

Clinicopathological Study of Cervical Lymphadenopathy in Rural Based Tertiary Care Hospital**Dorothy Bhattacharya****MBBS, MS(ENT), DNB(ENT), Consultant ENT and Head Neck Surgeon****Received: 01-06-2026 / Revised: 15-07-2026 / Accepted: 21-08-2026****Corresponding author: Dr. Dorothy Bhattacharya****Conflict of interest: Nil****Abstract**

Introduction: Cervical lymphnodes is one of the commonest presentation of patients attending in ENT OPD. It is one of the commonest presentation of underlying pathologies of head and neck region which has large number of differential diagnosis like neoplasm (Hodgkin, non-Hodgkin, and metastatic secondaries from head and neck region including thyroid carcinoma, infection (specific and non-specific), immunodeficiency disorder.

Aims and Objectives: (1) To study various pathological condition presenting with enlarged lymph nodes in neck. (2) To find out various modes of clinical presentation of lymph nodes enlargement.

Materials and Methods: A Cross sectional study was conducted in rural based tertiary care hospital over a period of 18 months wherein a total of 200 patients presented with cervical lymphadenopathy were studied.

Results: 90 males of the study population and 110 females of the study subjects had lymphadenopathy. Distribution of study population based non neoplastic and neoplastic cases. 142 study subjects had non-neoplastic cases and 58 had neoplastic cases. Distribution of study population based on histopathological diagnosis. 81 study subjects had Tuberculosis, 53 of the study subjects had reactive lymphadenitis, 34 study subjects had Secondaries, 24 had primary malignancy and 8 had chronic granuloma. Among male patients having cervical lymphadenopathy, 20 of the study subjects belonged to the age group of 0-14 years, 55 belonged to the age group of 15-60 years and 15 belonged to age group more than 60 years. And among female population having cervical lymphadenopathy, 30 study subjects belonged to the age group of 0-14 years, 65 belonged to the age group of 15-60 years and 15 belonged to age group more than 30 years. Distribution of study subjects according to their symptoms, 132 study subjects had swelling, 30 had pain, 56 had fever, 40 had cough, 28 had loss of appetite, 28 had loss of weight, 9 had difficulty in swallowing, 4 had change in voice. 12 study subjects had positive exposure of tuberculosis with tuberculosis lymphadenitis and 69 had negative exposure of tuberculosis with tuberculosis lymphadenitis shows among male study subjects non-specific inflammation was most common in <14 year age group and least in ≥ 60 years age group. Tubercular lymphadenitis was found maximum in age group of 14-59 years and minimum in age group <14 years. Secondary malignancies were most common in age group 14-49 years and least in <14 years age group. Primary malignancies were also visible most in age group 14-59 years and equal cases found in age group <14 years and ≥ 60 years. One case of chronic granuloma was visible among all the age groups. Among female study subjects equal number of cases of non-specific inflammation, tubercular lymphadenitis, secondary malignancies, primary malignancies and chronic granuloma found in age groups of 14-59 and ≥ 60 years and least number of all the cases was found in age group <14 years. It is found that level II site had maximum (35, 43.2%) tubercular cervical lymphadenitis case followed level III (30, 37.03%) and Level VI had not any number of cases of tubercular cervical lymphadenitis. In Reactive lymphadenitis level II had maximum number of cases (14, 26.4%) followed by level V (15, 28.3%) and level VI had no case. Lymphoma cases were maximum at level III sites (12, 50.0%) and again level VI had no case at all. Cases with secondaries malignancy were most common in level III (12, 35.3%) and level I had just only 1 case. Equal number of Chronic granuloma cases (2, 25%) were visible in level II, level III, level IV and level V respectively. Level I and level VI had no case of chronic granuloma. that primary malignancy cases were maximum among age group of 14-59 years of male study population and secondary malignancy cases were also maximum among the same age group of female study population.

Conclusions: The findings of the present study may act as 1st hand knowledge regarding age, sex distribution of lymph node diseases, their mode of presentation and predilection for involvement of different lymph node groups. It will help the care giver doctors especially at primary care level to think in a systematic way for detection/ referral to the respective cases early and thereby avoiding the diagnostic delay in cases like TB/ cancer of lymph nodes.

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Introduction

Cervical lymph nodes is one of the commonest presentation of patients attending in ENT OPD. It is one of the commonest presentation of underlying pathologies of head and neck region which has large number of differential diagnosis like neoplasm (Hodgkin, non-Hodgkin, and metastatic secondaries from head and neck region including thyroidal carcinoma, infection (specific and nonspecific), immunodeficiency disorder and rare disorder like pseudotumour (plasma cell granuloma, Rosai Dorfman disease and Kimura disease). [1,2,3]

Cervical lymph nodes are found in neck. Of the 800 lymph nodes, 300 are in neck, 1/3rd of total lymph node of the body. [4] Lymphadenopathy is abnormality in size or character of lymph nodes caused by invasion or propagation of either inflammatory cells or neoplastic cells into the nodes. Lymph node may be only site of disease. However most of the nodal disease is related to abnormality in organs associated with abnormal lymph node. [2]

In 1981, the memorial Sloan-Kettering Hospital published a number of levels or regions within the neck which contains group of lymph nodes representing the 1st echelon sites for metastasis from head and neck primary sites. These levels have been widely accepted and currently six neck levels are recognised with level VII being outside the neck and referring to the chain of paratracheal nodes below the suprasternal notch to the level of innominate artery.

The neck node level with their respective boundaries described. [5] FNAC is one of the most reliable less expensive and basic diagnostic procedures for different infective and inflammatory condition. [1] It is used for screening purpose and early diagnosis. FNAC helps to differentiate between neoplastic and non-neoplastic condition and thus can prevent unnecessary surgical intervention. In benign lesion we can prevent radical surgery. [6,7]

The study intends to find out systemically the various pathological condition presenting with enlarged cervical lymphadenopathy in neck also various modes of clinical presentation and behavior of this condition. The study intended to know the FNAC in diagnosing this condition after correlating it with lymph node biopsy along with relevant haematological and radiological investigations i.e. USG, MRI and CT scan. [4,6] Lymphadenopathy is abnormality in size or character of lymph nodes caused by invasion or propagation of either

inflammatory cells or neoplastic cells into the nodes. Lymph node may be the only site of disease. [8] However, most nodal disease is related to abnormality in organ associated with the abnormal lymph node. [2] The analysis of lymph node enlargement in neck is not an easy task and the diagnosis of the condition is a problem because most of the diseases resemble each other. Cervical lymphadenopathy is a common presentation in both benign and malignant disease which needs to be diagnosed without delay. [8] FNAC helps us to diagnose a disease and follow its course including its response to study. [8]

The study intends to assess the utility of FNAC in determining various pathologies. Etiological profile of cervical lymphadenopathy varies from region to region in developing countries like India, acute respiratory infections, suppurative skin infection, tuberculosis, Hodgkin and Non-Hodgkin, metastasis from thyroidal and other head and neck region masses are the main cause of cervical lymphadenopathy.

The objective of the study was to conduct a detailed evaluation of cervical lymphadenopathy in tertiary care set up and to enumerate the causes so that appropriate and adequate treatment can be initiated to reduce the mortality as the diagnosis also includes the neoplastic lesion where the accurate diagnosis is the key to appropriate management.

