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Clinicopathological study of cervical lymphadenopathy

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ABSTRACT

Background: This study was carried out with a broad objective of assessing relative diagnostic efficacy of the clinical evaluation, fine needle aspiration biopsy and open biopsy. The objective was to study the confirmatory diagnosis of the underlying pathological variants, the incidence of the malignancies, presenting with cervical lymphadenitis and also to diagnose various etiologies of cervical lymphadenitis in all age groups.
Methods: Patients attending the ENT and surgery OPD of BTGH and General hospital, Gulbarga, of all age groups and both genders having the neck swelling for more than three weeks were subjected for the study.
Results: This study has shown that the 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 the elderly age group.
Conclusions: From this study it can be concluded that in cervical lymphadenopathy clinical evaluation followed by FNAC is most reliable diagnostic tool, which is easy to perform, cost effective, speedy results can be obtained and accurate. The main requirement for this is the specialist input.

Keywords: Lymphadenopathy, Tubercular lymphadenitis, FNAC

INTRODUCTION

Enlargement of cervical lymph nodes is a common clinical condition encountered by the clinicians. As enlargement of the lymph nodes more than 1cm^2 indicates a clinical manifestation of regional or systemic disease and serves as an excellent clue to the underlying disease.[1] Persistent enlargement of the lymph node necessitates detailed investigations to reveal an underlying pathology. Although reasonably accurate diagnosis can be made clinically, histopathological examinations are mandatory to establish and confirm the diagnosis. These can be overcome by doing FNAC, as it is obtained easily and quickly which is simple and cheap and requires only a specialist input (cytologist).[2]

The commonest causes for cervical lymphadenopathy are tuberculous lymphadenitis which is a common manifestation of extrapulmonary tuberculosis, secondaries in the cervical lymph nodes, lymphomas and nonspecific lymphadenitis.[3] In India tuberculosis is a major health problem due to enormous social and economic constraints. The human immunodeficiency virus (HIV) epidemic has been associated with an increase in the total incidence of TB and an increased proportion of miliary, disseminated, and extrapulmonary TB cases including lymphadenitis.[4]

The gold-standard biopsy modality in the workup of a neck mass is fine-needle aspiration (FNA). The sensitivity and specificity of FNA for both pediatric and adult head and neck masses have been reported to be approximately 97% when diagnostic material is obtained. FNA should always be done before the consideration of any open procedures. FNA can be used for both cytology and culture (in cases in which a suspected infectious neck mass does not respond to conventional antibiotic therapy).

This study was carried out with a broad objective of assessing relative diagnostic efficacy of the clinical evaluation, fine needle aspiration biopsy and open biopsy. Thus a protocol for early management of cervical lymphadenopathy can be evolved. The objective was focused to study the confirmatory diagnosis of the underlying pathological variants, the prognosis of the disease, the incidence of the malignancies of aero digestive tract, presenting with cervical lymphadenitis and also to diagnose various etiologies of cervical lymphadenitis in all age groups.

METHODS

The study was designed and conducted in ENT department at BTGH and district hospital, Gulbarga, from October 2011 to August 2012 in patients out patients and in patients. Patients selected with history of cervical lymphadenopathy who came to hospital. Number of cases studied are 50.

The diagnosis of cervical lymphadenopathy was made after taking detailed history, clinical examination and necessary investigations according to the proforma. All the patients were subjected to FNAC and in relevant cases biopsy was done.

Inclusion criteria

Selected patients who attend ENT OPD with cervical lymphadenopathy of all age groups and both sexes included.

Exclusion criteria

Acute infective lymphadenitis cases excluded from this study.

RESULTS

This study was conducted in 50 cases cervical lymphadenopathy at BTGH, Gulbarga, from October 2011 to August 2012. The distribution of patients of cervical lymphadenopathy according to their age group is depicted in Table 1. From the selected patients 26% patients were in the age group of 11-20 and 21-30, followed by 6 cases (12%) in 41-50 years. Only 2% of patients found in age group 71-80. The youngest patient in study was 5 years and eldest patients 75 years as in Table 1. The 50% of the patients were males and females in the study as given in Table 2.

Table 1: Distribution of patients of cervical lymphadenopathy according to their age group.

