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Original Research Article

Cervical lymphadenopathy: a clinicopathological study

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ABSTRACT

Background: Aim of the study was to evaluate the clinical presentation and histopathological findings in patients presenting with cervical lymphadenopathy.
Methods: Patients presenting to the outpatient units and admitted in the wards of departments of general surgery and onco-surgery, Yenepoya medical college hospital, Mangalore from December 2017 to December 2019 were included in the study.
Results: From December 2017 to December 2019, 130 patients had presented with cervical lymphadenopathy to our hospital. Cervical lymphadenopathy was most common in the age group of 50-60 years and in males. The most common histopathological diagnosis was found to be secondaries in the neck. Multiple lymph node level involvement was more common.
Conclusions: To conclude, cervical lymphadenopathy is seen frequently. In this study conducted in a tertiary centre 130 cases were reported in a span of two years of the study period. Further analysis of age and gender distribution, clinical and histopathological analysis suggested that in majority, age group was found to be above 50 years, with male preponderance. Commonest cause was secondaries in the neck (28.5%) followed by tubercular lymphadenitis (24.6%).

Keywords: Lymphadenopathy, Neck, Secondaries, Lymphoma, Tuberculosis

INTRODUCTION

The term 'lymphadenopathy' is used to describe any lymph node that is abnormal in shape, size, consistency and number.[1] Cervical lymphadenopathy is a common type of peripheral lymphadenopathy. Lymph node enlargement may be due to malignancy, infections, autoimmune diseases, other unusual and iatrogenic conditions.[2] The body has about 600 lymph nodes of which approximately 60-70 nodes are situated in the head and neck region.[3] The study of lymph node enlargement in the neck is always a challenging task and the diagnosis of the disease is a problem because most of the diseases resemble each other. In-appropriate diagnosis and the treatment may change a potentially curable disease into an incurable one. So, a clinicopathological correlation is always required.[4-7]

Levels of cervical lymph nodes[8-12]

Cervical lymph nodes are commonly classified according to the system developed at memorial Sloan Kettering cancer center in the1930s.

Level IA: submental region

These comprise the lymph nodes within the submental triangle bounded by the anterior bellies of the two digastric muscles on each side

Level IB: Submandibular region

These LNs lie within the triangle bounded by the anterior and posterior bellies of digastric muscle inferiorly and the body of the mandible superiorly.

Level IIA and IIB: Upper jugular group

They refer to the lymph nodes situated around the upper third of the internal jugular vein. They extend from the skull base superiorly to the level of the inferior border of the hyoid bone inferiorly. Level IIA LNs refer to the ones anterior to the spinal accessory nerve and IIB LNs are the ones located posterior to the nerve.

Level III: Middle jugular group

They refer to the lymph nodes situated around the middle third of the internal jugular vein. This level extends from the inferior border of the hyoid bone superiorly to the inferior border of the cricoid cartilage inferiorly.

Level IV: Lower jugular group

They refer to the lymph nodes situated around the lower third of the internal jugular vein. These nodes extend from the lower border of the cricoid cartilage to the clavicle.

Level V: Posterior triangle group

This level lies posterior to the posterior border of sternocleidomastoid muscle up to the anterior border of trapezius posteriorly. It is further divided into VA and VB. These levels are separated by an imaginary horizontal plane marking the lower border of the cricoid cartilage.

Level VI: Central compartment group

This level extends from the hyoid bone superiorly to the suprasternal notch inferiorly bounded laterally. by the common carotid arteries. This level includes pre-tracheal, paratracheal, pre-cricoid and peri-thyroid nodes.

Clinical manifestations

Patients with cervical lymphadenopathy may present with variety of symptoms. They can have a neck swelling, fever, malaise, weight loss, cough, change of voice and loss of appetite. Any cervical lymph node swelling must be examined in great detail with respect to its number, shape, size, location, laterality relations, consistency, discreteness, mobility and level of neck node involvement. Involvement of other lymph node groups must also be carefully examined.[2,3,13]

