ORIGINAL ARTICLE J. Med. Sci. (Peshawar, Print) October 2013, Vol. 21, No. 4: 168-170

# CERVICAL LYMPHADENOPATHY AND RATIO OF MALIGNANCY

**Asghar Ullah Khan[1], Inayat Ullah Khan[1], Muhammad Asghar Khan[2], Akbar Shah[3], Naseer Ahmed[1]**

[1]Department of ENT, Khyber Teaching Hospital, Peshawar - Pakistan

[2]Department of Surgery, Khyber Teaching Hospital, Peshawar - Pakistan

[3]Department of Accidents and Emergency, Khyber Teaching Hospital, Peshawar - Pakistan

## ABSTRACT

**Objective:** To find out the ratio of malignancy and different pathologies involving cervical lymph nodes in order of its frequency and proper diagnostic protocol.

**Material and Methods:** This prospective descriptive study was conducted at the ENT Departments of Khyber Teaching Hospital, Peshawar from June 2007 to December 2010. A total of 150 patients were included in this study. Fine needle aspiration cytology (FNAC) was primarily carried out in all cases while biopsy i.e. incisional/ excisional performed in cases where FNAC was inconclusive or diagnosis of malignancy was to be confirmed.

**Results:** Total 150 patients aged 3-74 years with a mean of 35.44 + 17.06SD. The male to female ratio was 1.2:1. Metastatic lymph node were found in 44 (29.33%) cases after tuberculosis which was the most common cause of cervical lymphadenopathy in 54 (36%), followed by reactive hyperplasia 27(18.66%) and lymphoma in 22 (14.66%), including 10 cases of Hodgkin's lymphoma and 12 cases Non Hodgkin's lymphoma, 2 (1.33%) patient had Kikuchi lymphadenitis and one case proved to be sarcoidosis.

**Conclusion:** Early accurate diagnosis of cervical lymphadenopathy is important for appropriate treatment of the underlying condition and prevents unnecessary complications.

**Key Words:** Cervical, lymphadenopathy, metastatic, lymph node, FNAC.

## INTRODUCTION

The head and neck has an extremely rich lymphatic drainage, an enlarged neck node is a common clinical observation and the differential diagnosis is wide, ranging from simple benign conditions to malignancy, diagnosis of malignant neck node needs a systematic approach is important. An enlarged neck node is a common clinical observation and the differential diagnosis is wide-ranging, from benign infections to malignant conditions[1]. The head and neck has an extremely rich lymphatic drainage. There are numerous lymph nodes in the neck both superficial and deep[2,3]. The lymphatic drainage is from the scalp, face as well as from the nose, sinuses, nasopharynx, upper aero digestive organs, salivary glands, ear and thyroid regions[4]. It is important to have knowledge of regional drainage of specific group of lymph nodes[5]. Tubercular and malignant lymph nodes commonly present as cervical lymphadenopathy[6]. It cannot be easily diagnosed on clinical grounds or by routine laboratory investigations alone[7].

**Address for Correspondence:**
**Dr. Asghar Ullah Khan,**
Consultant ENT Deptt.
Khyber Teaching Hospital, Peshawar - Pakistan
Contact: 0333-9266149
Email: drasghar_1962@yahoo.com

A detailed history, clinical examination and series of investigations may be required to reach a definite diagnosis in order to start meaningful treatment[8]. The workup for the diagnosis of enlarged lymph nodes in the neck includes clinical examination, Full blood count (FBC), Erythrocyte sedimentation rate (ESR), imaging studies, lymph node FNA and open biopsy. FNAC is reliable, safe and accurate test as first line for evaluation of cervical lymphadenopathy. It can differentiate inflammatory and infective processes from neoplastic ones and avoids unnecessary surgeries[9]. In some cases incisional or excisional biopsy is still required to reach a definitive diagnosis[10] . The purpose of this study was to find out the ratio of the malignant nodes and the possible risk factors in the cervical lymphadenopathy by a systematic approach.