Age (in years)	TB lymphadenitis	Nonspecific lymphadenitis	Secondaries in neck	Hodgkins	Non hodgkins	Total (%)
1-10	2	3	-	-	-	5 (10)
11-20	10	3	-	-	-	13 (26)
21-30	8	3	2			13 (26)
31-40	2	-	-	1	-	3 (6)
41-50	3	2	1	-	-	6 (12)
51-60	-	-	3	-	1	4 (8)
61-70	1	1	3	-	-	5 (10)
71-80	-	-	1	-	-	1 (2)
Total	26	12	10	1	1	50

Table 2: Cervical lymphadenopathy patients with respect to sex distribution.

Sex	Number of cases	Percentage
Male	25	50
Female	25	50
Total	50	100

Table 3 shows distribution of patients of cervical lymphadenopathy according to their occupation. 52% patients were affected by TB Lymphadinitis and among them 12 (24%) were students. Only one patient was a labourer who was affected by Hodgkins and one was affected by non hodgkins. The study of their socioeconomic status was depicted in Table 4. Among 26 patients affected by Tuberculous lymphadenits 21 were low socioeconomic patients. No high socioeconomic patients were observed in those selected patients. Total 38 (76%) patients were low socioeconomic status out of selected patients in the study.

The side of lymphadenopathy was shown in Figure 1 and 23 cases (46%) were found to have in right side followed by left side 19 (38%).

Figure 3 presents consistency of lymphnodes in cervical lymphadenopathy. 39 cases were found firm and no soft consistency of lymph nodes were observed.

Matting and fixity of lymph nodes in cervical lymphadenopathy patients are presented in Table 5. Among the patients 36 (72%) were having the condition of lymph node where 5 (10%) were having fixed lymph nodes. Group of lymph nodes involved in patients

involved in this study is portrayed in Figure 4. Middle deep cervical nodes were in maximum cases (22 out of 50, 44%) followed by Upper deep cervical nodes (40%). Only one case was found Submental nodes.

Figure 5 showing incidence of malignant and benign lesions in cervical lymphadenopathy, in this study in which 76% cases were benign and remaining 24% cases were malignant. Various diseases in cervical lymphadenopathy patients are presented in Figure 6. Among the patients 26 cases (52%) were tuberculous lymphadenopathy and were the major. Hodgkins lymphoma and non hodgkins lymphoma disease cases were found in 1 case each.

Table 3: Distribution of patients of cervical lymphadenopathy according to their occupation.

Disease	House wife	Farmer	Student	Labourer	Teacher	Total (%)
Tuberculous lymphadenits	7	1	12	5	1	26 (52)
Secondaries neck	4	5		1		10 (20)
Nonspecific	2	1	6	2	1	12 (24)
Hodgk ins				1		1 (2)
Non hodgkins		1				1 (2)
Total	13	8	18	9	2	50

Table 4: Socioeconomic status in patients of cervical lymphadenopathy.

Socio economic status	Low	Middle	High	Total (%)
Tuberculous lymphadenits	21	5	-	26 (52)
Secondaries in neck	9	1	-	10 (20)
Nonspecific lymphanetitis	6	6	-	12 (24)
Hodgkin	1	-	-	1 (2)
Non hodgkins lymphoma	1	-	-	1 (2)
Total	38	12	-	50

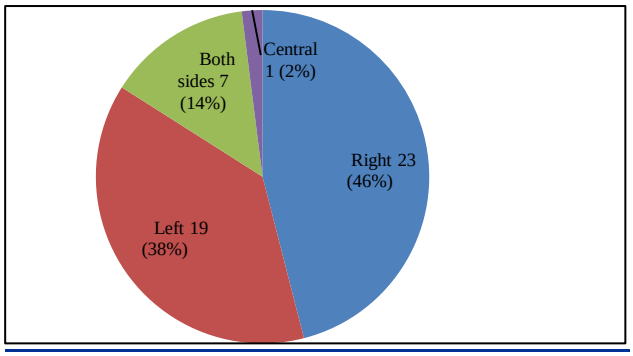

Figure 1: Side of lymphadenopathy.

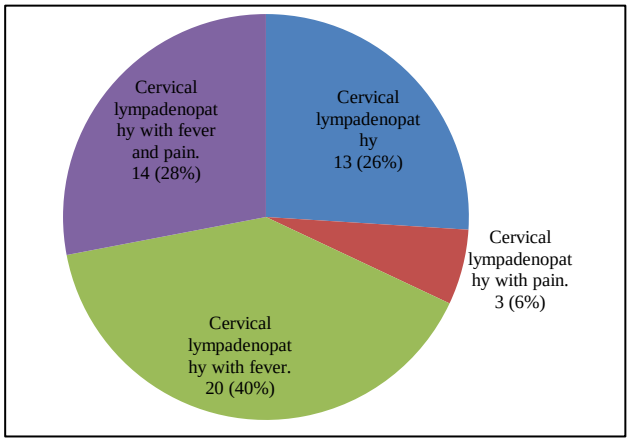

Figure 2: Distribution of patients according to their symptoms.