If FNAC is non-diagnostic for example in case of lymphoproliferative disorder biopsy is required. That can be excisional biopsy or core needle biopsy. Excisional biopsy is required to diagnose and grade lymphoma into Hodgkin and Non-Hodgkin varieties. [6]

Core needle biopsy-allows for a large yield of tissue sample and obtaining specimen with preserved histological architecture allowing for more precise diagnosis and allows for the use of various histological and immunohistochemical technique. It has specificity of 100%, sensitivity of 98.1%. [6]

Aims and Objectives

1. To study various pathological condition presenting with enlarged lymph node in neck.
2. To find out various modes of clinical presentation of lymph node enlargement.

Materials and Methods

Procedure: A descriptive cross sectional study was carried out for a period of one and half year in the

otorhinolaryngology department of Burdwan Medical College and Hospital, a tertiary care government hospital and teaching institution. All the patients who attended the ENT OPD with cervical lymphadenopathy and underwent FNAC as a diagnostic investigation, were included in study. With a prior administrative approval the data was collected by using a predesigned and pretested proforma. Thus information like age, sex site of lymph node involvement and other clinical features with time interval between initiation of symptoms and care seeking etc. were gathered by reviewing the stored case sheets of 200 patients who underwent FNAC during study period i.e. from February, 2021 to July 31st of 2022

A total of 200 patients with cervical lymphnodes were included in this study. The patient selected for this study were subjected to a detailed history taking, clinical examination and appropriate other

investigation done by 10 cc disposable syringes with 18G needle. 3 to 4 punctures were done and USG was sought were required. Smear was drawn in clean glass slides. Two slides were kept in 100% alcohol for fixation and used for hematoxylin eosin and Papanicolaou stain. Remaining slides were air dried for ziehl nelson stain. All the necrotic material suspected of TB origin were routinely subjected to cytological analysis after ZN staining. Based on cytology the pathology of cell is identified and after proper diagnosis of the specific disease treatment in form of medical and surgical interventions was given. Sputum for AFB bacillus, TRUENAAT, FNAC for CBNAAT was done.

Further investigation like haematological examination, biopsy, chest X-Ray, USG, MRI Panendoscopy were done.

Results and Analysis

Table 1: Showing age wise distribution of various pathologies manifesting as cervical lymphnode among male attending in ENT OPD of BMCH (n = 200)

Age	Pathology	Number	Percentage (%)
<14 years	Non Specific Inflammation or Lymphadenitis	10	50
	Tubercular Lymphadenitis	5	25
	Secondary Metastasis	1	5
	Squamous	1	5
	Adeno Carcinoma	0	0
	Thyroid Carcinoma	0	0
	Salivary Carcinoma	0	0
	Primary Malignancy	3	15
	Hodgkin	1	5
	Non-Hodgkin	2	10
	All	3	15
	Chronic Granuloma	1	5
	Others	0	0
14 – 59 years	Non-Specific Inflammation	6	10
	Tuberculous Lymphadenitis	30	54.5
	Secondary Metastasis	10	18.18
	Squamous Cell Carcinoma	6	
	Oral Cavity	3	
	Larynx	2	
	Lungs	1	
	Adeno Carcinoma– Stomach Carcinoma	1	
	Thyroid – Papillary Carcinoma	2	
	Salivary	1	
	Primary Malignancy	8	
	Hodgkin	4	
	Non-Hodgkin	2	
	AML	2	
	Chronic Granuloma	1	1.81
	Others	0	0
>60 years	Non-Specific Inflammation	1	6.6
	Tubercular Lymphadenitis	2	13.33
	Secondary Metastasis	8	53.33
	Squamous Carcinoma	6	
	Nasopharyngeal Carcinoma	1	
	Hard Palate Carcinoma	1	

	Buccal Cavity Carcinoma	1	
	Tongue Carcinoma	1	
	Laryngeal Carcinoma	1	
	Lung Carcinoma	1	
	Adeno Carcinoma	1	
	Thyroid Carcinoma	1	
	Salivary Carcinoma	0	
	Primary Malignancy	3	20
	Non-Hodgkin	2	
	CLL	1	
	Chronic Granuloma	1	6.6
	Others	0	0

Table 2: Showing age wise distribution of various pathologies manifesting as cervical lymph node among Female attending in ENT OPD of BMCH (n = 200)

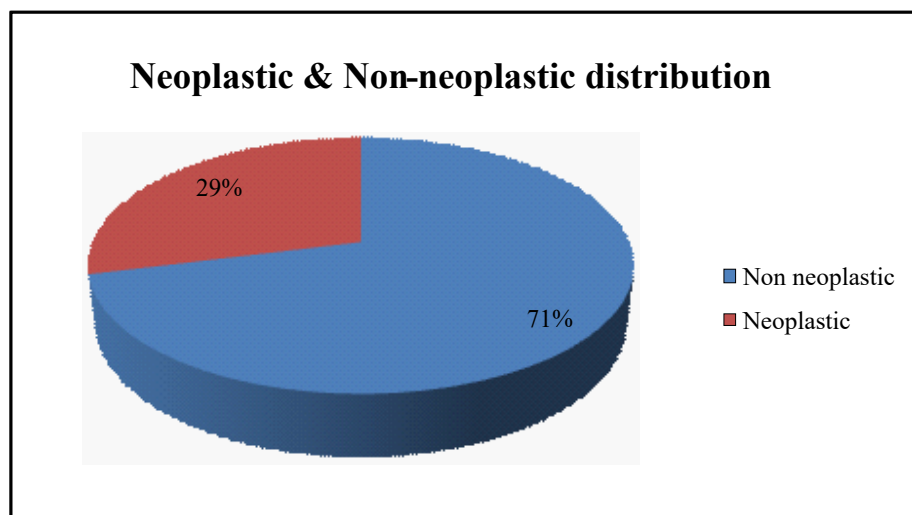
Age	Pathology	Number	Percentage (%)
<14 years	Non Specific Inflammation or Lymphadenitis	11	36.6
	Tubercular Lymphadenitis	10	33.3
	Secondary Metastasis	1	3.33
	Squamous	0	
	Adeno Carcinoma	0	
	Thyroid Carcinoma – Papillary Carcinoma	1	
	Salivary Carcinoma	0	
	Primary Malignancy	6	20
	Hodgkin	2	
	Non-Hodgkin	1	
	All	3	
	Chronic Granuloma	2	6.6
	Others	0	0
14-59 years	Non-Specific Inflammation	20	30.76
	Tuberculous Lymphadenitis	30	46.15
	Secondary Metastasis	10	15.38
	Squamous Cell Carcinoma	5	
	Oral Cavity	2	
	Larynx	2	
	Tonsil	1	
	Adeno Carcinoma – Stomach Carcinoma	2	
	Thyroid – Papillary Carcinoma	2	
	Salivary	1	
	Primary Malignancy	2	3.07
	Non-Hodgkin	1	
	AML	1	
	Chronic Granuloma	3	4.61
	Others	0	0
>60 years	Non-Specific Inflammation	5	30.33
	Tubercular Lymphadenitis	4	26.66
	Secondary Metastasis	4	26.66
	Squamous Carcinoma	3	
	Nasopharyngeal Carcinoma	0	
	Hard Palate Carcinoma	1	
	Buccal Cavity Carcinoma	0	
	Tongue Carcinoma	1	
	Laryngeal Carcinoma	1	
	Lung Carcinoma	0	
	Adeno Carcinoma – Lung Carcinoma	1	
	Thyroid Carcinoma	1	
	Salivary Carcinoma		
	Primary Malignancy		

Non-Hodgkin	1	
CML	1	
Chronic Granuloma	0	0
Others	0	0

Table 3: Showing distribution of study population based on neoplastic & non-neoplastic cases (n = 200)

Classification based on neoplastic and non-neoplastic cases	No. of cases	Percentages
Non neoplastic	142	71%
Neoplastic	58	29%
Total	200	100%

Table 3 showing distribution of study population based non neoplastic and neoplastic cases. 142 study subjects had non-neoplastic cases and 58 had neoplastic cases.