## MATERIAL AND METHODS

This prospective descriptive study was conducted at the Department of ENT, Khyber Teaching Hospital, Peshawar, from June 2007 to December 2010. One hundred and fifty patients were included in this study by convenient non probability sampling. The patient's inclusion criteria were palpable enlarged lymph nodes in the neck for more than one-month duration not responding to conservative treatment, of both sex and all age group.

Exclusion criteria were patients with thyroidal, non nodal and acute inflammatory nodal lesion in the drainage area of neck lymph node. All patients in this study were subjected to detailed history, general physical and ENT examination including oral cavity, nose, larynx oropharynx, hypopharynx, nasopharynx and neck examination in a systematic order for size, site, consistency and number of nodes. Base line laboratory investigations included full blood counts, ESR, ultra sound, X-ray chest and FNAC carried out in all cases. Open biopsy was done in those cases where FNAC was inconclusive. Patients with metastatic malignant node and no detectable primary were subjected to panendoscopy to look for the primary site of tumour. The data was analyzed in ratio, percentage, mean and frequency etc. using SPSS version 12.

## RESULTS

A total of 150 patients were enrolled in this study. The age was ranging between 3 to 74 years, {mean age of 35.44 ± 17.06 SD}. Including 82 male and 68 females. Male to female ratio was 1.2:1 (Figure 1) The study revealed that 54(36%) were tuberculous lymphadenitis, 44(29.33%) were metastatic nodes, 27(18%) were reactive hyperplasia, 22 (14.66%) cases were lymphomas, 3(2%) patients were reported to have Kikuchi disease Table 1.

**Table 1: Different Lymph Node Pathology In percentage (n=150)**

| S. No. | Lymph Node Pathology | Total Nol L. % of lymph nodes |
|---|---|---|
| 1. | Tuberculous Lymph Nodes | 54(36%) |
| 2. | Metastatic Lymph | 44(29.33%) |
| 3. | React. Hyperplasia of Lymph Nodes | 27(18.%) |
| 4. | Lymphoma | 22(14.66%) |
| 5. | Kikuchi/sarcoidosis | 03(2.0%) |
| | Total | 150(100%) |

In 44 cases of metastatic nodes nasopharyngeal carcinoma was found in 16 (36.3%) cases, Carcinoma Hypopharynx and oesophagus in 8 (18.45%) cases while 6(13.67%) had their primary lesions in oropharynx. three patients had primary lesion of oral cavity and tongue two patient had parotid gland malignancy whereas origin of 3(6.8%) patients couldn't be located (occult primary).

Among 34 male, 26(76.4%) had positive history of smoking at some stage of their life while non of the ladies had smoking habit. Among the 22 patient with lymphoma 12 were Non Hodgkin's and 10 were Hodgkin's lymphomas. Out of the 150 cases 59 (39.33%) patients had involvement of posterior group of cervical lymph nodes. Submandibular and upper deep cervical lymph nodes were the next common affected site having 42(28%) cases. More than one zone involvement was noted in 38% cases. In 85 (56.66%) cases there was unilateral cervical lymph node involvement and in the rest 65(43.33%) it was bilateral and mid zone. FNAC was found to be very helpful the over al sensitivity was around 90%wile incase of malignancy it was almost 98% in malignant nodes.