Differential diagnosis

Malignancies, infections, autoimmune disorders, iatrogenic, and miscellaneous conditions are regarded as the causes for cervical lymphadenopathy. Lymphadenopathy may be due to infections-specific or non-specific.[2] In India, infections that can cause lymphadenopathy are locoregional infections like, tuberculosis, and filariasis. Malignant causes of cervical lymphadenopathy would be lymphomas and metastasis. Rarely one can have chronic non-specific lymphadenitis. Other rare causes of cervical lymphadenopathy would be immune deficiency disorders and rare disorders like inflammatory pseudo-tumour (plasma cell granuloma) and Kikuchi-Fujimoto disease.[14]

Diagnosis and work up

After obtaining a provisional diagnosis, routine blood investigations and chest radiograph should be done. The next modality could involve USG neck to know the imaging characteristics of the lymph node. Further a FNAC must be done. If the FNAC is inconclusive or unsuccessful, repeat FNAC is advised before proceeding to biopsy. Other imaging modalities like CECT and PET CT are used in diagnosing underlying disease in patients presenting with cervical lymphadenopathy.[14-16]

METHODS

After ethical committee approval and informed consent, patients with enlarged cervical lymph nodes were taken into the study. This study was a time bound observational study that was conducted over a period of two years from December 2017 to December 2019. A predesigned proforma drafted for the study was used. After following up with medical records department of Yenepoya medical college patients admitted with cervical lymphadenopathy in the previous year and on discussion with statistician sample size was calculated and was taken as a time bound study. Selected patients were subjected to a detailed history elicitation followed by thorough evaluation of risk factors and clinical features. Routine investigations were done. FNAC and Biopsy was performed next.

Source of data

Simple random sampling was used. Patients in departments of general surgery and onco-surgery, Yenepoya medical college hospital, Mangalore who presented with enlarged cervical lymph nodes, attending the out-patient units and those admitted in the wards were included in the study. Patients of all age groups with or without previous history of medical or surgical treatment. Patients not willing for follow up or treatment at our center or not undergoing FNAC/biopsy were excluded.

Descriptive statistics were computed for required outcome variables. Statistical analysis was done using SPSS software version 22.

RESULTS

From December 2017 to December 2019, 130 cases of cervical lymphadenopathy were studied. Secondaries in the neck (28.5%) was the most common cause of cervical lymphadenopathy in our study followed by TB lymphadenitis (24.6%). On the whole, cervical

lymphadenopathy was more common in males (61.5%). The male to female ratio was 1.63:1.

Tuberculosis was more common at age group 20-40 and secondaries in neck was more common in age group >60 years. Most of the patients presented to us with complaints related to cervical lymphadenopathy of duration 1-6 months (60%), followed by <1 month duration of noticing symptoms (29.2%).

Patients presented with unilateral neck swellings more commonly (67.7%).

53.3% of the patients had multiple cervical lymph nodes at presentation. Single lymph node swelling was more common in patients with secondaries in neck. Multiple lymph node swellings were more common in cases of lymphoma. Multiple lymph node levels involvement was most commonly seen (58.5%). Level 5 was commonly involved in tubercular lymphadenitis, secondaries and reactive lymphadenitis. Clinically, lymph nodes of firm consistency (76.92%) were more common in patients of lymphoma, TB and reactive lymphadenitis, whereas hard cervical lymph nodes (22.08%) were more common in patients with secondaries in the neck. 80.77% of patients had mobile neck nodes. Most of the patients with tuberculous lymphadenitis, reactive lymphadenitis and lymphoma presented with mobile lymph nodes, but patients with secondaries in neck lymph nodes often presented with restricted to fixed lymphadenopathy. About 83% of the patients had discrete lymph nodes while the rest had matted nodes. Most of the patients with secondaries in neck, reactive lymphadenitis and lymphoma presented with discrete lymph nodes but patients with tubercular lymphadenitis presented with both discrete and matted lymph nodes. Cervical lymphadenopathy secondary to nonneoplastic cause (50.77%) was slightly more common in our study compared to neoplastic causes (49.23%).

Data collected from these cases have been presented below in the form of tables and charts.

