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Correlation between FNAC with small Bore Needle and Wide Bore Needle of Tubercular Cervical Lymphadenopathy

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Original Research Article

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Abstract: The Aim of the study is to describe various cytological characteristics of TB cervical lymphadenitis and to compare diagnostic yield of FNAC with small bore needle and wide bore needle in diagnosing TB cervical lymphadenitis. This prospective study was performed using a database with 76 patients with clinical suspicion of TB cervical lymphadenopathy during August 2016- August 2017 .In the present study most common age group to be affected was 21-29 years with male to female ratio of 1:2.3. posterior triangle group of lymph nodes were involved in 32 (53.33%) patients. 34 were right sided and 20 were left sided. 53(88.33%) patients had lymph node size less than 3 cm. 43 (71.66%) cases had matted lymph nodes. 6.66% patients were found to be sputum positive for AFB. small bore needle FNAC (23G) which revealed TB lymphadenopathy in 52 (68.42%) cases, suppurative inflammation in 4 (5.26%) cases and inconclusive in 20 (26.31%). FNAC (18G) which reveled TB lymphadenopathy in 46(60.52%) cases, suppurative inflammation in 4(5.26%) cases and inconclusive in 26 (34.21%) cases. 20 cases with inconclusive FNAC were subjected to excisional biopsy and HPE which showed TB lymphadenopathy in 8 (40%) cases, Chronic Nonspecific Lymphadenitis in 10 (50%) cases and metastatic deposits in 2 (10%) cases. Sensitivity of small bore needle FNAC in diagnosis of TB lymphadenopathy is 88.23%. Sensitivity of large bore needle FNAC in diagnosis of TB lymphadenopathy is 81.08% .Hence small bore needle may be preferable to large bore needle as first line diagnostic tool in the evaluation of clinically suspected Tuberculous cervical lymphadenitis.
Keywords: Cervical lymphadenopathy, small bore needle, wide bore needle, FNAC.

INTRODUCTION

Tuberculosis affects 1/3 of the world's population among which seventy five percent is in developing countries between 15-50 years. When tuberculosis involves organs other than the lungs, it is termed as extra pulmonary tuberculosis. According to RNTCP Extra Pulmonary Tuberculosis (EPTB) accounts for 18% of all tuberculosis cases [1]. Tubercular lymphadenopathy is the most common extra pulmonary form of tuberculosis and accounts for 35% of cases. Tuberculous lymphadenitis in the cervical region is known as scrofula, a term derived from the Latin for "glandular swelling." The disease was known as the "King's Evil" in the middle Ages because of the widespread belief that it could be cured when the affected individual was touched by royalty. Definitive diagnosis of lymphnode TB is established by visualizing Mycobacteria on histopathology sections or on smears stained for Acid Fast Bacilli or by Mycobacterial culture. FNAC has been indiacted as the first diagnostic technique for the detection of peripheral lymphadenopathy because excision biopsy is associated with certain morbidity [2]. FNAC is a noninvasive, pain free, outpatient procedure with no morbidity. It is a safe, cheap and reliable procedure for diagnosis of peripheral lymphadenopathy [3].

Till date there has been many studies regarding the usage of different gauge needles (18 gauge to 24 gauge) in FNAC for the diagnosis of TB lymphadenitis and there has been no standard comparison between small bore and large bore needle. Therefore, in the present study small (23G) bore needle and large (18G) bore needle were taken as standard for performing

FNAC and comparison was done to establish a diagnostic relationship.

METHODOLOGY

Study setting

The present study was carried out at department of pulmonary medicine in Chest Hospital Hanmakonda. Data collection: This prospective study was performed using a database with 76 patients with clinical suspicion of TB cervical lymphadenopathy during August 2016- August 2017. Age more than 12 years with clinical presentation of unilateral or bilateral cervical lymph node swelling are included. Patients with bleeding disorders, retroviral positivity, hard lymphnodes were excluded..

Procedure

Aspirations were performed using 23 gauge needle and 18 gauge needle with disposable 10 ml plastic syringe separately. After the overlying skin was stretched, the lymph node was grasped between the index finger and thumb of the left hand; a sterile needle attached to 10 ml syringe was pierced obliquely into the lymph node. The plunger was then withdrawn to create negative pressure. With the negative pressure intact, the needle was moved to and fro within the node several times to aspirate adequate material. The negative pressure was released and the needle was removed from the mass for all cases two types of smears were prepared. One smear was fixed with alcohol and stained with Haematoxylin and Eosin (H & E) and the other smear was stained with Ziehl–Neelsen (Z-N) technique.