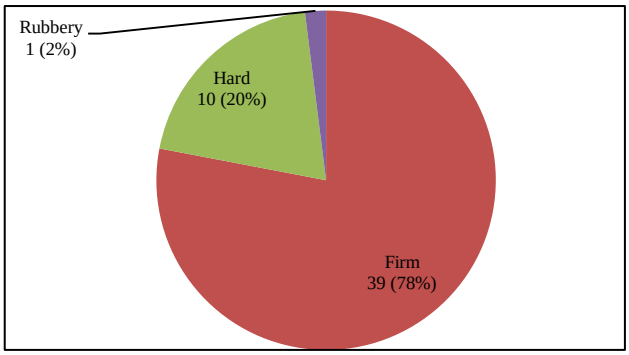

Figure 3: Consistency of lymph nodes in cervical lymphadenopathy.

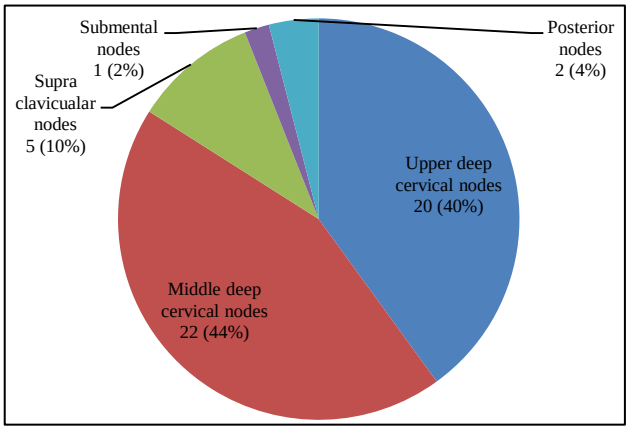

Figure 4: Group of lymph nodes involved in patients.

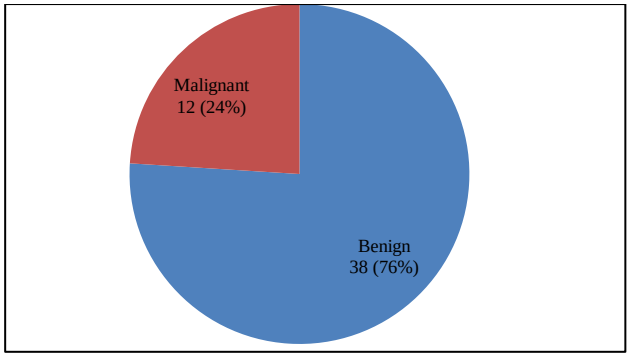

Figure 5: Benign and malignant lesions in cervical lymphadenopathy.

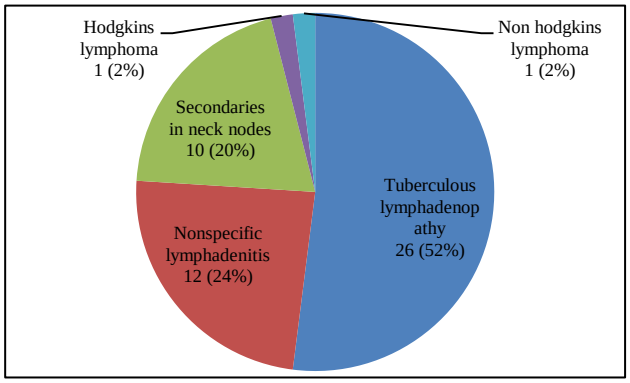

Figure 6: Various diseases in cervical lymphadenopathy.

Matting and fixity of lymph nodes in cervical lymphadenopathy patients are presented in Table 5. Among the patients 36 (72%) were having the condition of lymph node where 5 (10%) were having fixed lymph nodes. Group of lymph nodes involved in patients involved in this study is portrayed in Figure 4. Middle deep cervical nodes were in maximum cases (22 out of 50, 44%) followed by upper deep cervical nodes (40%). Only one case was found submental nodes.

Table 5: Matting and fixity of lymph nodes in cervical lymphadenopathy.