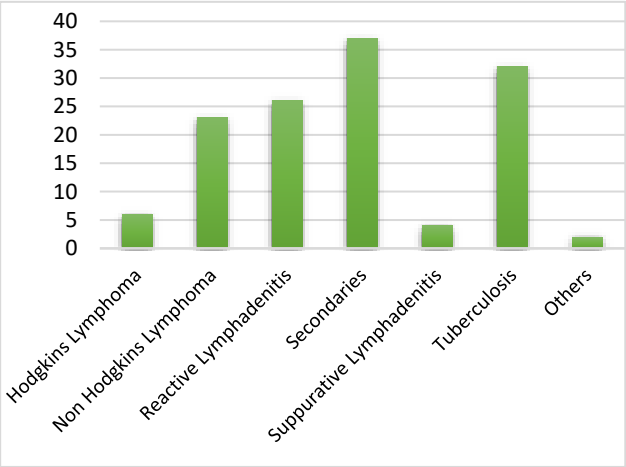

Figure 1: Disease distribution.

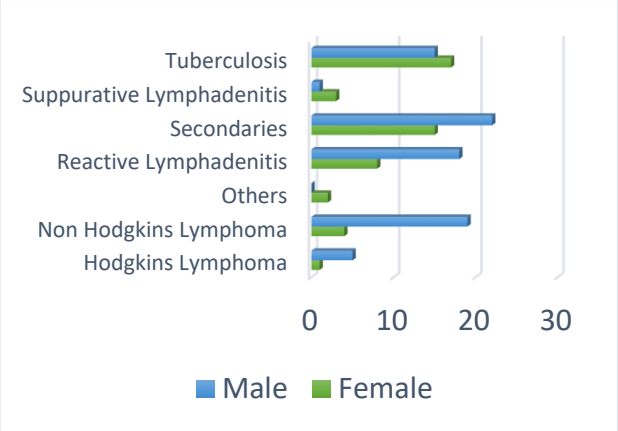

Figure 2: Disease distribution with respect to sex.

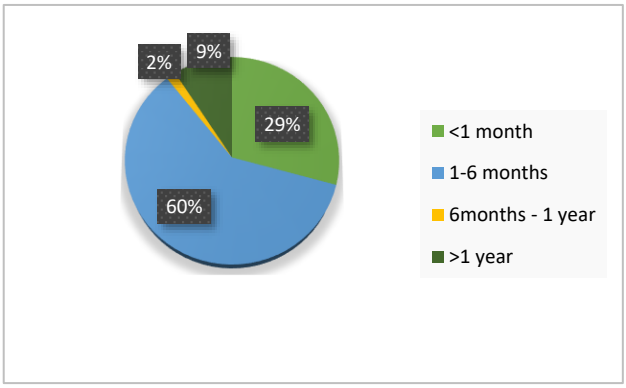

Figure 3: Duration of symptoms.

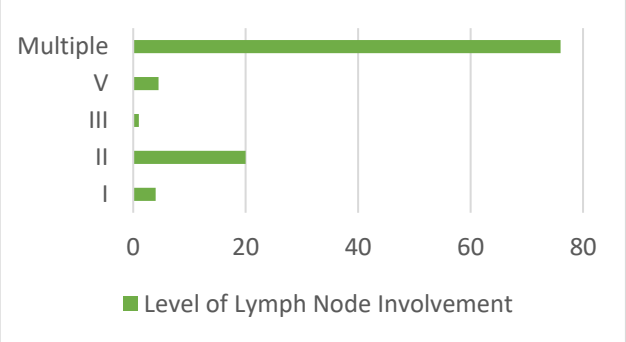

Figure 4: Level of lymph node involvement.

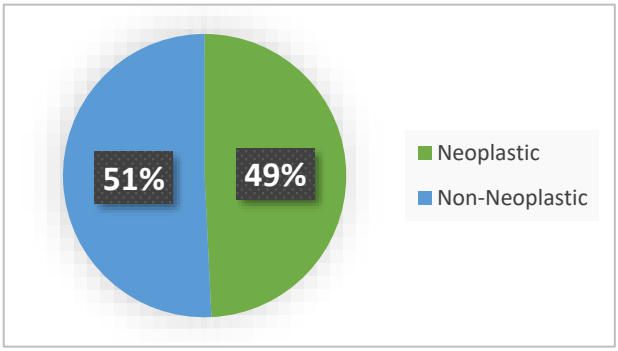

Figure 5: Neoplastic vs non neoplastic etiology.

Table 1: Disease distribution in different age groups.