Statistical analysis: Data was analysed by statistical package for social sciences (SPSS) Version 16.0. Numerical data was summarised by mean ± standard deviation for continuous normal data and median ± Inter-Quartile Range for continuous non normal data/ordinal data. Categorical data was summarized by count and percentages. The association between categorical variables was done by Chi square test. All the P values less than 0.05 were considered as statistically significant.

RESULTS

In the present study total 76 patients were included with clinically suspicious for Tubercular cervical lymphadenopathy. Mean age of the patients was 33.76. Most of the patients were in the age group of 21-29 years. Out of 76 clinically suspicious for TB cervical lymphadenopathy cases, 60 patients were confirmed as TB cervical lymphadenopathy by diagnostic methods like FNAC and excisional biopsy. Out of 60 confirmed cases of TB cervical lymphadenopathy males were 18(30%) and females were 42(70%). (Table 1). 50(83.32%) patients had history of less than 2 months duration of neck swelling and 10(16.66%) patients had history of more than 2 months duration of neck swelling. 42(70%) patients had history of constitutional symptoms and 18(30%) patients had none. 13(21.66%) patients had history of contact with pulmonary Tuberculosis patient. Most commonly involved lymphnode group was posterior triangle group seen in 32(53.33%) patients followed by jugular group in 20(33.33%) patients followed by sub-mandibular group in 8(13.33%) patients. 53(88.33%) patients had lymph node size less than 3cm and 7(11.66%) patients had lymph node size more than 3cm.unilateral TB cervical lymphadenopathy was seen in 54(90%) patients and bilateral involvement was seen in 6(10%) patients. Single group of lymph node involvement was seen in 36 patients, 2 groups of lymph node involvement was seen in 18 patients and more than 2 groups of lymph node involvement was seen in 6 patients.17(28.33%) patients had discrete lymphnodes and 43(71.66%) patients had matted lymphnodes.(Table 2). 4(6.66%) patients had sputum smear positive for AFB and the remaining 56(93.33%) patients were sputum smear negative for AFB. 6(10%) patients revealed Chest X ray lesions suggestive of pulmonary TB, and the remaining 54(90%) patients had normal Chest X ray. mantoux test positive in 46(76.66%) patients and negative in 14(23.34%) patients. 12(20%) patients had lymph node smear positive for AFB and the remaining 48(80%) patients had lymph node smear negative for AFB.(Table 3). FNAC with small bore needle (23G) revealed 52(68.42%) TB cases, 4(5.26%) suppurative inflammation cases and 20(26.31%) inconclusive cases. Out of 52 TB cervical lymphadenopathy cases, 30(57.69%) patients had epithelioid granulonma with caseous necrosis, 10 (19.23%) patients had epithelioid granulonma without caseous necrosis, and 12 (23.07%) patients had only caseous necrosis. FNAC with large bore needle (18G) revealed, 46(60.52%) TB cases, 4(5.26%) suppurative inflammation cases and 26(34.21%) inconclusive cases. (Table 4). Out of 46 TB cervical lymphadenopathy cases, 28(60.86%) patients had epithelioid granulonma with caseous necrosis, 6(13.06%) patients had epithelioid granulonma without caseous necrosis, 12 (26.08%) patients had only caseous necrosis.20 inconclusive FNAC cases were subjected to excisional biopsy and HPE which revealed 8(40%) TB cases, 10(50%) chronic nonspecific lymphadenitis cases and metastatic deposits in 2(10%) cases.(Table 5). Sensitivity of small bore needle FNAC in diagnosis of TB lymphadenopathy is 88.23%. Sensitivity of large bore needle FNAC in diagnosis of TB lymphadenopathy is 81.08 %.(Table 6).

Table−1: Etiological distribution

DIAGNOSIS	No. of patients	Percentage(%)
Tubercular lymphadenopathy	60	78.94
Suppurative lymphadenopathy	4	5.26
Chronic nonspecific lymphadenopathy	10	13.15
Metastatic deposits	2	2.63
Total	76	100

Table−2: Age and gender distribution of tb cervical lymphadenopathy

Age in years	Male	Female	Total	Percentage (%)
12-20	0	4	4	6.66
21-29	8	17	25	41.66
30-38	4	11	15	25
39-47	4	7	11	18.33
48-56	1	2	3	5
57-65	1	1	2	3.33
TOTAL	18	42	60	100.0

