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Clinicopathological evaluation of cervical lymphadenopathy in adults at tertiary care centre

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Abstract

We have studied 84 patients of cervical lymphadenopathy over a period of 2 years (November 2020 to November 2022) in MGM Medical College and hospital, Aurangabad. All patients were subjected to FNAC and open biopsy. Out of the 84 patients, the most common diagnosis turned out to be Reactive lymphadenitis with 43 patients(51.19% of total). Tubercular lymphadenitis was diagnosed in 32 patients (38.10%). Malignant secondaries were diagnosed in 2 patients (2.38%) whereas 4 patients were found to be suffering from lymphomas (Hodgkin's lymphoma in 3 patients (3.57%) and Non hodgkin's lymphoma in 1 patient (1.19%). Incidence of other diseases causing cervical lymphadenopathy like kikuchi'sdisease(1 case), kimura's disease(1case) and malignant secondaries (2 cases) was found to be low in the present study. Though the incidence of such rare diseases is low, it should always be considered as possible causes for cervical lymphadenopathy.

Keywords: Ervical Lymphadenopathy, FNAC, Reactive Lymphadenitis, Tubercular Lymphadenitis

Introduction

Lymphadenopathy is a disease process characterised by abnormal consistency and size of lymph nodes. It is a common clinical manifestation of a variety of diseases. The term refers to an abnormality in the size and character of the lymph nodes caused by the invasion or propagation of either inflammatory cells or cancerous cells into the lymph node (1)

Cervical lymphadenopathy is defined as any lymph nodal tissue in the cervical region that is larger than 1cm in diameter. It can occur at any age; however, the possible cause of such adenopathy varies by age group. The enlargement of these lymph nodes is significant because there are many etiological agents, which is an indicator of infection spread as well as malignancy spread. (1)

Analysis of lymph node enlargement in the neck is a difficult task, and diagnosis is difficult because most

diseases resemble each other. Thus, Swelling in the cervical region can be diagnostic challenge (2)

The incidence of so called rare diseases like kikuchi's disease and kimura's disease is increasing day by day. This study aims to evaluate incidence of various pathological conditions at tertiary care center.

Material and Methods

This is a descriptive cross-sectional study carried out in the Department of Pathology, M.G.M Medical College and Hospital, Aurangabad from November 2020 to November 2022, after obtaining the permission from institutional ethics committee. FNAC and histopathological samples of patients presenting with cervical lymphnode enlargement attending the ENT and Surgery department were selected for study.Clinical details of all patients and reports of relevant investigations were obtained and recorded in the case Record form/ Proforma.Fine needle aspiration cytology and histopathological reporting was done and correlated with the clinical findings and final diagnosis was made. Immunohistochemistry was done in indicated cases.All the data was entered in an excel sheet, masterchart was prepared and results were analyzed.

Inclusion Criteria

- Patients more than 12 years of age
- Patients presenting with cervical lymph node enlargement

Exclusion Criteria

- Patients where FNAC or biopsy of node could not be carried out were excluded.

Result

Out of the 84 cases studied, 6 cases were malignant and 78 cases were benign based on histhopahtology(TABLE 1). Of the 84 cases studied, 1 case was kikuchi's, 1 case was kimuras disease, 2 cases were of malignant secondaries, 4 cases of lymphoma, 44 cases were reactive and 32 cases were tuberculous lymphadenitis. (TABLE 2). In the present study, there were 4 cases of lymphoma. Sub typing was confirmed with the help of Immunohistochemistry. Of the 4 cases, 3 cases (3.57%) were of Hodgkins lymphoma and 1(1.19%) case of Non hodgkins lymphoma. (TABLE 3). The female: male ratio was 1:2.28 and majority of them were females (68.05%) (TABLE 4). It was found that the age range of 12 to 20 years had the highest percentage of patients, with 26 cases (30%), followed by the age group of 21 to 30 years, with 24 cases (28%) The study's youngest participant was 13 years old, while its oldest participant was 65 (TABLE 5). The constitutional symptoms considered were fever, malaise, cough, loss of appetite and change in voice. The presence of any of these symptoms was considered positive for constitutional symptoms. All cases (84 out of total 84 cases i.e 100% cases presented with swelling in neck.Fever was second most common symptom with 24 cases (28.5%) followed by loss of weight with 15 cases(17.8%). Other symptoms included:- Cough with 11 cases(13%), malaise with 9 cases(10.7%), difficulty in swallowing and change in voice in 1 cases each. (TABLE 6) In all age categories, reactive lymphadenitis and tuberculosis were detected, with a clustering of cases in the 21–30 and 31–40 year old age ranges. Patients above the age of 40 tended to have malignant secondaries. (TABLE 7)

