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Cytologic patterns of lymph node diseases in Hawassa University Referral Hospital, Southern Ethiopia

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ABSTRACT

Objective: To assess the cytological patterns of lymph node diseases in patient attended Hawassa University Referral Hospital, Southern Ethiopia.**Methods:** A five years retrospective descriptive study design was conducted on fine needle aspiration cytology reports of patients referred to pathology laboratory of Hawassa University Referral Hospital from September, 2009 to September, 2014.**Results:** A total of 1067 lymph nodes were aspirated in the study period. Cervical lymphadenopathy was the most frequent (48.82%) followed by submandibular (22.77%) lymph nodes. The age group of 11-20 years was the most affected age group while age group above 60 with less frequency. Tuberculosis lymphadenitis was the highest (48.82%), chronic non-specific lymphadenitis (20.33%), reactive (16.21%), pyogenic abscess (5.99%) and the rest were malignancies.**Conclusions:** Lymphadenopathy can be associated with a wide range of disorders. However tuberculosis lymphadenitis is the most common cause of enlarged lymph node in the study area.

1. Introduction

Lymph nodes comprise an important part of the defense system of the human body, as filters or traps for foreign particles. Lymphadenopathy refers to lymph nodes which are abnormal in size, number or consistency[1]. The cause may range from an infectious process to a malignant disease[2,3]. It is difficult to diagnose cause of lymphadenopathy on the basis of the history and physical examination alone. Fine needle aspiration cytology (FNAC) is the best method of diagnosing enlarged lymph nodes in resource limited setup. It plays a vital role due to its cost effectiveness, simplicity, accuracy, completely safe and quick method for diagnosis of lymphadenopathy and it reduces the need for surgical biopsy[4].

Lymphadenopathy is becoming common pathological problem in most part of the world and a number of studies have been done to assess the extent of the problem. It is a clinical manifestation of regional or systemic disease which serves as an excellent clue to the underlying disease[5]. There is a wide variation in

pattern of disease in different ethnic groups and in various countries[6-9]. The knowledge of the pattern of lymphadenopathy in a given geographical region is essential for making a confident diagnosis of suspecting disease in that particular location.

There are different conditions which present with lymph node enlargement; however the most common cause for enlargement of regional lymph nodes appears secondary to tuberculosis lymphadenitis, malignancies, reactive hyperplasia, Hodgkin lymphoma, non-Hodgkin lymphoma, pyogenic abscess and other chronic inflammation[10]. The presentations of lymph node enlargement have characteristic feature according to the causative factor and they may present as acute painful swellings due to infections or as chronic painless swelling. The aim of this study was to assess the cytological patterns of lymph node diseases in patients attended in Hawassa University Referral Hospital in five years period.

2. Materials and methods

Cytological patterns of lymphadenopathy of FNAC reports were studied by cross-sectional retrospective descriptive design from September, 2009 to September, 2014 in Hawassa University Referral Hospital pathology laboratory. This hospital provides medical service to population estimated to fifteen million in southern part of Ethiopia and also provides practical training to medicine and health science students. This referral

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hospital is located in Hawassa city. Hawassa is the capital city of the Southern Nation Nationalities and Peoples' Regional State located at 275 km south of Addis Ababa, capital city of Ethiopia.

All patients with lymphadenopathy referred to pathology laboratory in the study period were included in the study. In this laboratory, all FNAC reports were recorded in both soft copy and carbon copy and then these records were used to assess pattern of lymphadenopathy in Hawassa and its' district population. The data were analyzed using SPSS version 16 statistical software package to determine frequency or pattern of the enlarged lymph node diseases. Institutional ethical clearance was obtained from research review board of College of Medicine and Health Sciences, Hawassa University and permission was obtained from the head of pathology department before using the data.

3. Results

A total of 1067 lymph node diseases of FNAC results with full information were obtained from pathology laboratory of Hawassa University Referral Hospital in the study period. Male to female ratio of patient involved in the study was 1:1.06 with age range from 1 to 85 years old and the mean age was 24 years old. Cervical lymph nodes were the most frequent 521 (48.82%) lymphadenopathy followed by 243 (22.77%) and 122 (11.43%) in submandibular and axillary lymph nodes respectively. Among the remaining cases, 65 (6.09%) were inguinal, 47 (4.40%) were generalized and 69 (6.46%) were supraclavicular, auricular, submental and others (Figure 1).

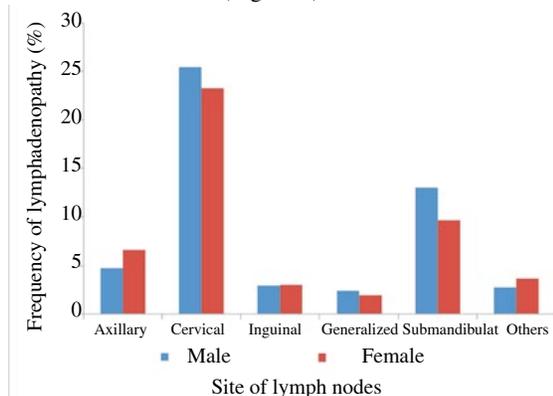


Figure 1. Magnitude of lymph nodes diseases by site of lymph nodes.

The highest age groups affected with lymph node diseases in the study area were the 11-20 and 21-30 years with 312 (29.24%) and 311 (29.15%) cases respectively, whereas age group above 60 was the least frequent (Table 1). The highest number of lymph node disease was recorded in 2014 and frequency was increasing in the study area.