Table−3: Clinical profile of tuberculous cervical lymphadenitis

Variable		Number of patients	Percentage (%)
Duration of Neck swelling	<1 month	16	26.66
	1-2 months	34	56.66
	3-5 months	6	10
	>5 months	4	6.66
Constitutional symptoms	Present	42	70
	Absent	18	30
PTB contact history	Present	13	21.66
	Absent	47	78.33
Group of lymphnodes	Posterior Triangle	32	53.33
	Jugular	20	33.33
	Submandibular	08	13.33
Size of lymph node	<3 cm	53	88.33
	>3 cm	07	11.66
Side	Unilateral (Rt)	34	56.66
	Unilateral (Lt)	20	33.33
	Bilateral	06	10
Presentation	Discrete	17	28.33
	Matted	43	71.66
Number of groups	Single	36	60
	Two groups	18	30
	>2 groups	06	10

Table-4: Investigations

Variable		Number of Patients	Percentage (%)
ESR (mm/hr)	<20	11	18.33
	>20	49	81.66
Sputum for AFB	Positive	4	6.66
	Negative	56	99.33
Chest X ray	Positive	6	10
	Negative	54	90
Mantoux test	Positive	46	76.66
	Negative	14	23.33
FNAC Smear	Positive	12	23.08
	Negative	40	76.92

Table-5: Fnac with 23g & 18g needle results

FNAC FINDINGS	23 G NEEDLE FNAC		18G NEEDLE FNAC	
	No of patients	Percentage (%)	No of patients	Percentage (%)
Tubercular	52	68.42	46	60.52
Suppurative	4	5.26	4	5.26
Inconclusive	20	26.31	26	34.21
Total	76	100	76	100
SENSITIVITY	**88.23**		**81.08**	

Table-6: Histo-pathological diagnosis of inconclusive fnac cases

Histo-pathological diagnosis	No of patients(n=20)	Percentage (%)
Tubercular	8	40
Chronic non specific lymphadenitis	10	50
Metastatic deposits	2	10
Total	20	100

DISCUSSION

In the present study most common age group to be affected was 21-29 years with male to female ratio of 1:2.3 Which is comparable to studies done by P. Kumar Biswas *et al.* [4] & Paliwal Nidhi *et al*. [5] posterior triangle group of lymph nodes were involved in 32 (53.33%) patients Which is comparable to studies done by Prasada rao dasari *et al.* [6], Shreshtha *et al.* [7], Baskota *et al.* [8]. In the present study 34 were right sided and 20 were left sided and 53(88.33%) patients had lymph node size less than 3 cm which is comparable to studies done by Prasada rao dasari *et al.* [6] and Sreenidhi G.M *et al.* [9]. In the present study 43 (71.66%) cases had matted lymph nodes Which is comparable to studies done by Prasada rao dasari *et al.* [6], Sharma *et al*. [10].6.66% patients were found to be sputum positive for AFB Which is comparable to studies done by Maharjan M *et al.* [11], Jha BC *et al.* [12]. 12(23.07%) cases were smear positive for AFB Which is comparable to studies done by Puja Sharma *et al.* [13], Agarwal *et al.*[14]. small bore needle FNAC (23G) which revealed TB lymphadenopathy in 52 (68.42%) cases, suppurative inflammation in 4 (5.26%) cases and inconclusive in 20 (26.31%) cases Which is comparable to studies done by Prasada rao dasari *et al*. and Sreenidhi G.M *et al*. FNAC (18G) which reveled TB lymphadenopathy in 46(60.52%) cases, suppurative inflammation in 4(5.26%) cases and inconclusive in 26 (34.21%) cases Which is comparable to studies done by Maharjan M *et al.* 20 cases with inconclusive FNAC were subjected to excisional biopsy and HPE which showed TB lymphadenopathy in 8 (40%) cases, Chronic Nonspecific Lymphadenitis in 10 (50%) cases and metastatic deposits in 2 (10%) cases Which is comparable to studies done by Maharjan M *et al,* and Sreenidhi G.M *et al.* Sensitivity of small bore needle FNAC in diagnosis of TB lymphadenopathy is 88.23% Which is comparable to studies done by S.K. Lau *et al.* [15], Rajiv jain *et al*.[16]. Sensitivity of large bore needle FNAC in diagnosis of TB lymphadenopathy is 81.08% which is comparable to studies done by Maharjan M *et al.* Small bore needle has more

sensitivity compared to large bore needle as small bore needle (23 gauge) could diagnose 6 cases more apart from 46 cases which were diagnosed commonly by both small and wide bore needle when subjected to FNAC which is statistically not significant ($p>0.05$). This shows that both have similar diagnostic yield but small bore needle has an added advantage of being less painful and has less blood elements as compared to large bore needle. However larger sample size studies are required to substantiate our findings.

CONCLUSION

Small bore needle has an added advantage of being less painful and has less blood elements as compared to large bore needle. Hence small bore needle may be preferable to large bore needle as first line diagnostic tool in the evaluation of clinically suspected tuberculous cervical lymphadenitis.

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