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Original Research Article

A clinicopathological study of cervical lymphadenopathy

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ABSTRACT

Background: Lymphadenopathy is a very common clinical manifestation of many diseases. It is defined as an abnormality in the size of character of lymph nodes, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the node. The study intends to find out systematically the various pathological conditions presenting with enlarged lymph nodes in the neck, also the various nodes of clinical presentations and behaviors of these conditional.
Methods: The clinical material consists of all inpatients and outpatients presenting to department of General Surgery. The study was conducted during the period from January 2017 to June 2018. This study consisted of 50 consecutive cases and diagnosis was made on the basis of clinical and histopathological findings. Patients, in whom FNAC and/or biopsy of enlarged node could not be carried out, were excluded.
Results: Out of 50 cases in the study, 76% were non-neoplastic. 44% of the cases were due to tuberculosis. Majority of the cases were in 3rd and 4th decade of age. After swelling in the neck, pain and fever were the most common presentation.
Conclusions: In the present study, non-neoplastic accounted for 76% of cases, 44% turned out to be tuberculosis and 30% reactive lymphadenitis. Among the neoplastic lesions, malignant secondaries accounted for 16% while non-Hodgkin's lymphoma and Hodgkin's lymphoma accounted for 6% and 2% respectively. In this present study, fine needle aspiration cytology was found to be reliable and cheapest method of diagnosis without any significant morbidity and with good patient compliance.

Keywords: Cervical lymph nodes, Lymphadenopathy, Tuberculosis, Fine needle aspiration cytology, Biopsy

INTRODUCTION

The prime function of lymph node is to deal with antigen, whether this will be in the form of organisms or other particulate material, or even soluble antigen. Lymph modes are strategically placed along the drainage of tissue and body fluids. They are most numerous in those areas which are in direct contact with the exterior of the individual.[1] Enlargement of these nodes is significant because of many etiologic factors.[2]

Lymphadenopathy is a very common clinical manifestation of many diseases. It is defined as an abnormality in the size of character of lymph nodes, caused by the invasion or propagation of either inflammatory cells or neoplastic cells into the node.[3]

Lymph nodes may be the only site of disease. However most nodal disease is related to abnormalities in the organ associated with the abnormal node. The analysis of lymph node enlargement in the neck is not an easy task

and the diagnosis of the condition is a problem because most of the diseases resemble each other.[4]

The swelling in the cervical region can be diagnostic challenge.[5] The study intends to find out systematically the various pathological conditions presenting with enlarged lymph nodes in the neck, also the various nodes of clinical presentations and behaviours of these conditional. It also intends to know the role of FNAC in diagnosing these conditions after correlating with a lymph node biopsy confirmation.

Objectives

- To study about the various clinical presentations of cervical lymphadenopathy.
- To correlate pathological findings with clinical diagnosis.
- To study the role of FNAC by correlating with confirmed biopsy report.
- To study the management, outcome and clinical behaviors of cervical lymph nodes of follow up.

METHODS

The clinical material consists of all inpatients and outpatients presenting to department of General Surgery. The study was conducted during the period from January 2017 to June 2018. This study consisted of 50 consecutive cases and diagnosis was made on the basis of clinical and histopathological findings.

Patients between the age of 12 yrs to 60 yrs presenting with cervical lymph node enlargement were included in the study. Patients, in whom FNAC and/or biopsy of enlarged node could not be carried out, were excluded.

Detailed history was taken, thorough examination was carried and basic relevant investigations were done in all patients to arrive at a provisional diagnosis. Investigations like fine needle aspiration cytology and blood examination were done as a routine. Biopsy was done for all patients. Radiological examinations of the chest were done. Lymph node biopsy specimen was sent to pathologist for expert opinion.

Data analysis and statistics

The data collected was entered in MS Excel 2016. The data was analyzed by IBM SPSS version 22.0 (licensed). Proportions were calculated.

Ethical clearance

This study started after the clearance from ethical committee of College of Medicine and JNM Hospital. Written informed consent was taken from the participants before enrolment.

RESULTS

In the present study, 50 consecutive cases presenting with cervical node enlargement in outpatient department and inpatient in surgical wards were taken for study.

Table 1: The number and percentage of non-neoplastic and neoplastic lesions.

	Number of cases	Percentage (%)
Non-neoplastic	38	76
Neoplastic	12	24
Total	50	100

Table 2: Histopathological diagnosis in 50 cases.

Histopathological diagnosis	Number of cases	Percentage (%)
Tuberculosis	22	44
Reactive lymphadenopathy	15	30
Secondaries	08	16
Hodgkin's lymphoma	1	2
Non-Hodgkin's lymphoma	3	6
Toxoplasmosis	1	2
Total	50	100

The maximum incidence was found to be of tuberculosis which was 22 (44%) cases. Next was reactive lymphadenitis (30%) followed by secondaries (16%) and lymphomas (8%).

