

Tuberculosis and Cervical Lymphadenopathy-A Study of 175 Cases in a Tertiary Care Hospital

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Abstract

Aim: The aim of this study is to evaluate the common presentations and etiologies of cervical lymphadenopathy and to find out the frequency of tuberculosis in cases with cervical lymphadenopathy.

Background: Cervical lymphadenopathy is a common presenting complaint in an outpatient department. There are number of etiologies which can cause cervical lymph nodes to swell, ranging from simple inflammatory reactions to fatal malignancies. Tuberculosis is an important and frequent cause of cervical lymphadenopathy which is more prevalent in low income countries. Fine needle aspiration and excisional biopsies are usually done to make a definitive diagnosis.

Methods and Material: The study was conducted from July 2010 to August 2013 at the surgery department of Ziauddin Medical University hospital Karachi, Pakistan. Inclusion criteria included all patients with cervical lymphadenopathy. There was no age, gender limitations to participate in the study.

Results: Overall 175 patients with cervical lymphadenopathy participated, out of those 146 were females and 29 were males with an age range of 13 years to 67 years. Most common presentation was a neck mass which was present in 175 (100%) patients followed by 139 (79.42%) with generalized weakness, 127 (72.57%) with weight loss, 62 (35.42%) with fever, while 31 (17.71%) with headache. Examination and investigations disclosed that 109(62.28%) patients had tuberculosis, followed by 45 (25.71%) that shown reactive lymphadenopathy, 8 (4.57%) cases diagnosed as lymphoma, 7 cases (4%) had metastasis, while 6 (3.4 %) participants had acute lymphadenitis as the cause of their lymphadenopathy.

Conclusion: Cervical lymphadenopathy is prevalent in Pakistan, with most likely diagnosis as Tuberculosis, as seen in majority of the cases. Neck mass, headache and fever are the most frequent presentation of cervical lymphadenopathy.

Keywords: Cervical lymphadenopathy, Tuberculosis, Lymphoma, Metastasis, Neck mass

Background

Human body consists of a number of defense mechanisms to counter infections and diseases [1]. Lymph nodes as a part of human immune system usually enlarge whenever any pathology occurs in their area of drainage [2]. Head and neck masses are a common clinical concern in infants, children and adults [3]. There are number of etiologies that can cause cervical lymph nodes to enlarge, the frequent ones being tuberculosis, reactive or inflammatory lymphadenitis and malignancy, [4] the commonest symptoms are swelling in the neck, cough, fever and anorexia [5]. Tuberculosis remains a problem throughout the world and remains a common cause of cervical lymphadenopathy in many low income countries [6]. The tuberculosis lymphadenitis is one of the most common extra pulmonary manifestations of tuberculosis [6].

Cervical lymph nodes enlargement due non-tuberculosis mycobacteria remains a diagnostic challenge because of the inconsistent reliability of clinical and laboratory findings [7]. Cervical lymph nodes can easily be detected by ultrasonography which has a sensitivity of 96.8 percent; while more advance high resolution ultrasound can detect a cervical mass measuring <2 mm in diameter while definitive diagnosis usually requires tissue biopsy or fine needle aspiration cytology (FNAC) [5,6].

Tuberculosis majorly contributes to the global disease burden, with almost one third of the world population infected by its causative organism [8]. Mycobacterium tuberculosis accounts for almost 1.3 million deaths worldwide annually [9]. Pakistan ranks amongst first

ten countries with highest burden of tuberculosis with a prevalence of 420,000 [10,11]. In Pakistan the predominant cause of cervical lymphadenopathy is tuberculosis [12].

This study was done to evaluate the presentation and etiological aspects of cervical lymphadenopathy in Karachi, Pakistan. As tuberculosis is highly prevalent in South Asia particularly in India and Pakistan, it can be misdiagnosed easily due to its nonspecific presentation, so early detection; diagnosis and prompt specific therapy can result in a better prognosis. A rationale for conducting this study was to deliver health care workers and general population, the knowledge regarding prevalence is tuberculosis in Pakistan and how it presents in majority of the cases.

Methods and Materials

This study was conducted at the surgery department, Ziauddin medical University Hospital Karachi. The period of the study was

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from July 2010 to August 2013. Ethical approval was taken from the University ethical committee before starting the study. Department of surgery, with four examiners was actively involved in the selection of the participants and conducting all aspects of the study. All causes of cervical lymphadenopathy that attended outpatient department were selected without restriction of age limit or gender. Oral and written consent was taken from all participant and they were informed that they can leave the study at any time during the study. A through history and physical examination was done on all patients. Investigations included complete blood count, ESR level and Chest X-ray. Also the abdominal ultrasonography was done to evaluate others lymph nodes status in cases where through history and clinical examination, the examiner suspected a malignancy. The FNAC was done on all patients. Final diagnosis was made according to detailed report of excision biopsy and histopathology.

The data was analyzed by Statistical Package for Social Sciences (SPSS) version 17. The results were compared with the standard data available.

Result

In total 220 patients were recruited to participate at the beginning of the study while only 175 patients remained in the study till the investigations were done. Hence study comprised of total 175 participants with response rate of 79.5 %. Age range of the participants was 13-69 years that included 146 (83.4%) females and 29 (16.6%) males. The maximum patients were in 21-30 years of age group followed by 11-20 years (Table 1).

All 175 (100%, p-value 0.02) participants in the study were presented with lump in cervical region followed by 139 (79.42%, p-value 0.36) with generalized weakness, 127 (72.57%, p-value 1.2) with weight loss, 62 (35.42%, p-value 1.64) with fever, while 31 (17.7%, 0.05) with headache (Table 2).