## DISCUSSION

In our study male to female ratio was 1.2:1. among 150 patients studied, Khan AU et al. reported 1.2:1,[11] while Siddiqui and Ahmed reported 52.9% male and 47.1% female cases (male to female ratio of 1.13:1)[12]. The commonest cause of enlarged cervical lymph nodes in this study was tuberculosis which is 36% of total cases with a male to female ratio of 1:1.25. Tuberculosis was more common in younger patients while malignancies were common in the old patients mentioned in previously published data[13]. In a study conducted by Siddiqui and Ahmed, the frequency of tuberculosis was 46%[12]. Olu-Eddo and Ohanaka, conducted a larger study of 250 patients with cervical node enlargement, tuberculous and metastatic disease were the main causes of lymphadenopathy- with (26.7%) and (26.5%) cases respectively[13]. Khan et al reported (33.3%) and (32%) cases of tuberculous and metastatic nodes of 75 cases[11]. Balaji et al[14] reported 34.07% tubercular lymphadenitis in cervical lymph nodes, almost same as our study. In a study of 126 pediatric patient conducted by Adeswa et al tuberculosis was the predominant cause of peripheral lymphadenopathy in (48.4%) cases[15]. Khan et al reported 33.3% cases of TB in their study. This slight variation may be due to age, immunological status of the patients, social and geographic circumstances.

Regarding metastatic cervical lymph nodes, in our study 44 (29.33%) had metastatic nodes including 34 males and 10 females. Wide variable results can be seen in medical literature on the subject. Na DG et al[16] reports 43.8%, Khan et al[11] 32%, Dedivitis et al[17] 29.3% while Shaikh et al noted only 7%[18]. The justification for these variation may be patients selection, demographic and geographical diversities and hospital protocols. Out of 44 most of these patients (36) were in their 4th-6th decade of age including 7 females only and most of them had smoking history. Malignancy was found in 42% in these males as compared to 16% females, which was reverse in TB node i.e. 44% female and only 29% males, nearly same results are claimed by Balaji et al[14].

Among the 44 patients (36.3%) cases had primary in the nasopharynx 8 (18%) cases had Ca Hypopharynx, (13.67%) had their primary lesions in oropharynx while 3 on floor of mouth and tongue, two salivary glands patient had the primary lesion in parotid gland while origin in three cases remained

unknown. Adoga et al reported 51.7% of the primary in the nasopharynx, 6.7% in oropharynx, 2.2% in hypopharynx, 27% in Sinonasal, 7.9% in larynx and 4.5% in parotid gland[19]. Khan et al reported 50% carcinoma nasopharynx, 25% hypopharyngeal cancer and 12.5% cancer both on tongue and oropharynx each[11].

FNAC was found to be very helpful the over all sensitivity was around 90% while incase of malignancy it was almost 98% in malignant nodes. Which support findings of other studies[9,18]. Lymphoma was noted in 14.66% in this study with 12 Non Hodgkin's and 10 Hodgkin's cases, while Khan et al had lymphoma in 13.3% of cases including 7 non Hodgkin's and 3 Hodgkin's lymphomas almost in the range we recorded, while Spinelli et al[10]. detected lymphoma in 7.7% of pediatric patients significantly lower then our results. According to Olu-Eddo et al. Non Hodgkin's lymphoma was 17.4% and Hodgkin's lymphoma 5.6% in their study slightly higher than our reports[14]. If 22 cases of the lymphoma are added to these malignant group then the toll rises to 66 and supersedes the TB lymph nodes, with a slight change in male and female ratio i.e. 42 male Vs 24 female. Among 34 male had positive smoking history while no lady had smoking history, also supported by other studies. This leads to the conclusion that middle and old aged male having smoking history are prone to develop more chances of malignancy in neck nodes.

Reactive hyperplasia/ non-specific inflammation was recorded in 18.0% lymph nodes in our study in similar range that was observed by Khan et al. in 21.3% cases and Sheikh et al in (19.2%)[11,18]. Bajlani and Olu-Eddo et al. noted reactive changes in 24.6% and 25.4% cases[13,14]. In this study we also had report of 2 kikuchi disease (Histiocytic necrotising lymphadenitis) and one case of sarcoidosis which probably are chronic lymph node hyperplasia of a non specific type of autoimmune disease. Kikuchi disease is self limiting, its picture closely resembles to Hodgkin disease and we could not found published research on this disease.

## CONCLUSION

FNAC is helpful in early diagnosis in majority of cervical lymphadenopathy which is important for proper management it also reduces financial burden on the patient. We recommend multicenter based larger studies with advanced facilities to verify our finding for improved diagnostic purposes.