Condition of lymph node	No. of patients	Percentage
Matting	09	18
Fixed	05	10
Mobile	36	72
Total	50	100

The clinical diagnosis made among 50 cases of this study, 41 cases were consistent with FNAC result and nine were not consistent. Hence the clinical diagnostic accuracy in this study was 82% as given in Table 6.

Among 24 lymphnode biopsies done in this study reports were consistent with FNAC reports, two not consistent with FNAC reports. Hence the accuracy of FNAC with respect to biopsy in this study was 91.66% as presented in Table 7.

Table 6: Accuracy of clinical diagnosis with respect to FNAC.

Clinical diagnosis	TB lymphadenitis	Nonspecific lymphadenitis	Secondaries	Hodgkins lymphoma	Non hodkins lymphoma	Total
TBL	24	08	-	-	-	32
NSLN	-	06	-	-	-	06
SEC	-	-	10	-	1	11
HL	-	-	-	1	-	1
NHL	-	-	-	-	-	0
TOTAL	25	14	09	1	1	50

Table 7: Accuracy of FNAC with respect to lymph node biopsy.

FNAC	TB lymphadenitis	Nonspecific lymphadenitis	Hodgkins lymphoma	Nonhodkins lymphoma	Total
TBL	13	-	-	-	13
NSLN	2	7	-	-	09
HL	-	-	1	-	01
NHL	-	-	-	1	01
Total	15	7	1	1	24

DISCUSSION

More number of cases was in age group of 11-20 years and 21-30 years amounting to 26% each with 13 cases in each age group followed by 12% in the age group of 41-50 years and 10% each in 1-10 years and 61-70 years. TB lymphadenitis is observed more in age group of 11-20 years and 21-30 years. Secondaries observed in 51-60 years and 61-70 years.

Meera bai conducted a study in 2004 and observed that more number of cases was seen in 4-30 age group 11 cases amounting to 22%. 16% in 11-20 years age group, 16% in 31-40 group TB lymphadenits was more in 21-30 age, secondaries observed in 41-50 age group.[5]

In the series of Chamyal et al 1997 incidence of cervical lymphadenopathy was highest in 41-60 age followed by 1-20 years.[6] Pranshu Bhargave et al 2002 in their series observed TB Lymphadenitis has highest incidence and in age group of 21-40 (95%).[7]

In this study males and females are affected equally with M:F ratio being 1:1. While study conducted by Meera Bai in 2004, ratio was 1.2:1, Bharghave et al M.F. ratio was 1:1.6 Richord swarz et al 1990 had a male : female ratio of 1.43: 1.[7,8] The observations made by Sarda et al 1990 had M.F. ratio of 1.3:1.[9]

TB lymphadenitis was commonly seen in students followed by house wives and labourers. High incidence of cervical lymphadenopathy is seen in low socioeconomic status patients (76%). 80.7% of TB lymphadenitis belonged to low socioeconomic status which is comparable to 63% by Meera Bai in 2004 and of Dandapat et al 1990 where they found TB incidence in low socio economic status patients amounting to 73%.[5,10]

Right side of neck was involved in 23 cases(46%) followed by 19 cases (38%) on left side, bilateral involvement is seen in 7 cases (14%) and least involved were central group accounting for 2% with 1 case, compared to the study of Meera bai in 2004 which shows left side involvement to be more common.[5] Left side of the neck was involved in 25 cases (50%) right side in 21 cases (42%) and bilateral involvement was seen in 4 cases (8%) in her study.

All the 50 cases in this study presented with swelling in the cervical region among them 13 had only swelling as symptom, 20 cases had swelling with fever, 14 cases had swelling, fever, pain and only 3 cases had swelling with pain.

Among the 50 cervical lymphadenopathy cases clinically examined 39 patients had firm consistency (78%), 10 had hard consistency accounting for (20%) and in one case rubbery consistency. In study conducted by Meera Bai 2004 firm constituted 70%, hard 28%.[5] In Chamyal et al series firm nodes constituted 65.5%, hard 29.1%, cystic 3.6% and soft 1.8%.[6]

Among 50 cases studied, it has been observed that 9 cases has matting of lymph nodes, 5 cases are fixed to the underlying structures and remaining 36 cases are mobile which is accounting for 18%, 10% and 72% respectively. Whereas it has been seen that in Chamyal and Sabarigirish series matting of cervical lymphnodes were noted in 16.4% of cases and 23.6% of cases fixity was noted. This shows that fixity of lymph nodes were much higher compared to our study.[6]

In this study it has been seen that more number of cases have been involved in middle deep cervical lymph node i.e. mid jugular accounting for 44% followed by involvement of upper deep cervical in 40% of cases, 10% in supraclavicular group, 4% in posterior triangle and 2% involving submental lymph nodes i.e. more common in level III group of cervical lymph nodes.