Table 1: Number and percentage of cases with nonneoplastic and neoplastic causes:

	No. of Cases	Percentage
Non neoplastic causes	78	92.85
Neoplastic causes	6	7.15
Total no. of cases	84	100.00

Table 2: Showing the histopathological diagnosis:

Histopathological diagnosis	Frequency	Percentage
Lymphoma	4	4.76
Kikuchi's	1	1.19
Kimuras disease	1	1.19
Malignant Secondaries	2	2.38
Reactive lymphadenitis	44	52.38
Tuberculous lymphadenitis	32	38.10
Total	84	100.00

Table 3: Showing Types of Lymphomas:-

Types of lymphoma	No. of cases	Percentage
Hodgkins Lymphoma	3	3.57%
Non Hodgkins Lymphoma	1	1.19%
Total cases of Lymphoma	4	4.76%

Table 4: Showing the sex distribution of cases:

Gender	Frequency	Percentage
Female	58	69.05
Male	26	30.95
Total	84	100.00
Male: Female	1:2.28	

Table 5: Showing age and sex distribution of cases:-

Age group	Female		Male		P value
	Frequency	Percentage	Frequency	Percentage	
12 to 20	18	31.03	8	30.77	
21 to 30	18	31.03	6	23.08	
31 to 40	7	12.07	6	23.08	
41 to 50	9	15.52	3	11.54	
51 to 60	4	6.90	1	3.85	0.7058
>60	2	3.45	2	7.69	
Total	58	100.00	26	100.00	

Table 6: Showing incidence of presenting symptoms

Presenting symptoms	Number of cases	Percentage
Neck swelling	84	100%
Fever	24	28.5%
Cough	11	13%
Loss of weight	15	17.8%
Malaise	9	10.7%
Loss of appetite	5	5.9%
Difficulty in swallowing	1	1.19%
Change in voice	1	1.19%

Table 7: Showing the age-wise distribution of cases with different etiologies:

Final diagnosis	12 to 20		21 to 30		31 to 40		41 to 50		51 to 60		>60	
	No^{r}	%	No^{r}	%	No^{r}	%	No^{r}	%	No^{r}	%	No^{r}	%
Hodgkin's lymphoma	0	0	1	4.17	1	7.69	1	8.33	0	0	0	0
Kikuchi's	1	3.85	0	0	0	0	0	0	0	0	0	0
Kimuras disease	0	0	0	0	1	7.69	0	0	0	0	0	0
Metastasis of SCC	0	0	0	0	0	0	1	8.33	1	20.00	0	0
Non Hodgkin's lymphoma	0	0	0	0	0	0	0	0	0	0	1	25.00
Reactive lymphadenitis	16	61.5	13	54.17	6	46.15	6	50.00	3	60.00	0	0
Tuberculous lymphadenitis	10	38.46	9	37.50	5	38.46	4	33.33	1	20.00	3	75.00
Total 84	26	30%	24	28%	13	16%	12	15%	5	6%	4	5%

Discussion

This discussion is based on a review of findings from a study that involved 84 patients at MGM Medical College in Aurangabad and took place between November 2020 and November 2022.

Data have been examined in relation to patient age and sex, complaints and other symptoms, clinical findings, investigational findings, and FNAC and Excision biopsy results.