**Figure 1: Showing distribution of study population based on neoplastic & non-neoplastic cases****Table 4: Showing distribution of study population based on histopathological diagnosis (n = 200)**

Histopathological diagnosis	No. of cases	Percentages (%)
Tuberculosis	81	40.50%
Reactive lymphadenitis	53	26.50%
Secondaries	34	17%
Primary malignancy	24	12%
Chronic granuloma	8	4%

Table 4 shows distribution of study population based on histopathological diagnosis. 81 study subjects had Tuberculosis, 53 of the study subjects had Reactive lymphadenitis, 34 study subjects had Secondaries, 24 had primary malignancy and 8 had chronic granuloma.

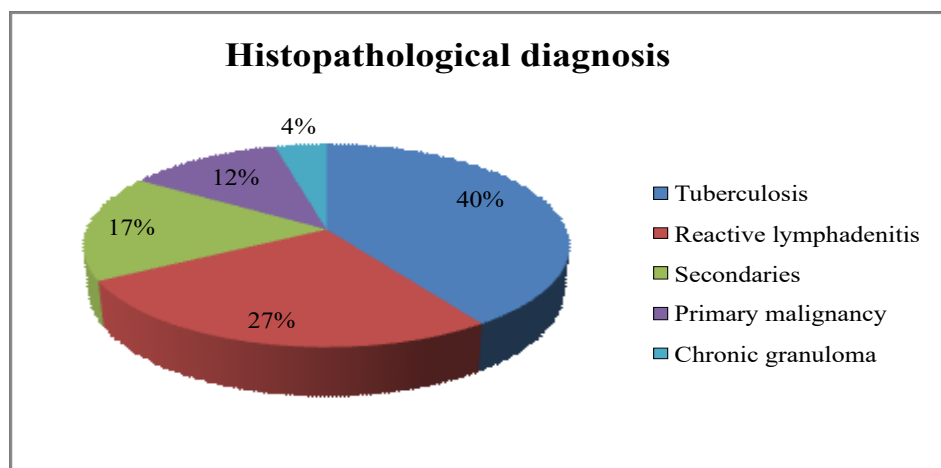
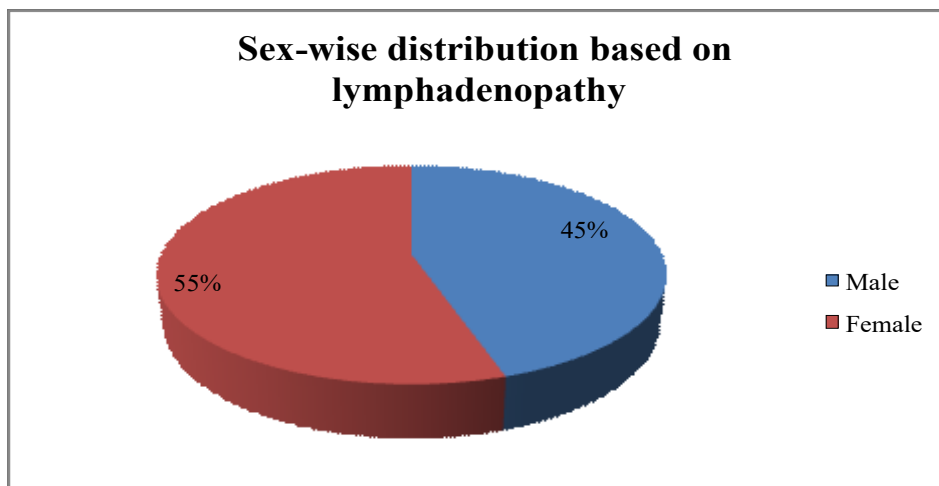
**Figure 2: Showing distribution of study population based on histopathological diagnosis**

Table 5: Showing sex-wise distribution of study population based on lymphadenopathy patients (n = 200)

Sex	No. of cases	Percentages (%)
Male	90	45%
Female	110	55%
Total	200	100%

Table 5 shows sex-wise distribution of study population on lymphadenopathy. 90 males of the study population and 110 females of the study subjects had lymphadenopathy.

**Figure 3: Sex-wise distribution of study population based on lymphadenopathy patients****Table 6: Age group wise distribution of both sexes of study subjects based on cervical lymphadenopathy (n = 200)**

Age group	Male		Female		Total	
	Number	Percentages	Number	Percentages	Number	Percentages
0-14	20	10%	30	15%	50	25%
15-60	55	27.50%	65	32.50%	120	60%
>60	15	7.50%	15	7.50%	30	15%

Table 6 showing age group wise distribution of study subjects based on cervical lymphadenopathy among both sexes. Among male patients having cervical lymphadenopathy, 20 of the study subjects belonged to the age group of 0-14 years, 55 belonged to the age group of 15-60 years and 15

belonged to age group more than 60 years. And among female population having cervical lymphadenopathy, 30 study subjects belonged to the age group of 0-14 years, 65 belonged to the age group of 15-60 years and 15 belonged to age group more than 30 years.

