clinical examination according to the working proforma. Patients were subjected to FNAC after written informed consent. The slides were stained using PAP, Giemsa and H&E stain and examined for underlying pathology. A detailed gross examination was done and 3-15 sections were selected from the representative areas for routine paraffin sections.

**RESULTS:** Amongst the total of 296 patients aspirated, 127 were from Lymph Nodes of head and neck region. Cervicallymph nodes were the most common group of lymph nodes aspirated, followed by submandibular and submental lymph nodes. Age wise tabulation shows maximum frequency of inflammatory lesions at younger age, of which reactive hyperplasia was more common in pediatric age group and tuberculous lesions were more common in 20-40years of age.

**CONCLUSION:** Cervical lymph nodes were the most common group of lymph nodes aspirated, followed by submandibular and submental lymph nodes. Reactive lymphadenitis is the most frequent diagnosis amongst the lymph node lesions and tuberculous lesions was the second most common diagnosis amongst all the lymph node lesions. 35 cases out of 127, as tuberculous lymphadenitis. Histopathology correlation could be done in 36 cases, of which 32 were found be correctly diagnosed in cytology.

### Introduction:

Lesions in head and neck have always been a diagnostic dilemma for a pathologist and a

treating clinician. Being on the exposed part of body, they become cosmetically unacceptable. These include lesions arising from the regional

group of lymph nodes<sup>i</sup>. Most commonly lymphadenopathy is a common clinical presentation. The diagnostic probability ranges from infections to developmental abnormalities, from inflammatory to malignant lesions. None the less all the lesions in lymph nodes of the head and neck region cannot be limited to a particular age group and gender<sup>ii</sup>.

Lymph node itself presents with an etiology from a benign to a malignant lesion, non specific inflammatory to tuberculosis, lymph proliferative disorders to metastasis, and above all necrotizing lymphadenitis<sup>iii</sup>. Head and neck masses are quiet superficial and easily accessible to fine needle biopsy. It provides reliable accurate diagnosis in most of the cases. Fair patient acceptability, repeatability and avoidance of unnecessary surgical procedure have made FNAC a popular investigation<sup>iv</sup>. A reliable fine needle aspiration if available is an advantage to both the patient and surgeon as the technique is rapid, safe, cost-effective<sup>v</sup>.

Routine staining procedures like PAP, Giemsa, Field and even H & E has been used to clinch the pathogenesis of the lesion. It can be said without any fear of contradiction that FNAC is certainly a very important tool for an early diagnosis of not only head and neck lesions but also other lesions elsewhere in the body<sup>vi</sup>. Considering all the above aspects the study was undertaken not only to evaluate but also to statistically compare the occurrence of common lesions at common and uncommon sites.

#### **CLASSIFICATION OF LYMPH NODES OF NECK<sup>vii</sup>**

There are approximately 300 lymph nodes in the neck, and they can be classified in many different ways. The American Academy of Otolaryngology and the American Joint Committee on Cancer groups the cervical lymph nodes as follows:

- Level I: Submental and submandibular nodes
  - Level Ia: Submental triangle
  - Level Ib: Submandibular triangle
- Level II: Upper jugular nodes

- Level III: Middle jugular nodes
- Level IV: Lower jugular nodes
- Level V: Posterior triangle group
- Level VI: Anterior compartment group

#### **Material and Method:**

This is a comparative study which was conducted in the department of pathology in Vedanta Institute of Medical Sciences Dahanu, Palghar, Maharashtra, undertaken to compare the cytological and histopathological findings in patients with head and neck masses.

A total of 296 patients with head and neck masses of either sex, who came to OPD or IPD of Vedanta Institute of Medical Sciences Dahanu, Palghar, Maharashtra.

**Study Sample:** Patients with head and neck masses.

#### **Method:**

- 1) The patients were subjected to detailed history and thorough clinical examination according to the working proforma.
- 2) Patients were subjected to FNAC after written informed consent.
- 3) The slides were stained using PAP, Giemsa and H&E stain and examined for underlying pathology.
- 4) Histopathological specimen was requested and obtained from the concerned clinical department if possible.
- 5) The FNAC and Histopathological diagnosis were compared wherever possible.