Lymphadenopathies are reactive processes which are responsive to various exogenous and endogenous stimuli. The diagnosis of lymphadenopathies involves clinical examination, imaging and pathological correlation. FNAC is a quick, safe, and minimally invasive outpatient procedure helps to diagnose clinical condition.

Cervical lymphadenopathy is most common presentation among various lymphnode swellings. In children self limiting and viral illness are most common cause of lymphadenopathy. Clinical history and physical examination plays an important role in lymphadenopathy than investigation.

Need for complete history of the patient pertaining to age, sex, socioeconomic status, time of presentation, duration of symptoms, pre-existing disease, history of travel, personal history, relevant family history, family history of malignant disorders, history of exposure to animals, on any medications, ingestion of certain foods,

history of past infections, exposure to ultraviolet radiation, any contact with TB patient can help to determine the etiology of lymphadenopathy.[34]

In the present study, Fine needle aspiration cytology (FNAC) was done in all cases. However, based on histopathological findings, final diagnosis was given. Out of 84 cases, 78 cases (92.85%) were determined to be non-neoplastic lesions, whereas 6 cases (7.15%) were determined to be neoplastic.

The incidence of non-neoplastic and neoplastic lesions was 90.6% and 9.4%, respectively, according to a study by Shafiullah and Syed Humayun Shah et al.[13]. Other study by melkundiet al.[35], showed the incidence to be 76% and 24%. Paikrao et al [36] study also revealed the incidence to be 80% and 20%. The current study's findings are thus comparable to those of the studies that were previously stated and found that benign lesions are more frequent than malignant lesions.

Reactive lymphadenitis was found to be the most common cause of cervical lymphadenopathy in the current study's 44 cases (52.38% of the total), followed by tuberculous lymphadenitis in 32 instances (38.10%), malignant secondaries in 2 patients (2.38%), and lymphomas in 4 patients (4.76%). Kimuras and Kikuchi's disease both had one patient with a diagnosis.

Kim L.H. et al.[18] (1999)studied pattern of lymphnode pathology in a private laboratory. Study included 33.1% cases of Reactive lymphadenitis(being the most common cause of cervical lymphadenopathy). The results of present study are thus comparable to this study with reactive lymphadenitis being the commonest cause. Only 13.9% cases had tuberculous lymphadenitis, the fact that the patients included in this study were likely from non-prevalent locations can be used to explain why there was a reduced incidence of tuberculosis. Malignant secondaries were diagnosed in 25.7% cases which was highest among all as compared to present as well as other studies. Lymphomas were diagnosed in 12.4% cases.

Different observations were made in the studies as follows:

Shafiullah and Syed Humayun Shah et al.[13] (1999)studied tuberculous lymphadenitis on Afghan refugees. Study included 17.8% cases of Reactive lymphadenitis and 3.8% cases of chronic lymphadenitis, whereas 69% cases had tuberculous lymphadenitis being the commonest cause of cervical lymphadenopathy, Malignantsecondaries were diagnosed in 2.9% cases. Whereas Lymphoma in 6.5% cases.**Jha B.C. et al.[13](2001)**in their study included 17.8% cases of Reactive lymphadenitis and 3.8% cases of chronic lymphadenitis, whereas 69% cases had tuberculous lymphadenitis being the commonest cause of cervical lymphadenopathy, Malignant secondaries were diagnosed in 2.9% cases. Whereas lymphoma in 20.7 % cases. **Jindal N. et al[15] (2002)** studied mycobacterial cervical lymphadenopathy in childhood. Study included 22.8% cases of reactive lymphadenitis, 48.4 % cases of tuberculous lymphadenitis , malignant secondaries were diagnosed in 13.3% cases and Lymphoma in 15.8% cases. **Natraj G. et al[16] (2001)**studied Correlation of FNAC, smear and culture in tubercular lymphadenitis; a prospective study . Study included only 8% cases of reactive lymphadenitis while 82.6% cases of tuberculous lymphadenitis. Lymphoma were diagnosed in 9.4% cases. Higher number of TB cases could be because of study done specifically in TB patients.