Tuberculosis lymphadenitis with 521 (48.82%) cases was the highest cause of lymphadenopathy followed by chronic non-specific lymphadenitis with 217 (20.33%) cases whereas Hodgkin lymphoma with 7 (0.65%) cases was the least. The highest tuberculosis lymphadenitis was observed in age group of 11 to 20 years old, with 178 (34.16%) cases in this group. Age group of 21 to 30 years old was more affected with pyogenic abscess and Hodgkin lymphoma than the others. While reactive lymphadenitis was more in age group below 10 years. High frequency of non-Hodgkin lymphoma was observed in males with related distribution in all age groups. Metastatic tumors were observed

to be the highest in age group of 31 to 40 years old and high frequency was recorded in females (Table 2).

Table 1

Pattern of lymph node diseases in Hawassa University Referral Hospital by age group (n = 1067).

Age group	TBL	Reactive	CNS	Pyogenic abscess	HL	NHL	Metastatic tumors	Others	Total
< 10	90	54	52	10	1	3	4	2	219
11-20	178	44	59	16	1	6	4	4	312
21-30	161	49	53	26	4	2	8	8	311
31-40	53	14	22	9	1	4	11	-	114
41-50	24	4	18	1	-	6	5	1	59
51-60	9	6	5	1	-	2	6	1	30
> 60	6	2	5	1	-	5	1	2	22
Total	521	173	217	64	7	28	39	18	1067

TBL: Tuberculosis lymphadenitis; CNS: Chronic nonspecific; HL: Hodgkin lymphoma; NHL: Non-Hodgkin lymphoma; Others: Supraclavicular, submental and auricular.

Table 2

Pattern of lymph node diseases in Hawassa University Referral Hospital by sex (n = 1067) [n (%)].

Type of lymphadenitis	Male	Female	Total
TBL	265 (24.83)	256 (23.99)	521 (48.82)
Reactive	84 (7.87)	89 (8.34)	173 (16.21)
CNS	118 (11.06)	99 (9.27)	217 (20.33)
Pyogenic abscess	34 (3.18)	30 (2.81)	64 (5.99)
HL	5 (0.46)	2 (0.19)	7 (0.65)
NHL	20 (1.87)	8 (0.75)	28 (2.62)
Metastatic	14 (1.31)	25 (2.34)	39 (3.65)
Others	10 (0.93)	8 (0.75)	18 (1.68)
Total	550 (51.55)	517 (48.45)	1067 (100.00)

TBL: Tuberculosis lymphadenitis; CNS: Chronic nonspecific; HL: Hodgkin lymphoma; NHL: Non-Hodgkin lymphoma; Others: Supraclavicular, submental and auricular.

4. Discussion

The pattern of lesions in current study varied from nonneoplastic lesions like tuberculosis lymphadenitis, chronic nonspecific and reactive lymphadenopathy to neoplastic lesions like metastatic lymphadenopathy and lymphomas. Lymphadenopathy is a commonly encountered clinical manifestation that requires prompt and accurate diagnosis so that a proper treatment protocol can be started as early as possible. In our study, localized lymphadenopathy were the highest, which can occur from infection of the node or from an infection and its drainage area was a more common presented finding than generalized lymphadenopathy[11].

In our study cervical lymph nodes were the most involved area. This study is in lined with study done in Gondar, Northwest Ethiopia[8,12,13]. A wide variety of diseases like upper respiratory tract infections, otitis, tuberculosis and conjunctivitis are frequently associated with cervical lymphadenopathy. Most affected age group with lymphadenopathy in the current study was in age of 11-20 years and 21-30 years. Similar studies were recorded in different part of the world[7,14]. The differential diagnosis of lymphadenopathy changes substantially with age.

In the current study, tuberculosis lymphadenitis was the highest (48.82%) cause of lymphadenopathy. Our study was comparative

with study done in Kathmandu (48.2%)[15], Surat, Indian (50.52%)[16] and Northwest Ethiopia (41%)[12]. In current study, as whole tuberculosis lymphadenitis was predominating cause of lymphadenopathy. Moreover, age group of 11-20 was recorded to be the highest magnitude of tuberculosis lymphadenitis (57.1%) within the age group. The current study was in agreement with Southern India[7], Karachi Pakistan[14]. The world wide increasing incidence of HIV infection, tuberculosis is being frequently reported case[17]. This indicates that tuberculosis is still one of the leading health problems in developing countries, with vast social and massive economic implications. The difference between our finding and other studies might be due to differences in sociodemographic characteristics of study participants.

Chronic nonspecific lymphadenopathy was the second frequent cause of enlarged lymph nodes in our study. In some cases, the differential diagnosis of lymphadenopathy may be broad and sometimes difficult to specify to wards to specific diagnosis. On the other hand, in the age group below 10 years, the second cause of lymphadenopathy was reactive in nature accounting for 24.6% of the cases in this group. This result correlates with study done in India[7].

Malignancies were recorded to be the least causes of lymph node enlargement in our study with patients ranging from early to advanced age. Metastatic tumors were only 3.65% which is the least as compared to study done in West Bengal (India), 79.7%[18] and in Nigeria, 26.5%[19]. And female patients were more affected in our study as studies done in different parts of the world[20-22]. This might be secondary to metastatic breast cancer.

Since lymphadenopathy can be associated with a wide range of disorders spanning relatively benign medical problems to life-threatening diseases such as malignancies, the discovery of enlarged nodes requires an accurate diagnosis that demands a systematic evaluation. Lymphadenopathy can be associated with a wide range of disorders however tuberculosis lymphadenitis is the most common cause of enlarged lymph node in the study area.

Conflict of interest statement

We declare that we have no conflict of interest.

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