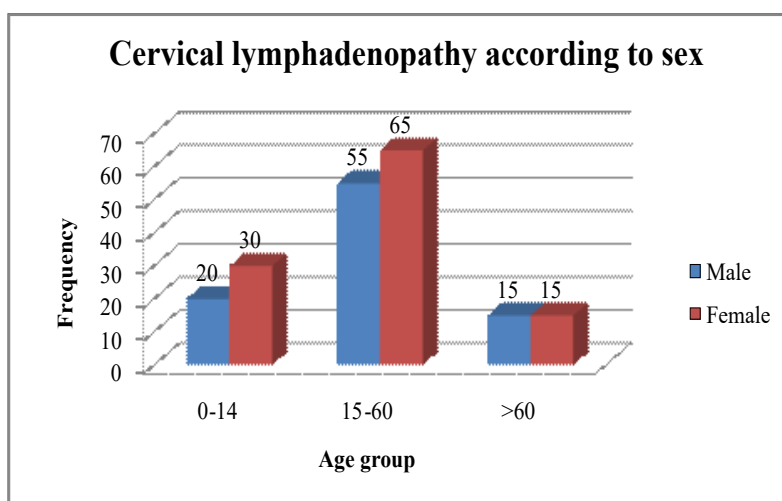
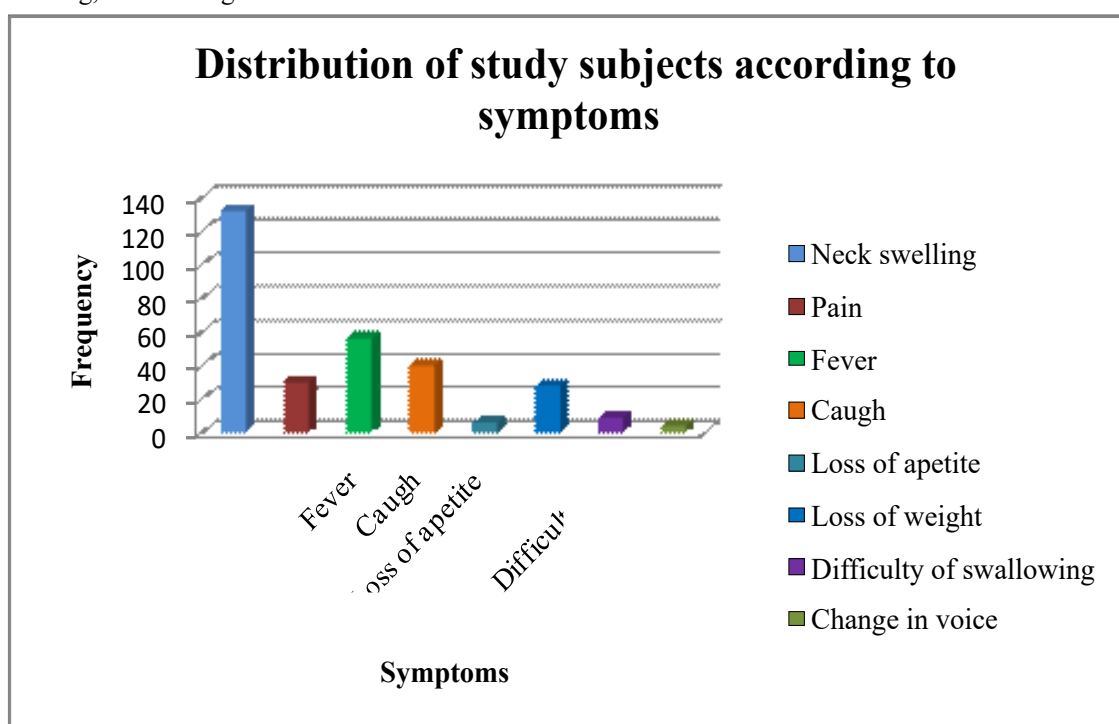
**Figure 4: Age group wise distribution of both sexes of study subjects based on cervical lymphadenopathy.**

Table 7: Distribution of study population according symptoms (n = 200)

Symptoms	No. of cases	Percentages (%)
Neck swelling	132	66%
Pain	30	15%
Fever	56	28%
Cough	40	20%
Loss of appetite	6	3%
Loss of weight	28	14%
Difficulty of swallowing	9	4.50%
Change in voice	4	2%

Table 7 shows distribution of study subjects according to their symptoms. 132 study subjects had swelling, 30 had pain, 56 had fever, 40 had cough, 28 had loss of appetite, 28 had loss of weight, 9 had difficulty in swallowing, 4 had change in voice.

**Figure 5: Distribution of study population according symptoms****Table 8: Distribution of based on history of exposure of tuberculosis patients with tuberculosis lymphadenitis cases (n = 81)**

Contact with tuberculosis	No. of cases	Percentages (%)
Positive	12	14.8%
Negative	69	85.18%

Table 8 shows history of exposure to tuberculosis in patients with tuberculosis lymphadenitis cases. 12 study subjects had positive exposure of tuberculosis with tuberculosis lymphadenitis and 69 had negative exposure of tuberculosis with tuberculosis lymphadenitis

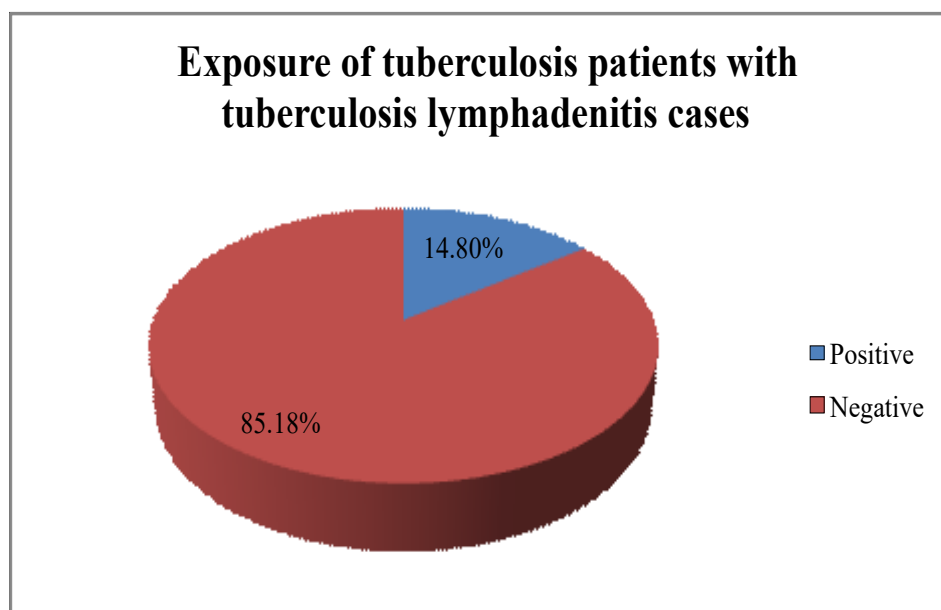


Figure 6: Distribution of based on history of exposure of tuberculosis patients with tuberculosis lymphadenitis cases

Table 9: Distribution of study subjects based on chest X-Ray positivity in tubercular cervical lymphadenitis (n = 81)

Chest X-ray	No. of cases	Percentages (%)
Positive	6	7.40%
Negative	75	92.60%
Total	81	100%

Table 9 shows distribution of study subjects based on chest X-ray positivity in tubercular cervical lymphadenitis. 6 study subjects had positivity in X-Ray of tubercular cervical lymphadenitis and 75 had negativity.