AroraB. et al[17](1990) in their Study included only 17% cases of reactive lymphadenitis while 62% cases of tuberculous lymphadenitis , malignant secondaries were

diagnosed in 6% cases, Lymphoma in 15% cases. **Lau S.K. et al** in their Study included only 29.7% cases of reactive lymphadenitis while 65% cases of tuberculous lymphadenitis. Lymphomas were diagnosed in 5.3 % cases. **Aruna Das et al[19] (1990)** in their Study showed almost similar cases of reactive lymphadenitis and tuberculous lymphadenitis , Study included 32% cases of reactive lymphadenitis while 38% cases oftuberculous lymphadenitis, malignant secondaries were diagnosed in 15% cases and Lymphoma in 15% cases.

Tuberculosis is an important disease, one of the commonest diseases affecting lymphnodes. In earlier research, cervical lymphadenopathy was more frequently caused by tuberculosis. In our study, Reactive lymphadenitis turned out to be the most common cause. This could be because the prevalence of TB might be decreasing day by day.

Comparing with all other studies mentioned above, The present study highlights other rare causes of cervical lymphadenopathy i.eKimuras and Kikuchi's disease which other studies could not find and that may be because of lack of knowledge about these diseases. Though the incidence was found to be very low in the present study, it should not be missed while diagnosing the causes for cervical lymphadenopathy.

Table 8: Showing the prevalence of various cervical lymphadenopathy causes in comparison to other studies:

Studies	Tubercular lymphadenitis (%)	Reactive lymphadenitis (%)	Chronic lymphadenitis (%)	Secondaries (%)	Lymphoma (%)
Shafiullah et al[13]	69	17.8	3.8	2.9	6.5
Jha B. C. et al.	63.8	9.6	5.9	-	20.7
Jindal N. et al[15]	48.4	22.8	-	13.3	15.8
Nataraj G. et al	82.6	8	-	-	9.4
Arora B. et al	62	17	-	6	15
Lau S. K. et al	65	-	29.7	-	5.3
Kim L. H. et al	13.9	33.1	2.2	25.7	12.4
Aruna Das et al[19]	38	21	11	15	15
Present study	38.10	52.38	29.7	2.38	4.76

Different types of lymphomas

In the present study, there were 4 cases of lymphoma diagnosed on histopathological findings. Typing was confirmed with the help of immunohistochemistry and their final subtypes were diagnosed. Of the 4 cases, 3 cases (3.57%) were of Hodgkins lymphoma and 1(1.19%) case of Non hodgkins lymphoma. Hodgkins lymphoma turned out to be more common in the present study.

Table 9: Showing comparison of distribution of types of lymphoma according to various studies

Studies	Hodgkins lymphoma	Non Hodgkins Lymphoma
R. Maheshwari et al[37]	2.7%	1.3%
Mithun G et al [40]	1%	3%
Pradeep et al[2]	1%	5%
Kim L. H. et al	4.4%	8%
Arora B. et al	4%	11%
Present study	3.57%	1.19%

R. Maheshwari et al[37]in their study showed 2.7% cases of Hodgkins lymphoma (being more common) and 1.3% case of Non hodgkins lymphoma . Thus, findings were similar to the present study.

Mithun G et al [40], Pradeep et al[2] and Kim L. H. et al showed slightly more incidence of Non Hodgkins lymphoma rather than hodgkins type. Highest cases of Non Hodgkins lymphoma were observed in study done by Arora B. et al with only 4% cases of Hodgkins lymphoma while 11% cases of Non hodgkins lymphoma.

Age distribution

With 26 cases (30%), the age range between 12 and 20 was the most frequently affected, followed by the age range between 21 and 30 with 24 cases (28%) each. The most often affected age group in the study by Bedi R et al.[28] was 12-20 years, with 32.5% cases, followed by 31-50 years with 16.1% instances, whereas Shafiullah et al.[13] had 72% cases within 12-30 years, followed by 31-50 years with 16.1% cases.