## REFERENCES


1. Van de Schoot L, Aronson DC, Behrendt H, Bras J. The role of fine needle aspiration cytology in children with suspicious lymphadenopathy. J Pediatr 2001; 361: 7-11.
2. Hibbert J. Metastatic neck disease. In: Kerr AG, editor. Scott Browns' Otolaryngology: Laryngology, head and neck surgery. Vol 5. 6th ed. Oxford: Butterworths-Heinemann, 1997: 1-18.
3. Van den Brekel MWM, Castelijns JA, Reitsma LC, Leemans CR, Van der Waal. Out-come of observing the no neck using ultrasonic-guided cytology for follow-up. Arch Otolaryngol Head Neck Surg 1999; 125: 153-56.
4. Abaidullah U. Cervical lymphadenopathy: experience in allied hospital. J Coll Physicians Surg Pak 2000; 10: 458-60.
5. Abdullah P, Mubarik A, Zahir N. The importance of lymph node biopsy in diagnosis of lymphadenopathy. J Coll Physicians Surg Pak 2000; 10: 298-301.
6. Solder OS. Younger JG, Hirschl RB. Predictor of malignancy in childhood peripheral lymphadenopathy. J pediatr Surg 1999; 34: 1447-52.
7. Aslam M, Hasan M, Hasan SA. FNAC versus histopathology in cervical lymphadenopathy. Indian J Otolaryngol Head Neck Surg 2000; 52: 137-40.
8. Kelly CS, Kelly RE. Lymphadenopathy in children. Pediatr Clin North Am 1998; 45: 875-88.
9. Advani SK, Dahar A, Aqil S. Role of fine needle aspiration cytology (FNAC) in neck masses / cervical lymphadenopathy. Pak. J Chest Med. 2008 Jul-Sep. 14(3): 9-14.
10. Spinelli C, Ricci E, Berti P, Miccoli P. Neck masses in childhood. Surgical experience in 154 cases. Minerva Pediatr.1990 May; 42(5): 169-72.
11. Khan AU, Nawaz G, Khan AR. An Audit of 75 cases of cervical lymphadenopathy; J. Med. Sci. 2011 April; 19(2): 95-97.
12. Siddiqui FG, Ahmed Q. Cervical lymphadenopathy. J Surg Pak Sep 2002; 7(3): 23-25.
13. Olu-Eddo AN, Ohanaka CE. Peripheral lymphadenopathy in Nigerian adults. J Pak Med Assoc. 2006 Sep; 56(9): 405-08.
14. Balaji J, Shanmuga SS, Nataraja Rathinam NS, Amutha Rajeswari AP, Kumari VML. Fine needle aspiration cytology in childhood TB lymphadenitis. Indian J Paed 2009; 76: 1241-46.
15. Adesuwa Olu-Eddo N, Egbagbe EE. Peripheral lymphadenopathy in Nigerian children. Niger J Clin Pract. 2006 Dec; 9(2): 134-38.
16. Na DG, Lim HK, Byun HS, Kim HD, Ko YH, Baek JH. Differential diagnosis of cervical lymphadenopathy: usefulness of color Doppler sonography. American Journal of Roentogenol, 1997 May; Vol 168, (5) 1311-16.
17. Shaikh SM, Baloch I, Bhatti Y, Shah AA, Shaikh GS, An audit of 200 cases of cervical lymphadenopathy. Medical Channel 2010; 16: 85-87.
18. Dedivitis RA, Pfeutzenreiter Jr EG, de Castro MAF. Aspiration biopsy by fine needle of cervical adenopathy guided by ultrasonography. Intl. Arch Otorhinolaryngol 2009; 13: 417-20.
19. Adoga AA, Silas OA, Nimkur TL. Open cervical lymph node biopsy for head and neck cancers: any benefit?. Head & Neck Oncology 2009, April; 1: 9.