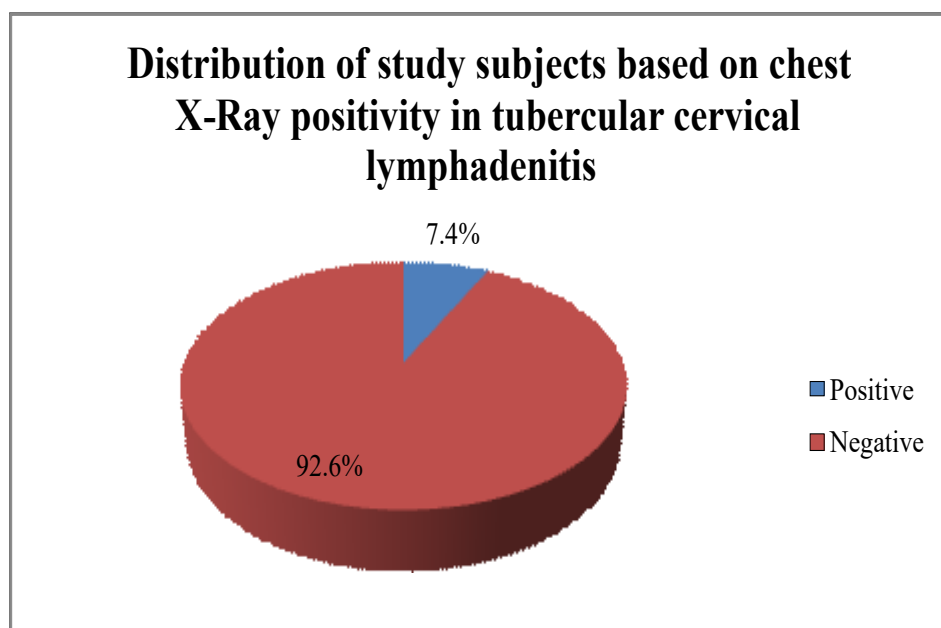


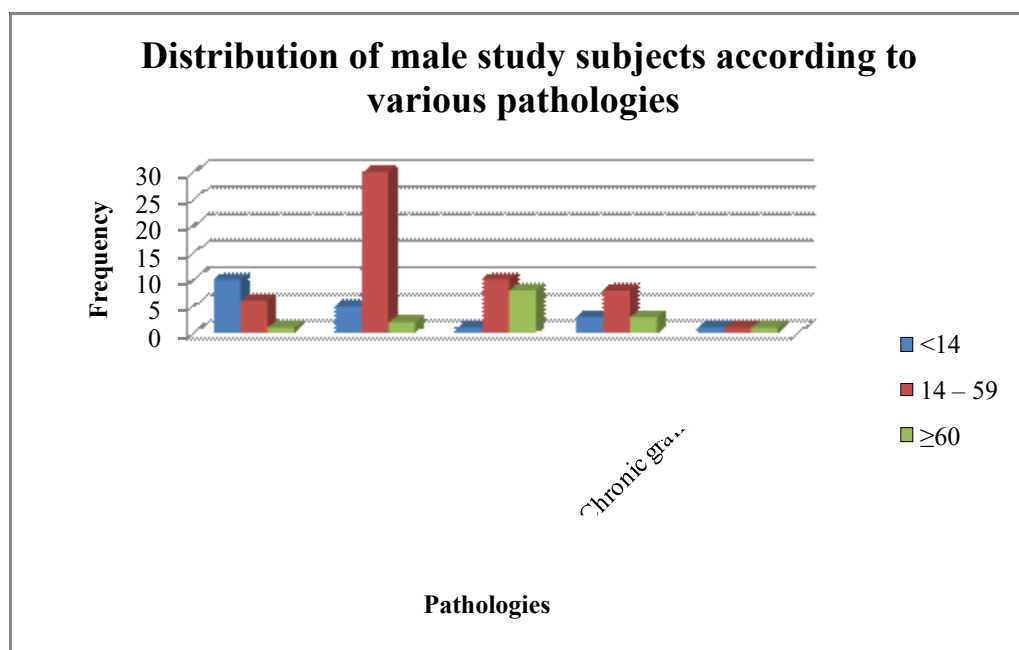
Figure 7: Distribution of study subjects based on chest X-Ray positivity in tubercular cervical lymphadenitis

Table 10: Distribution of various pathologies in male study population according to age group. (n = 900)

Age group	Non-specific Inflammation	Tubercular lymphadenitis	Secondary malignancies	Primary malignancies	Chronic granuloma
<14	10 (50.0%)	5 (25.5%)	1 (5.0%)	3 (15.0%)	1 (5.0%)
14 – 59	6 (10.10%)	30 (54.5%)	10 (18.18%)	8 (14.5%)	1 (1.81%)
≥60	1 (6.6%)	2 (13.33%)	8 (53.33%)	3 (20%)	1 (6.6%)

Table 10 shows among male study subjects non-specific inflammation was most common in <14 year age group and least in ≥60 years age group. Tubercular lymphadenitis was found maximum in age group of 14-59 years and minimum in age group <14 years. Secondary malignancies were

most common in age group 14-49 years and least in <14 years age group. Primary malignancies were also visible most in age group 14-59 years and equal cases found in age group <14 years and ≥60 years. One case of chronic granuloma was visible among all the age groups.

**Figure 8: Distribution of various pathologies according to age group among male study subjects.****Table 11: Distribution of various pathologies in female study population according to age group. (n = 110)**

Age group	Non-specific Inflammation	Tubercular lymphadenitis	Secondary malignancies	Primary malignancies	Chronic granuloma
<14	11 (36.6%)	10 (33.33%)	1 (3.33%)	6 (20.0%)	2 (6.66%)
14 – 59	20 (30.76%)	30 (46.15%)	10 (15.38%)	2 (3.07%)	3 (4.6%)
≥60	20 (30.76%)	30 (46.15%)	10 (15.38%)	2 (3.07)	3 (4.61%)

Table 11 shows among female study subjects equal number of cases of non-specific inflammation, tubercular lymphadenitis, secondary malignancies, primary malignancies and chronic granuloma found in age groups of 14-59 and ≥60 years and least number of all the cases was found in age group <14 years.

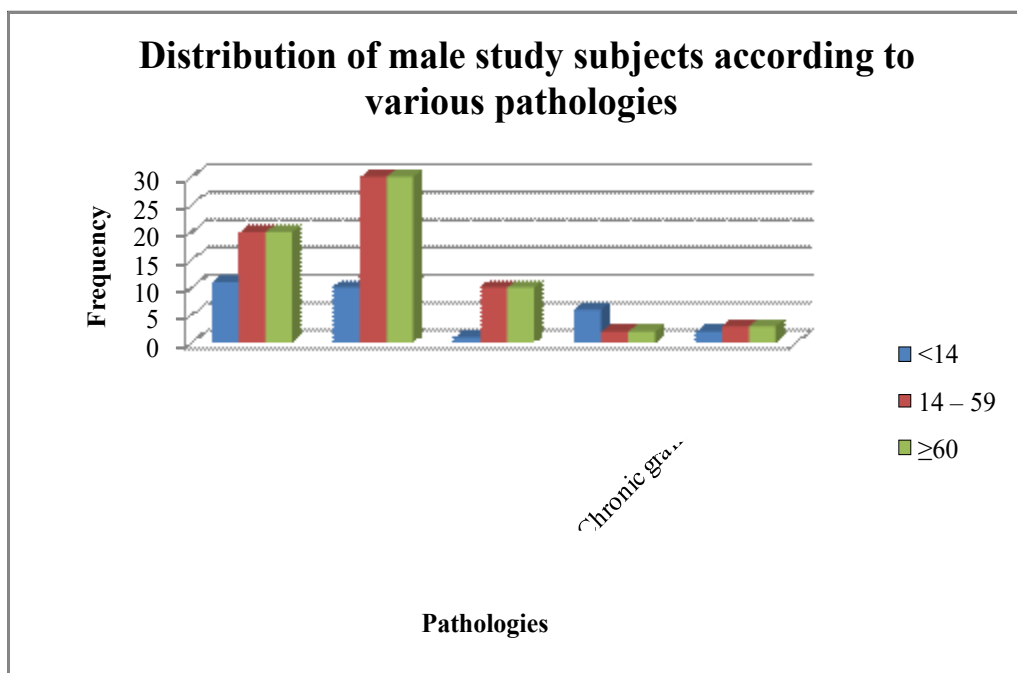


Figure 9: Distribution of various pathologies in female study population according to age group.

Table 11: Distribution of sites of several pathologies presenting cervical lymphadenopathy from Level I – VI (n = 200)

Site	Tubercular Cervical Lymphadenitis	Reactive Lymphadenitis	Lymphomas	Secondaries	Chronic Granuloma
Level I (Submental And Submandibular)	5 (6.17%)	21 (39.62%)	0	1 (2.9%)	0
Level II (Upper Jugular)	35 (43.2%)	14 (26.4%)	8 (33.3%)	10 (29.4%)	2 (25%)
Level III (Middle Jugular)	30 (37.03%)	2 (3.7%)	12 (50.0%)	12 (35.3%)	2 (25%)
Level IV (Lower Jugular)	10 (12.3%)	1 (1.8%)	2 (8.3%)	8 (23.5%)	2 (25%)
Level V (Posterior Triangle)	1 (1.2%)	15 (28.3%)	2 (8.3%)	1 (2.9%)	2 (25%)
Level VI (Anterior Compartment)	0	0	0	2 (5.8%)	0

Table 10 shows that level II site had maximum (35, 43.2%) tubercular cervical lymphadenitis case followed level III (30, 37.03%) and level VI had not any number of cases of tubercular cervical lymphadenitis.