#### **Histopathology**

- 1) The labeled specimen was received in histopathology department in 10% formalin.
- 2) A detailed gross examination was done and 3-15 sections were selected from the representative areas for routine paraffin sections.
- 3) Slides were stained by H&E stain.\

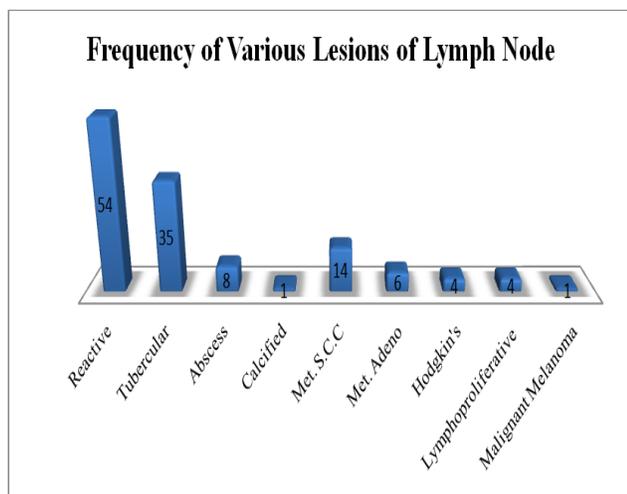
**OBSERVATIONS AND RESULTS:**

**Table 1: Lymph Node Lesions**

Lymph node lesions	No of Cases
Reactive lymphadenitis	54
Tuberculous lymphadenitis	35
Abscess	08
Calcified lesion	01
Hodgkin's lymphoma	04
Lymphoproliferative disorder	04
Met. Squamous. Cell Carcinoma	14
Met. Adenocarcinoma	06
Malignant Melanoma	01
Total	127

Table showing various types of lymph node lesions of head and neck region

Amongst the total of 296 patients aspirated, 127 were from Lymph Nodes of head and neck region. Cervicallymph nodes were the most common group of lymph nodes aspirated, followed by submandibular and submental lymph nodes. Reactive lymphadenitis is the most frequent diagnosis amongst the lymph node lesions and tuberculous lesions was the second most common diagnosis amongst all the lymph node lesions.



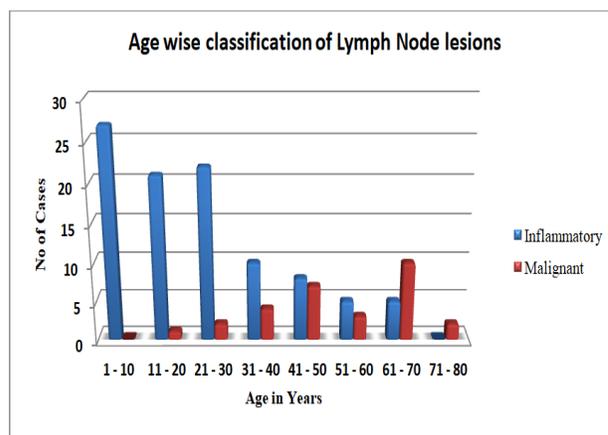
**Figure 1: Bar diagram showing distribution of various types of lymph node lesions of head and neck**

**Table 2: Age wise distribution of the lesions arising from lymph nodes**

Age in years	Inflammatory	Malignant
01 - 10	27	00
11 - 20	21	01
21 - 30	22	02
31 - 40	10	04
41 - 50	08	07
51 - 60	05	03
61 - 70	05	10
71 - 80	00	02
Total	98	29

Table no2 - showing age wise distribution of inflammatory and malignant lesions of lymph nodes of head and neck region

Age wise tabulation shows maximum frequency of inflammatory lesions at younger age, of which reactive hyperplasia was more common in pediatric age group and tuberculous lesions were more common in 20-40years of age. The incidence of malignancy keeps on increasing with the age and peak incidence was seen in 61-70years.



**Figure 2: Bar diagram showing distribution of inflammatory and malignant lesions of lymph nodes of head and neck region**

**Correlation of lesions of Lymph Nodes**

Amongst the 127 lymph node lesions, we could get histopathology correlation in 36 cases. The cases were tabulated in a table according to diagnosis and data was obtained

**Table 3: Showing diagnostic accuracy of cytology for tuberculous lymphadenitis**

Lymph Node Lesions							
Histopathological diagnosis							
	Reactive	Tuberculous	Hodgkins	Lympho proliferative	Meta. S.C.C.	Meta. Adenocarcinoma	
Reactive	13	4	0	0	0	0	17
Tuberculous	0	9	0	0	0	0	9
Hodgkins	0	0	2	0	0	0	2
Lymphoproliferative	0	0	0	0	0	1	1
Meta. S.C.C.	0	0	0	0	4	0	4
Meta. Adenocarcinoma	0	0	0	0	0	3	3
Total	13	12	2	0	4	4	36

As per the data obtained, Sensitivity, Specificity and Accuracy were calculated for the diagnosis of tuberculous lesions on cytology, taking histopathology as the gold standard.