F.N.A.C and excision biopsy was performed on every patient in present study. Histopathology revealed that 109(62.28%) patients had tuberculosis, followed by 45 (25.71%) that shown nonspecific lymphadenopathy, 8 (4.57%) cases diagnosed as lymphoma, 7 cases (4%) showed metastasis while 6 (3.4 %) participants showed Acute lymphadenitis as the cause of their lymphadenopathy (Table 3).

AGE GROUPS (YEARS)	MALE	FEMALE	TOTAL
0-10	0	0	0
11-20	07	29	36
21-30	11	67	78
31-40	5	25	30
41-50	3	17	20
51-60	1	8	9
61-70	2	0	2
TOTAL	29	146	175

Table 1: Age distribution of 175 patients with cervical lymphadenopathy.

S.NO.	SYMPTOMS	NO.OF PATIENTS	%	P-Value
1	NECK SWELLING	175	100	0.02
2	HEADACHE	31	17.71	0.05
3	FEVER	62	35.42	1.64
4	COUGH	11	6.28	0.80
5	WEIGHT LOSS	127	72.57	1.20
6	GENERALIZED WEAKNESS	139	79.42	0.36

Table 2: Presenting symptoms of all the participants.

S.NO.	ETIOLOGY	MALE	FEMALE	TOTAL	%
1	Tuberculosis	14	95	109	62.28
2	Reactive hyperplasia	10	41	51	29.1
3	Lymphoma	03	05	08	4.57
4	Metastasis	02	05	07	4

Table 3: Frequency of causes of 175 cases of cervical lymphadenopathy.

Discussion

Tuberculosis is a major public health concern worldwide especially in countries with its high incidence and prevalence [13]. It is the most frequent infectious disease of the lymphoid tissue and is inoculable in nature [14]. Cervical lymphadenopathy can be a manifestation of simple local inflammatory reaction to a spectrum of diseases including malignant lymphomas [15].

Tuberculosis is more prevalent in low income countries like Pakistan, India and Bangladesh, as compared to high income countries [16]. In Pakistan the incidence of tuberculosis is at increase due to poor hygiene, poverty, overcrowding and massive immigration from the neighboring countries particularly Afghanistan [16] while in another study done in Germany the prevalence of tuberculosis was almost seven times higher in immigrants than the natives, and the immigrant group majority constituted Afghanis, Pakistanis and Indian nationals [17]. In our study the results have shown that majority of the patient had Tuberculosis (62%) as the cause of cervical lymphadenopathy, following by reactive hyperplasia in 29% , lymphoma in 4.57% and Metastasis in 4 % of the patients. Similar studies done in Pakistan demonstrated comparable percentage of the cases with tuberculosis in patients with cervical lymphadenopathy [13]. A study by Magsi et al showed that 51.7 % of the patients with cervical lymphadenopathy had tuberculosis while 21.43 % has reactive hyperplasia [13]. Another study done in Pakistan by Channa et al revealed that 70% of the patients with cervical lymphadenopathy were found to have Tuberculosis, diagnosed on FNAC or excisional biopsy [15] A study by Sheikh et al showed around 68.9 % of the patients had tuberculous lymphadenitis among all cases of cervical lymphadenopathy [18].

Results of a study done in China showed that the most common etiology for cervical lymphadenopathy is metastasis that is present in 37.5 % of the participants followed by tuberculosis (28%), reactive lymphadenopathy (27%) and lymphoma (7%) [19]. In another study conducted in Korea, tuberculosis was present in 22.4 % of the cases of cervical lymphadenopathy while non specific lymphadenitis and malignancies accounted for 22.4 and 9.5 percent of the cases respectively [20].

Our study demonstrated that there was an overwhelming majority of female patients with cervical lymphadenopathies visiting outpatient department, 83.4% female and 16.6% male (Odds Female/Male 5:1). In a study also done in Pakistan unfold the same percentage of female dominance having odd female/male patients having cervical lymphadenopathy being 5:1 [21]. In a study by Iqbal et al, it was mentioned that the there were 68% female patients while only 31.8% were male patients with cervical lymphadenopathy [8]. The reason for high proportion of female having cervical lymphadenopathy or tuberculosis in Pakistan could be due to the social dynamics of the country in which the majority of the female tends to stay or work inside their houses, and the closed environment and less air ventilation tends to increase the overall risk of developing infectious diseases.

Our study showed that the age group which is most effected is 21-

40 having 108 (62%) patients. study by Magsi et al showed that most of the patient (43%) were in the age group between 21-40 years of age [13]. Another study done in Pakistan showed that the age group most affected by cervical lymphadenopathy is between 13-40 [7], the reason could be that the younger age group is more concerned about their conditions and having less odds of having a comorbid condition that could mask their other symptoms.

In our study the result showed that the most common presentation was the neck swelling which was present in 100% of the patients, other presenting signs and symptoms were generalized weakness 79.4, weight loss 72.5 %, fever 32.4 %, and headache 17.7%. In a similar study, it was found out that the 100% of the patients presented with painless neck mass, followed by fever 63.7% and weight loss in 41% of the patients [19].

Due to limited financial and physical resources, this convenient method of data collection was used hence the data was gathered from only one tertiary care hospital of the city 'Karachi'. A major limitation of this study is that it cannot be generalized to whole population of Pakistan; because of less number of participants that were selected from only one city, for this reason the results of this study are not representative of the whole country.

Conclusion

Majority of the patients with cervical lymphadenopathy are diagnosed with tuberculosis in Pakistan. The main reasons for high prevalence of tuberculosis in Pakistan are poor hygiene, poverty, overcrowding and immigration at a massive scale. Timely diagnosis and management is critical in lowering the overall prevalence, therefore it is essential to have awareness regarding common presentations of tuberculosis such as fever, headache, weight loss, lymphadenopathy, generalized weakness and cough.

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