In Reactive lymphadenitis level II had maximum number of cases (14, 26.4%) followed by level V (15, 28.3%) and level VI had no case. Lymphoma

cases were maximum at level III sites (12, 50.0%) and again level VI had no case at all.

Cases with secondaries malignancy were most common in level III (12, 35.3%) and level I had just only 1 case. Equal number of chronic granuloma cases (2, 25%) were visible in level II, level III, level IV and level V respectively. Level I and level VI had no case of chronic granuloma.

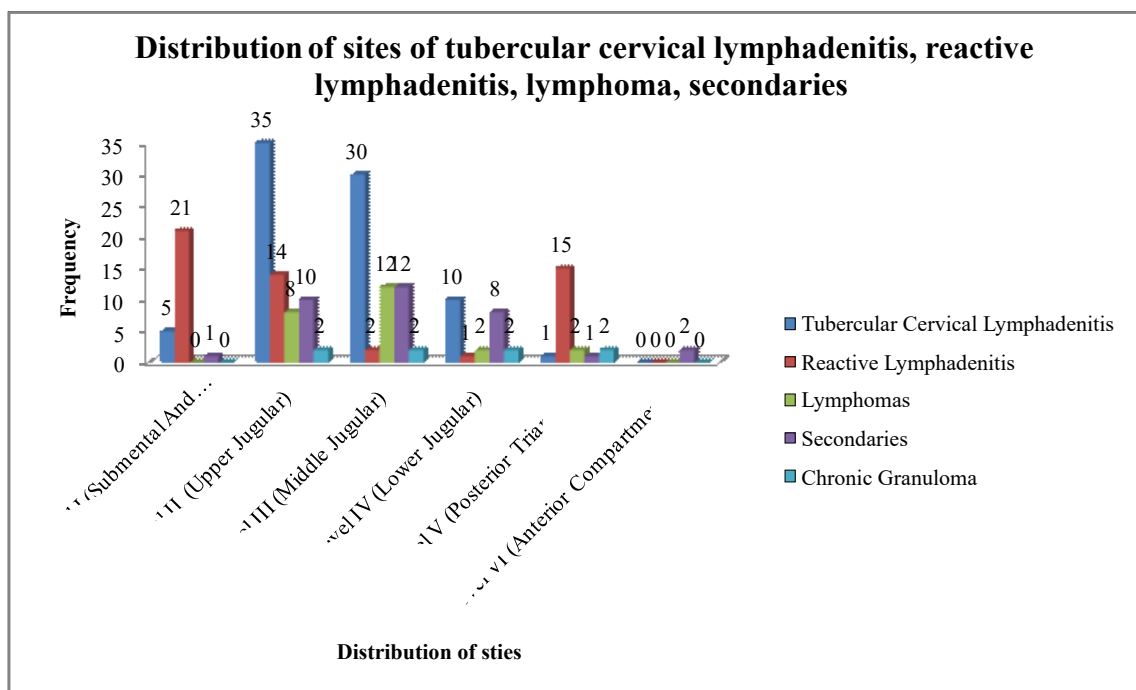


Figure 9: Distribution of sites of tubercular cervical lymphadenitis, reactive lymphadenitis, lymphoma, secondaries

Table 12: Distribution of number of primary and secondary malignancies according age group among male study population (n = 90)

Age group (years)	Primary malignancies		Secondary malignancies	
	Number	Percentage (%)	Number	Percentage (%)
<14	3	25	1	75
14 – 59	8	44.44	10	55.56
≥60	3	27.27	8	72.72

Table 12 shows that primary malignancy cases were maximum among age group of 14-59 years of male study population and secondary malignancy cases were also maximum among the same age group of female study population.

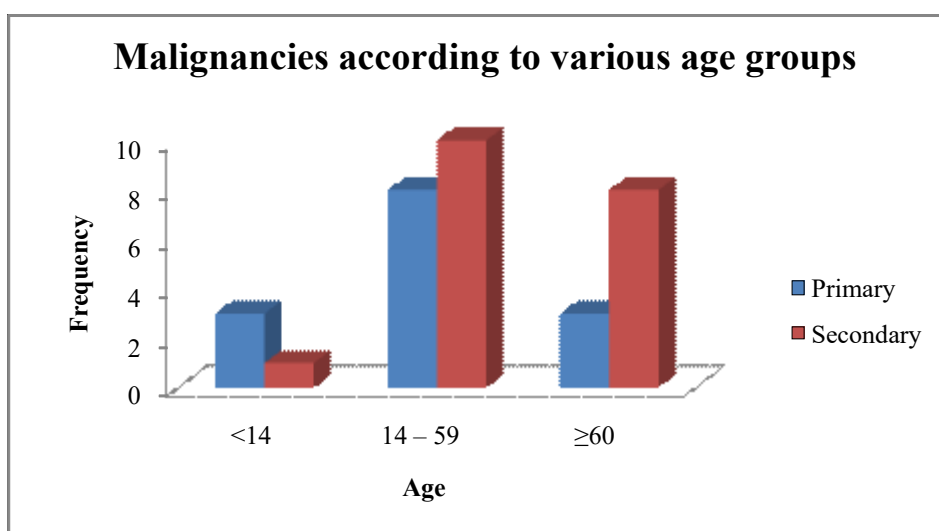
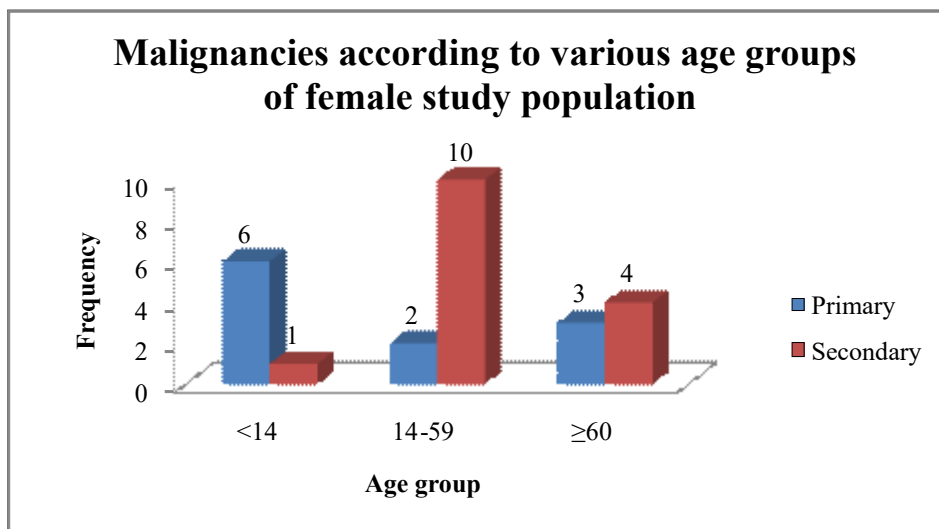


Figure 10: Distribution of number of primary and secondary malignancies according to age groups among male study population

Table 12: Distribution of number of primary and secondary malignancies according age group among male study population (n = 110)

Age group (years)	Primary malignancies		Secondary malignancies	
	Number	Percentage (%)	Number	Percentage (%)
<14	6	14.3	1	85.7
14 – 59	2	16.7	10	83.3
≥60	3	33.3	4	66.7

Table 12 shows that primary malignancy cases were maximum among age group of <14 years and secondary malignancy cases were also maximum among the age group of 14-59 years female study population.