Study by Meera bai in 2004 shows upper deep cervical lymphnodes were involved in 35 cases middle deep cervical lymphnodes in 11 cases and supraclavicular nodes in 4 cases.[5]

In this study of 50 cases with cervical lymphadenopathy 38(76%) were benign and 12 were malignant (24%). Study by Haque et al. in the year Nov 2001 to April 2002, have seen 25.3% were malignant and remaining were benign which is comparable with our study.[6,11]

In Meera Bai study of 50 cases with cervical lymphadenopathy 34 cases (68%) were benign and 16 were malignant (32%).[5] In the study of Chamyal and Sabarigirish, benign constituted 57.2%, malignancy accounted for 40.9%.[6]

On clinical diagnosis of 50 cases 38 cases were benign of which 26 cases were TB lymphadenitis (52%), and 12 cases (24%) nonspecific lymphadenitis noted. Remaining accounted for malignancy i. e. secondaries in the neck accounted for 10 cases (20%) and lymphomas 2 cases (4%).

In the reports of Sarda et al of 359 patients 253 cases (86%) had tuberculous lymphadenitis 42 had nonspecific lymphadenitis 36 had secondaries and 18 had lymphomas.[9]

As all 50 cases were subjected for FNAC, 76% were benign lesions and 24% malignant lesions. In the benign lesions, TB lymphadenitis accounted for 52%, nonspecific lymphadenitis 28%. In malignancy 10 cases i.e. 20% were secondaries in neck and 4% lymphomas. The clinical diagnosis made among 50 cases of this study 41 cases were consistent with FNAC results, 9 cases were not consistent, hence the clinical diagnostic accuracy in this study is 82%. The overall clinical diagnostic accuracy in Chamyal and Sabargirish study was 88.3% which is comparable to the present study.[6]

Out of 50 cases, 24 were subjected for the biopsy of which 15 (30%) have been turned out to be tuberculous and 7 (14%) as reactive lymphadenitis i.e. nonspecific lymphadenitis. 10 cases of secondaries (20%) did not undergo biopsy as it may intervene in the future management of the case and hence were referred to higher centre for an appropriate management. It has been

observed by Sarda et al, opined to defer from open biopsy of neck nodes in malignancy for the possibility of tumour seedling, increase in distant metastases and local tumour recurrence.[9]

Among 24 biopsies done in this study 22 FNAC reports were consistent with biopsy reports two were not consistent, hence the accuracy of FNAC with respect to biopsy in this study was 91.66%. Sarda and coworkers reported diagnostic accuracy of FANC was 97%.[9] In Chamyal et al series FNAC accuracy was 88.3% and Bhargava et al 2002 series FNAC accuracy was 98%.[6,7].

Total 50 cases were studied of which 26 cases consisted of tuberculous lymphadentis, 10 cases of secondaries in neck, 12 cases of nonspecific lymphadentis one case of Hodgkins lymphoma and one case of non Hodgkins lymphoma.

It is noted from this study data that FNAC forms an important diagnostic tool to aid in the diagnosis of cervical lymphadenopathy as FNAC is very cost effective. Safe and easily done. From all the above observations a protocol can be formulated for evaluation of the cervical lymphadenopathy cases.

Table 8: Comparison with other similar studies.

Author	Total cases	TB lymphadenitis	Nonspecific lympadenits	lymphoma	metastatic	Others
Meera bai 2004[5]	50	31	3	2	14	-
Chamyal et al 1997[6]	110	26	37	17	28	2
Pranshu Bhargave 2000[7]	100	53	66	-	1	7
Present study 2012	50	26	12	10	1	1

CONCLUSION

From this study it can be concluded that in cervical lymphadenopathy clinical evaluation followed by FNAC is most reliable diagnostic tool, which is easy to perform, cost effective , speedy results can be obtained and accurate. The main requirement for this is the specialist input. Biopsy is very useful in cases of lymphomas which acts as the diagnostic tool and also when FNAC report is inconclusive, in nonspecific lymphadenitis it is very much helpful to get an accurate diagnosis and aids in an appropriate management.

Hence this study is very helpful for the patients of HK region which is a backward area and will aid in appropriate management with minimal investigative procedures and also create an awareness regarding the highest incidence of tubercular lymphadenitis in this area.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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