Age (Years)	Diagnosis (%)						
	Hodgkin's Lymphoma	Non-Hodgkin's Lymphoma	Others	Reactive Lymphadenitis	Secondaries	Suppurative Lymphadenitis	TB
<20	1	1	0	4	1	1	8
	6.3	6.3	0	25	6.3	6.3	50
>60	0	8	0	3	12	0	0
	0	34.8	0	13	52.2	0.0	0
20-30	1	1	1	6	4	1	11
	4.0	4	4	24	16	4.0	44
30-40	1	2	0	2	2	1	11
	5.3	10.5	0	10.5	10.5	5.3	57.9
40-50	0	6	0	3	7	1	2
	0	31.6	0	15.8	36.8	5.3	10.5
50-60	3	5	1	8	11	0	0
	10.7	17.9	3.6	28.6	39.3	0	0
Total	6	23	2	26	37	4	32
	4.6	17.7	1.5	20	28.5	3.1	24.6

Table 2: Characteristics of swelling.

Variables	Frequency	Percent (%)
Bilateral	42	32.3
Unilateral	88	67.7
Single	60	46.15
Multiple	70	53.85
Firm	100	76.92
Hard	30	22.08
Fixed	25	19.23
Mobile	105	80.77
Matted	22	16.92
Discrete	108	83.08

DISCUSSION

This study was conducted at Yenepoya medical college hospital, Mangalore, 130 cases of cervical lymphadenopathy were identified over a period of two years spanning from December 2017 to December 2019.

It was noted that cervical lymphadenopathy was more common among males (61.5%). The male to female ratio was 1.63:1. A study done by Motiwala et al, noted similar results with male preponderance (61.74%) and a sex ratio of 1.61:1.[14] Another study done by Veetil et al obtained a male to female sex ratio of 1.38:1.[18]

Cervical lymphadenopathy secondary to nonneoplastic cause (50.77%) was slightly more common in our study compared to neoplastic causes (49.23%). According to Veetil et al, most of the lesions were of non-neoplastic of origin comprising of 76%.[18] In a study done by Motiwala et al, concluded that cervical lymphadenopathy due to non-neoplastic causes (89.56%) was more common than neoplastic causes.[14]

Secondaries in the neck (28.5%) was the most common cause of cervical lymphadenopathy in our study followed by TB lymphadenitis (24.6%). In sa study by Veetil et al, most common cause of cervical lymphadenopathy was tuberculosis (44%) followed by reactive lymphadenitis (30%).[18] Motiwala et al found that tuberculosis was the most common cause of cervical lymphadenopathy in 54.78% followed by the reactive lymphadenitis in 22.61%.[14]

Tuberculosis was more common at age group 20-40 years and secondaries in neck was more common in age group >60 years. Study by Motiwala et al, showed that non-malignant cervical lymphadenopathy was common in age less than 40 years, while malignant cervical lymphadenopathy was the common after 40 years of age.[14]

Patients on our study, presented with unilateral neck swellings more commonly (67.7%). 53.3% of the patients had multiple cervical lymph nodes at presentation. Single lymph node swelling was more common in patients with secondaries in neck. Multiple lymph node swellings were more common in cases of lymphoma. Study done by Motiwala et al, supports this finding.[14]

Multiple lymph node levels involvement was most commonly seen in our study (58.5%). It was also observed that level V was commonly involved in tubercular lymphadenitis, secondaries and reactive lymphadenitis. In a study done by Jha et al, level II group was most involved in tuberculosis.[19] Baskota et al found wherein tuberculosis level V lymph nodes were most commonly involved in tuberculosis (33.9%) and in secondaries level II group was most commonly involved (50%) similarly in lymphomas level II group was involved.[20]

Limitations

With a small sample size of 130 from a hospital studied over a period of 2 years, the conclusions and interpretation have its own limitations and need to be confirmed by larger community-based studies

CONCLUSION

Cervical lymphadenopathy is most common in the age group of 50-60 years and seen to affect males more commonly. Secondaries in the neck and Tuberculosis were the most common causes of cervical lymphadenopathy. Secondaries in neck were more common in males and after the age group of 60 years while, Clinically, single lymph node swelling is more common in secondaries in the neck. Tuberculosis is seen to affect younger individuals more commonly. In all diseases, multiple lymph node levels involvement is most commonly seen.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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