**Figure 11: Distribution of number of primary and secondary malignancies according to age groups among female study population**

Discussions

Cervical lymphadenopathy is one of the commonest presenting complaint of patient in ENT OPD. Fine Needle Aspiration (FNAC) is one of the most reliable, less expensive, basic diagnostic procedure for the definitive and conclusive diagnosis for the immune system which reciprocates in the form of enlarged lymph nodes. [1] Cervical lymphadenopathy refers to the swelling of lymph nodes located in the neck. Lymph nodes, situated all over the body, are part of lymphatic system, which works to protect the body against microbes, maintain adequate fluid levels, absorb nutrients and remove certain waste products. Lymphocytes or white blood cells are activated in the lymph nodes after which they travel into the bloodstream to defend the body against microbes. When the lymph nodes accumulate excessive amounts of lymphocytes they can increase in size and become swollen. [39]

A study was conducted in ENT Department of Santosh Medical College, Ghazibad from August 2015 to May 2016 on 64 patients with enlarged cervical lymph nodes. FNAC was done to make the diagnosis. Out of 64 patients (51.5%) was reactive nonspecific, 28% tubercular, 3.1% lymphoma and 17% were malignant. [1]

A study was conducted in Department of Otorhinolaryngology and Department of Pathology, Calcutta National Medical College and Hospital, Kolkata. Case reports and cytological reports of 423 patients who underwent Fine needle aspiration Cytology (FNAC) of cervical lymph nodes between January 2009 and December 2009 were reviewed in related to their demographic and clinical profiles. The cases were divided into 3 groups according to age and different parameters were described according to these groups. In the cyto pathological diagnosis, tubercular lymphadenitis was most prevalent diagnosis (45.4%). Among the metastatic secondaries, squamous cell carcinoma was most common (8.5%), non-specific / reactive lymphadenitis was significantly more common in <14 years, TB lymph node in 15- 59 years and malignancy among the ≥60 years age group. jugulo-omohyoid (level III) and supraclavicular (level V B) groups of lymph nodes were found significantly more involved by malignancy whereas jugulodigastric (level II), post auricular, submandibular groups (level IB) were commonly involved in TB. [2]

Study conducted in January 2022 to July 2012 by author Pradeep Kulal R, Shravan R Shanbag in K.R. Hospital attached to MMC and RI taken 100 study subjects and revealed tuberculosis as most

common cause of cervical lymphadenopathy (53%) in the study conducted followed by reactive lymphadenopathy 27 percent, secondaries 14% lymphoma 6%. [41]

Study conducted on 2015 by Abhishek Maheswari in Hi Tech Medical College and Hospital Bhubaneswar, on 100 patients of cervical revealed male predominance (54%) was noted and the maximum presentation was in 3rd decade (22%). Tuberculosis was the most common cause identified (45%) followed by reactive lymphadenitis and metastatic (21%). [42]

Study conducted by Dr. Santoshkumar in JNKTMCH, Madhepura and General Hospital in 2022 taken 50 cases. The study revealed tuberculosis as the most common cause of cervical lymphadenopathy 52%, followed by secondary metastasis in neck 18%, non-specific lymphadenitis 12%, lymphoma 4%. [43]

Study conducted by on cervical lymphadenopathy by R. Maheshwari, in the year 2017 taking 75 patients. Out of 75 patients included in the study the most common cause is tubercular lymphadenitis was present in 50 patients (67%) reactive lymphadenitis (7%), chronic nonspecific lymphadenitis (9%) malignant secondaries (11%), lymphomas 3%. [44]

Study conducted by Narendra NR, Yadagiri Rao J in the year 2017 at Hyderabad Kamineni Academy of Medical Science, there were 46 patients. Of these tubercular lymphadenitis was the most common aetiology (54.3%) followed by non specific chronic lymphadenopathy (34.7%) followed by some rare and unusual presentation schwannoma, pleomorphic adenoma, Kikuchi disease, non Hodgkin's lymphoma, secondaries from head neck neoplasm. [45]

Study performed by Renuka S. Melkundi, Sateesh Melkundi in 2017 on patients attended in the OPD on BTGH and General Hospital Gulbarga on all age group. the study has shown that incidence of tubercular lymphadenitis is more in the age group of 1st and 2nd decade and in low socioeconomic status while secondaries are more common in elderly age group. [46,47]

A study conducted by Vamshi Krishna Gorle in the year 2018 on 100 patients of cervical lymph nodes and were evaluated clinically. Most patients were young between 12 to 40 years. Most common cause for cervical lymphadenopathy is due to non-neoplastic (82%) and less commonly from neoplastic (18%). In non-neoplastic causes most common cause is due to tuberculosis (51%). In neoplastic cause most common cause is lymphoma (10%). In tubercular lymphadenitis the posterior triangle group was the most commonly involved

group of cervical lymph nodes (31.3%) followed by upper jugular group (21.5%). [48,49]

A study conducted by Yogesh M Paikrao on in Department of Otorhinolaryngology in Rural Tertiary Health Care centre from January 2014 to June 2016. In 176 patients the youngest patient was 13 year of age and oldest patient was 68 years old. The majority of patients affected were in age group of 21 to 30 years (30.68%) followed by 13 to 20 years (23.86%) tuberculosis was the most frequent cause of cervical lymphadenopathy in 48.29% followed by reactive lymphadenopathy in 17.34%, metastatic lymphadenopathy in 15.34%, chronic nonspecific lymphadenopathy in 14.77% and primary lymphoreticular malignancy in 4.35%. [50]

A study was conducted by Gaurav Batni from august 2015 to May 2016 on 64 patients who attended in the ENT OPD of Santosh Medical College Ghaziabad, U.P with enlarged cervical nodes. FNAC was done for all cervical lymph nodes and were included in the study. Almost half of the lymph nodes (51.56%) were reactive without a known cause which was followed by tubercular (28.12%) malignancy (17.18%) and lymphoma (3.1%) cases were accounted. [51]

A study was conducted by Sunil Kumar Singh Bhadouriya in OPD of School of Medical Sciences and Research Noida, India between December 2013 and November 2014. 74 patients who underwent fine needle aspiration cytology of cervical lymph nodes were reviewed in relation to their clinical and demographic profiles. In the cytology and histology reactive non specific lymphadenitis (51.35%) was the most common diagnosis. Tuberculosis accounted for 23 cases out of 74 cases of cervical lymph node enlargement. [52]

A study was performed by G.V. Ramana Reddy on 150 children in SVS Medical college Hospital, Mahabubnagar between January, 2017 and January 2020. Ultrasonography followed by FNAC of lymph node was done in all children. Out of 150 patients 79 were non-specific reactive lymphadenitis, 54 were granulomatous lymphadenitis, 15 were lymphomas, 2 were malignant. [53,54]