The results of the current study are comparable to those of the studies previously cited. The current study and that of Kim L.H. et al.18, in which the majority of cases had been between 20 and 50 years old, are also comparable.

Reactive lymphadenitis and tubercular lymphadenitis affects younger age group whereas, malignancies mostly affects the older age groups.

Table 10: Showing comparison of age distribution of cases according to various studies

Age group	Bedi R et al.[28]	Shafiullah et al.	Present study
12-20	32.5%	71.9%	30%
21-30	29.8%		28%
31-40	6.5%	16.1%	16%
41-50	10.4%		15%
51-60	--	6.2%	6%
>60	--		5%

Younger age group was the most common affected age group documented in several studies which is also similar to the present study.

Table 11: Showing comparison of sex distribution of cases with other studies

	Bedi R.S. et al.[28]	Ammari FF et al.[29]	Dworski[30]	Dandapat[20]M. C et al	Purohit S. D. et al.	Present study
M:F ratio	1:1.7	1:2	1:1.38	1:1.2	1.4:1	1:2.28

The majority of studies show a female predominance. Bedi R.S.et al.[28]in their study included male: female ratio of 1:1.17.similar observations were made by Ammari FF et al.[29],Dworski[30] and Dandapat[20]M. C etalin their study including ratio of 1:2, 1:1.38 and 1:1.2. The male to female sex ratio in the current study was determined to be 1:2.28, which is comparable to the studies described above. The study by Purohit S.D. et al showed male preponderance which was the only study showing different observation. Their study included male: female ratio of 1.4:1. By comparing with other studies, Present study may act as source of knowledge regarding age and sex distribution of diseases causing cervical lymphadenopathy.

History of constitutional symptoms:

Cervical lymphadenopathy usually presents with slowly enlarging lymph nodes & may be asymptomatic otherwise. In the present study, all patients had cervical lymphadenopathy as presenting chief complaint. In the present study, neck swelling was the commonest complaint presented in all cases (84 out of total 84 cases i.e 100% cases). Fever was second most common symptom with 24 cases (28.5%) followed by loss of weight with 15 cases (17.8%). Other symptoms included:- Cough with 11 cases(13%), malaise with 9 cases(10.7%), difficulty in swallowing and change in voice in 1 cases each.

Pradeep et al[2]and **Paikrao et al[36]** in their studies also had reported neck swelling (100% cases) as the commonest complaint. **R. Maheshwari et al[37]**, Jalal A et al[38] and **Wahid et al[39]** in their studies also reported similar findings with neck swelling being the commonest symptom which were similar to the present study.

Table 12: Showing comparison of incidence of symptoms with other studies

	Pradeep et al[2]	Paikrao et al[36]	R. Maheshwari et al[37]	Present study
Neck swelling	100	176	66	84
Fever	19	54	28	24
cough	13	45	20	11
Loss of weight	12	21	14	15
Loss of appetite	12	23	3	5
malaise	-	18	10	9
Difficulty in swallowing	2	22	-	1
Change in voice	1	15	2	1
Total cases:-	100	176	75	84

Among the patients with cervical lymphadenopathy, Fever and cough were other main chief complaints .**Pradeep et al[2]** in their study reported fever (19 cases) and cough (13 cases). Similar study conducted by

Paikrao et al[36] reported reported fever (54 cases) and cough (45 cases). **R. Maheshwariet al**[37]also had fever (28 cases) and cough (20 cases) as next common presenting complaints.

The results of the current study are comparable to those of the studies previously cited.

Conclusion

Our study revealed that most common causes of cervical lymphadenopathy included reactive lymphadenitis(44 cases) followed by tuberculous lymphadenitis (32 cases).Incidence of other diseases causing cervical lymphadenopathy like kikuchi's disease(1 case), kimura's disease(1case) and malignant secondaries (2 cases) was found to be low in the present study. Though the incidence of such rare diseases is low, it should always be considered as possible causes for cervical lymphadenopathy.

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