**DISCUSSION:**

**Lymph Node Lesions**

Lymphadenopathy is one of the most common clinical presentations with various etiological predispositions. Lymph nodes are one of the most commonly sampled tissue for the cytological evaluation due to the fact that samples are easy to obtain and that abnormalities in lymphoid tissue are often seen in systemic as well as primary lymphoid disease<sup>viii, 13</sup>. Enlarged lymph node is one of the most frequent organ to be aspirated in the head and neck region<sup>ix</sup>. Cervical lymphadenopathy may be due to reactive lymphadenitis, specific and non specific inflammatory pathology, primary or secondary metastatic tumour of the lymph node<sup>x</sup>. FNAB offers an immediate preliminary, although not always specific diagnosis with little cost or trauma.

Bandyopadhyay et.al<sup>xi</sup>.found the overall sensitivity and specificity of FNAC for cervical lymph nodes to be 93.75% & 100% respectively in a study comprising of 50 patients with cervical lymph node enlargement.

Malakar et.al.<sup>xii</sup> reported an overall sensitivity and specificity of FNAC to be 86.7% and 98.1% respectively.

**Reactive Hyperplasia:**

In the present study, out of 127 lymph nodes aspirated, 54 cases (42.51%) were diagnosed as reactive lymph nodes. Lymph nodes were the most common aspirated organ in our study.

Percentages of reactive lymph nodes reported by other authors are compared with present study in the table below

**Table 4: Comparison of reactive lymphadenitis with other studies.**

Author	Percentage (%)
Frable and Frable <sup>xiii</sup> (1982)	38.00
Patra et.al. <sup>xiv</sup> (1983)	38.10
Stani J <sup>xv</sup> (1987)	23.50
Gupta et.al. <sup>xvi</sup> (1975)	30.72
Muhammad Javaid et. al. <sup>xvii</sup> (2006)	16.66
Present study	42.51

In present study the youngest patient was a 1 year old child and oldest was a 80 year old male. The findings of our study correlate with the study done by Patra et.al.<sup>14</sup>

**Abscess**

In the present study, there were 8 cases (6.3%) of abscess. These were the cases which did not

show any evidence of granuloma, caseous necrosis, giant cells and were also negative for acid fast bacilli by Ziehl – Neelsen stain. Culture studies of these aspirates were not performed, so the exact etiologies of these cases were not available.

Our study correlates with that of Patra et.al.<sup>14</sup> who have reported 5.3% cases of suppurative lymphadenitis.

**Tuberculous Lymphadenitis:**

In the present study we reported 35 cases out of 127, as tuberculous lymphadenitis (27.55%).

**Table 5: Comparison of tuberculous lymphadenitis with other studies.**

Authors	Total Number of lymph nodes aspirated	Number of Tuberculous lymph nodes	Percentage
Patra et.al. <sup>14</sup> (1983)	113	34	30.01
Arora & Arora <sup>xviii</sup> (1990)	200	124	62
Present study	127	35	27.55

Incidence of tuberculosis in our study was comparable to the study done by Patra et al<sup>14</sup>(1983).

**Correlation with Histopathology**

In our study histopathology correlation could be done in 36 cases, of which 32 were found be correctly diagnosed in cytology. Specificity was found to be 100% for diagnosis of tuberculous lesions and the sensitivity was found to be 75%.

The cases of tuberculous lymphadenitis were misdiagnosed as reactive lymphadenitis on cytology. The possible reason for false negative results can be attributed to faulty aspiration technique and lack of multiple aspirations from different sites.

**CONCLUSION:**

- 1) Cervical lymph nodes were the most common group of lymph nodes aspirated, followed by submandibular and submental lymph nodes.
- 2) Reactive lymphadenitis is the most frequent diagnosis amongst the lymph node lesions and tuberculous lesions was the second most common diagnosis amongst all the lymph node lesions.
- 3) Age wise tabulation shows maximum frequency of inflammatory lesions at younger age, of which reactive hyperplasia was more

common in pediatric age group and tuberculous lesions were more common in 20-40 years of age.

- 4) In the present study we reported 35 cases out of 127, as tuberculous lymphadenitis.
- 5) Of the 127 patients with lymphadenopathy, 20 cases showed evidence of metastasis. Out of the 20 cases, 12 were males and 8 were females. The male: female ratio was 1.5:1.
- 6) In our study histopathology correlation could be done in 36 cases, of which 32 were found be correctly diagnosed in cytology. Specificity was found to be 100% for diagnosis of tuberculous lesions and the sensitivity was found to be 75%.

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