A study was conducted by B Deeva Kumar, P. Anil Kiran in between Oct, 2016 to Sept, 2017 in Pediatric Department of Government General Hospital Guntur. Reactive lymphadenitis was commonest cause of cervical lymphadenitis in pediatric age group. Infections were commonest etiology diagnosed after relevant investigation. Reactive lymphadenitis is the commonest cause of lymphadenopathy in children followed by tuberculosis. In male predominance noted with male to female ratio of 2.3:1. FNAC safe and

reliable less time consumable out of patients procedure used as initial diagnostic tool. [55,56] A study performed by Nitin Sharma from January, 2018 to December, 2018 in 61 patients presenting with cervical lymphadenopathy in ENT Department of Geetanjali Medical College and Hospital, Udaipur. FNAC showed chronic granulomatous lymphadenitis in 46% of the patients with overall sensitivity of 91.1% and specificity of 60% and accuracy of 88%. Present study showed biopsy is the gold standard procedure for diagnosis of cervical lymphadenopathy lesion followed by FNAC, USG. Tuberculous lymphadenitis was most common diagnosis made by diagnostic modalities. [57]

A study was performed by Dr. Kh. Ambala Devi carried out in cytology section of Department of Pathology of Pediatrics, Regional Institute of Medical Science Imphal during the period from February, 2017 to February, 2020. The most commonest cause of cervical lymphadenitis is non-specific lymphadenitis (66%), suppurative lymphadenitis (15%) tubercular lymphadenitis (13.3%) followed by granulomatous lymphadenitis (3.3%), leukemic cell infiltration (1.7%). Amongst the various levels of cervical lymph node level 1 was the commonest involved with lymphadenopathy (48.3%). [58]

A study was conducted by Nitin Arora on 60 patients from June, 2017 to June 2019. The sensitivity of CT scan in detecting cervical lymphadenopathy in study was 97.8% the specificity is 84.6% the positive predictive value is 95.8%. CT scanning was better than physical examination in evaluating lymph node metastasis hence we should not rely upon physical examination alone. [59]

A study was done by K Rajasree Varma on all patients who were diagnosed with lymphoma in Rajagiri Hospital during January, 2016 to December, 2018 was conducted and data were reviewed and analysed. 151 patients were included in the study. Majority of study subjects (63%) were males. The predominate age group affected was 61-80 years. Mean age group 58.46 years. Most common presenting symptom was painless lymphadenopathy. B symptoms were seen in 18% of subjects and found to be commonly associated with B cell Non Hodgkin lymphoma. Most common lymph node involved is cervical lymphnode while the most common extra nodal site was bone marrow. Most common lymphoproliferative disorder was diffuse large B cell lymphoma. Lymph node involvement was found in 74% while hepatosplenomegaly was seen in 18.5%. 20% of patients had secondary bone marrow involvement. [60]

The present study was performed on patients attending in ENT OPD in Burdwan Medical College and hospital as to study various Pathological conditions presenting with cervical enlarged Lymph node in neck. In Perefpheral Part of West Bengal no such study is done earlier.

In the present study analysis revealed that 25%, 60%, 15% of study subjects were in the age group of <14, 14-59 and > 60 years with an overall mean age of 29.04±19.14 years, sex ratio 0.9:1.1. For the purpose of study the lymph node diseases were clubbed broadly in 104 groups nonspecific lymphadenitis, tubercular lymphadenitis, cancer, chronic granuloma. For better comparison with existing studies, the site of lymphadenopathy was described following the conventional system jugulodigastric, submental etc. Analysis showed that tubercular lymphadenitis ranked on the top 40.10%, followed by secondary metastasis from different other primary malignancy 22%, primary malignancy 12%, reactive lymph node hyperplasia 26.5%, chronic granuloma 4%. Among the secondary deposit squamous cell carcinoma topped the list followed by adenocarcinoma.

A similar study done in Calcutta National Medical College by Gautam Biswas, Anjan Das and Ramanuj Sinha also revealed similar findings, tubercular lymphadenitis was most prevalent diagnosis followed by Secondary squamous cell carcinoma was most common (8.5%).

In this study, among children (upto 14 years) nonspecific lymphadenitis/ reactive hyperplasia seemed to be the most frequent form of lymph node disease and it was revealed to be significant.

A similar study done by B Deeva Kumar, P Anil Kiran in between October, 2016 to September, 2017 in Pediatrics Department of Government General Hospital, Guntur revealed Reactive Lymphadenitis commonest cause in pediatric age group.

On the otherhand in 15-59 year tubercular lymphadenitis and >60 years age group carcinomatous involvement of lymphnode were found to be significantly more frequent. Median age for the patients having tubercular lymphadenitis was 20 years with a range of 4-55 years. Again lymphoproliferative disorder were found to have a predilection for the younger people in mean age for this group was significantly lower than that for the group having secondary deposit.

A similar result was obtained in a study done by Zeine Al- Mansour, Beverly P Nelson, Andrew M Evens published in "current haematological malignancy report" lymphoproliferative disorder is most common in age >10 and <60 years.

Peak tubercular lymphadenitis occurred in 2nd - 3rd decades of life. Female was affected more than male. According to the time interval between initiation of symptoms and care seeking the study participants were divided into 3 groups; early (presented within 2 weeks), intermediate (2–6 weeks) and late 6 weeks. Tubercular lymph node cases were found significantly high among female but cancer involving lymph nodes was found significantly among male. However, no significant sex difference was observed regarding non-specific inflammatory condition/ reactive hyperplasia of lymph node.

Malignancy – primary : secondary - 0.7: 1.

Most common site of lymph node involvement was neck and tuberculosis was the most common infectious cause of juguloomohyoid (level 3) and supraclavicular (level 5b) groups of lymph node were found mostly involved by malignancy and it was significant.

In study done by amine Benjelloun, Youssef Darouassi and Noureddine Errami in Avicenne Military Hospital in Marrakech similar result is obtained. Jugulodigastric lymph node and juguloomohyoid lymph nodes (in 66.66%) were come commonly involved followed by supraclavicular (6.6%)

In contrast jugulodigastric (level 2), post auricular, submandibular (level 1b) groups were found to be involved most commonly and significantly by tuberculosis.

Patients with enlarged cervical lymph nodes due to malignancy presented late that is after an interval of 6 weeks from the onset of symptoms. In 2 percent of cases there was cervical metastasis in which pan endoscopy was done – and endoscopy did not reveal any mass. CT Scan and Pet Scan was done but the primary carcinoma did not show the uptake. There after the cases were taken as carcinoma of unknown primary (cup). Biopsy from multiple sites namely bilateral tonsil, base of tongue mucosa, pyriform fossa and nasopharynx was done under general anaesthesia. 3 cases were found base of tongue carcinoma, 1 case of pyriform fossa carcinoma. On the contrary, non-specific inflammation of lymph nodes/ reactive hyperplasia presented early whereas tubercular lymphadenitis presented mostly after a lapse of intermediate interval from the onset.

Conclusions

The findings of the present study may act as 1st hand knowledge regarding age, sex distribution of lymph node diseases, their mode of presentation and predilection for different lymph node groups. It will help the care giver doctors especially at primary care level to think in a systematic way for

detection/ referral to the respective cases early and thereby avoiding the diagnostic delay in cases like TB/ cancer of lymph node. It can be of very helpful for the urban or rural primary health level where in many places, improved diagnostic facility to detect lymph node diseases is yet to be available due to scarcity of resources.

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