Sex distribution

In this study, out of 50 cases studied 29 were males and 21 females. The male to female rations is 1.38:1

Table 3: Age distribution in both sexes.

Age group (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
12 to 20	3	6	4	8	7	14
21 to 30	10	20	6	12	16	32
31 to 40	7	14	4	8	11	22
41 to 50	3	6	3	6	6	12
51 to 60	4	8	2	4	6	12
>60	2	4	2	4	6	8
Total	29	58	21	42	50	100

In this study, the observation made was the maximum numbers of cases were in the age group of 21-30 years (16 cases, 32%). Next common age group was between 31 and 40 years (11 cases, 22%). Thus the third and fourth decade constituted 27 to 50 cases (54%). Seven cases (14%) were in the age group of 12 to 20 years and 6 cases were in the age group of 41-50 years and six cases

were between 51 and 60 years. Only 4 cases were documented above the age of 60 years.

History of contact with tuberculosis in tuberculosis lymphadenitis cases

5 cases (22.7%) provided a positive history of contact while majority i.e. 17 patients (77.3%) contact history could not be elicited.

As explained in literature, the neck lymph nodes were classified as level and the involvement was studied for each category. In the present series, it was observed that posterior triangle group was the commonest to get involved in tuberculosis (33.9%) followed by upper deep jugular group (26.4%), submental and submandibular (16.9%), middle jugular (13.2%) and lower jugular (9.4%). Reactive lymphadenitis, submandibular and submental group of lymph nodes is most commonly affected. In secondaries, upper jugular group of lymph nodes is most commonly affected. Similarly in lymphomas, upper jugular lymph nodes are most commonly affected.

Table 4: Incidence of presenting symptoms.

Symptom	Number of cases
Neck swelling	50
Pain	9
Fever	9
Cough	6
Loss of appetite	5
Loss of weight	8
Difficulty in swallowing	1
Change of voice	2

Table 5: Site distribution of different diseases.

Site	Tubercular cervical lymphadenitis	Reactive lymphadenitis	Lymphomas	Secondaries	Toxoplasmosis	Total
Level I (submental and sumandibular group)	2	5	0	0	0	07
Level II (upper jugular group)	6	3	1	3	0	13
Level III (middle jugular group)	3	1	0	2	0	06
Level IV (lower jugular group)	2	2	1	1	1	17
Level V (posterior triangle group)	9	4	2	2	0	17
Level VI (anterior compartment group)	0	0	0	0	0	0
Total	22	15	4	8	1	50

Table 6: Involvement of other lymph nodes in cervical lymphadenopathy.

Lymph node group	Tubercular cervical lymphadenitis		Reactive lymph-adenitis		Lymphomas	
	No.	**%**	**No.**	**%**	**No.**	**%**
Cervical+inguinal	1	4.5	1	6.6	1	12.5
Cervical+axillary	2	9.09	2	13.3	0	.
Cervical+axillary+inguinal	0	0	0	0	1	12.5

Table 7: Distribution of primary in malignant secondaries in neck.

Primary site of malignancy	Histopathological pattern	Number of cases
Esophagus	SCC	2
Larynx	SCC	1
Stomach	Adenocarcinoma	2
Thyroid	Papillary carcinoma	1
Unknown	SCC	1
	Adenocarcinoma	0

Presentations of lymph nodes in tubercular cervical lymphadenitis

15 cases (68.18%) had matted lymph nodes while in 7 cases (31.81) had discrete nodes.

Chest X-ray positivity in tubercular cervical lymphadenitis

X ray showed positive signs in 2 patients (9.09%) but was negative in majority of cases – 20 (90.9%).

Types of lymphomas

Out of 4 lymphoma cases in our study 3 (75%) were non-Hodgkin's type and 1 (25%) was Hodgkin's type.

DISCUSSION

The discussion is mainly based on analysis and observations made regarding presenting symptoms, clinical behaviour, signs, investigations, management and postoperative events in cases that were included in the study over a duration of 18 months.

In the present study, which studies 50 cases of cervical lymphadenopathy, 38 (76%) were non-neoplastic lesions and 12 (24%) were neoplastic lesions. In the study made by Shah et al, the incidence of non-neoplastic and neoplastic lesions were 90.6% and 9.4% respectively.[6]

In the present study, non-neoplastic accounted for 76% of cases, 44% turned out to be tuberculosis and 30% reactive lymphadenitis. Among the neoplastic lesions, malignant secondaries accounted for 16% while non-Hodgkin's lymphoma and Hodgkin's lymphoma accounted for 6% and 2% respectively. The observation made by Jha et al, who studied 94 cases, of which tuberculosis was confirmed in 63.8% cases.[7]

Of the 50 cases, 29 cases were males and 21 females. The sex ratio in the present study was 1.38:1 (M:F).

Table 8: Comparison of distribution of different lesions.

	Tuberculosis (%)	Reactive lymphadenitis (%)	Secondaries (%)	Non-Hodgkin's lymphoma (%)	Hodgkin's lymphoma (%)
Shafullah et al[6]	69	17.8	2.9	3.4	3.1
Jha et al[7]	63.8	9.6	20	-	-
Present study	44	30	16	6	2

Table 9: Comparative analysis of sex distribution.

	Bedi et al	Ammari et al	Dworski et al	Dandapat et al	Purohit et al	Present study
Shafullah et al[6]	1:1.7	1:2	1:1.38	1:1.2	1.4:1	1.38:1

Most of these studies show female predilection. Few studies like Purohit et al and Tripathy et al are comparable with the present study.[8]

In the present study, 18% of patients presented with plain, 18% with fever, 12% with cough, 12% with loss of appetite, 16% with loss of weight, 2 patients presented with dysphagia and 1 with change in voice.

This study utilized the Memorial Kettering Hospital Classification of neck lymph nodes from level I and level VII. It was observed that in tuberculosis, level V was most commonly affected (33.9%) followed by level II (26.4%). In contrast, in secondaries level II group was most commonly involved (50%) and similarly in lymphomas level II group was involved.

In the Jha et al, series, Level II group was most involved in tuberculosis.[7] The result of this study is comparable to the study made by Baskosa et al study, wherein tuberculosis level V lymph nodes is most commonly involved.[9]

Chest X-ray positivity was seen in 9.09% of cases of present study. The studies made by Aggarwal et al series showed 28.3% positivity and Jha et al, series showed 16% positivity.[7]

In the present study, non-Hodgkin's lesion: Hodgkin's lesion ration is 3:1.While findings by Gutenshon et al, had a ratio of 9:1, Urba et al study had a ratio of 5.01:1, which has similar results as this present study.[10,11]

The commonest site of primary in a case of malignant secondary was lungs and pancreas in the studies by Linderman et al. In the present study it was esophagus and stomach followed by larynx and thyroid.[12] In the study of Gaber et al, it was possible to establish primary in 86.7% where as in the present study it was only 71.5%.[13] In reset of the cases, primary could not be diagnosed because of limited resources of our hospital.

In the present study, the sensitivity and specificity of FNAC in detecting various lesions of cervical lymph node are shown in the following table.

Table 10: The sensitivity and specificity of FNAC.

Histopathological diagnosis	Sensitivity (%)	Specificity (%)
Tubercular lymphadenitis	75.8	100
Reactive lymphadenitis	100	93.1
Malignant secondaries	92.8	100
Lymphomas	83.3	100

The study by Jha et al, reported a sensitivity of 92% in diagnosing tubercular lymphadenitis.[7] Dandapat et al, reported a sensitivity of 83% for tuberculosis.[14] The study Chao, Loh et al, showed sensitivity of 88% and specificity of 96% for the same. Similarly Dasgupta et al reported a sensitivity of 84.4% for tuberculosis and 89% for malignant secondary deposits.[15]

In the treatment of tubercular lymphadenitis similar findings as in present study was obtained from Jha et al, where short course chemotherapy was given with no recurrence.[7]

Another reactive lymphadenitis was adequately managed with antibiotics and local treatment. The malignant secondaries and lymphomas were staged and treated as per accepted protocols and were referred to higher oncologic centre.

After coming to a diagnosis, treatment was instituted appropriately. For reactive lymphadenitis, tubercular lymphadenitis medical treatment was instituted. For secondaries and lymphoma, which needs radiotherapy, chemotherapy and expert oncologic surgeries, patients were referred to Cancer Research Centre. For all patients, necessary advice given and were asked to attend the surgical outpatient department for follow-up.

CONCLUSION

50 consecutive cases were selected and they were studied in the present study. Of the 50 cases, tuberculosis lymphadenopathy had the maximum incidence of 44% followed in reactive lymphadenitis (30%), secondaries (16%) and lymphomas (8%).

Overall age at presentation was between 12 years and 60 years followed by 31-40 years.

In investigations, fine needle aspiration cytology was found to be accurate with 75.5% accuracy for the diagnosis of tuberculosis. Few patients were diagnosed as non-specific lymphadenopathies which were later confirmed by biopsy to have either tuberculosis of reactive lymphadenitis.

In metastatic lymph node, method of diagnosis was fine needle aspiration cytology and one patient was treated with surgery. Rest 7 cases were referred to oncologic centre and they did not come for follow-up.

Lymphomas were diagnosed by fide needle aspiration cytology and confirmed with excision biopsy. One case of Hodgkin's lymphomas was treated with chemotherapy and was followed up regularly till the study concluded. No mortality noted.

Among 3 non-Hodgkin's lymphoma cases, All cases were treated with chemotherapy and they were followed up regularly all the study concluded.

In this present study, fine needle aspiration cytology was found to t be reliable and cheapest method of diagnosis without any significant morbidity and with good patient compliance.

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