

Metastatic Cervical Lymphadenopathy in Najaf City: Clinico-Pathological Analysis

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ABSTRACT

Background: Cervical lymphadenopathy (LAP) is a common problem facing doctors. Most run a benign course. It is the job of these doctors to differentiate it from tuberculosis and metastatic lymphadenopathy. Different types of biopsies can be used to reach diagnosis including FNAC, incisional and excisional biopsies.

Aim: The aim of this study is to describe the clinic-pathological patterns of metastatic cervical LAP in Al-Najaf city.

Methods: A descriptive cross-sectional study was carried out for a period of one year from Jan 1, 2013 to Jan 1, 2014 in the general surgery and otolaryngology departments of Al-Sadar Medical City and surgical department of Kufa university-Faculty of medicine. The data was collected by using a predesigned form including information as age, gender, level of lymph node involvement, and other clinical features.

Results: Among the total 60 patients included in the study, 28 patients were males and 32 were females. Their age ranging from 20 to 68 y with a mean age equals to 53.6 y. The highest age group

was the sixth decade with 32 (53.3%) patients. A known primary site was discovered in 93.3% of the patients. The highest primary site malignancy was that of the larynx with 35.7% of total patients with known primary tumors. 38.3% of the patients had N3 stage at the time of presentation.

Conclusion: Inflammatory neck disease is very common in our country, one should not forget the possibility of metastatic carcinoma in an adult presenting with a rapidly growing, hard, non-tender, lateral neck mass. Early diagnosis is paramount as any delay will eliminate the best opportunity for effective treatment with curative intent.

Introduction

Cervical lymphadenopathy is a common problem presenting to physicians, pediatricians, surgeons, and otolaryngologist [1]. Though lymphadenopathy sometimes intimidates patients and their relatives as well, it is in most instances simple innocent and self-limiting especially when a primary focus of infection is discovered. Consequently, every patient case should be carefully assessed by meticulous history and physical examination. Occasionally, few weeks period of observation with/without antibiotics is judicious in some patients without further investigations especially if localized benign-looking nodes are found. Nonetheless, swift and thorough work up is warranted in cases of generalized LAP [2, 3]. In developing countries, as in Iraq and other Middle East countries, tuberculosis is quite common, that it is the first diagnosis until it is proved otherwise [4].

Approximately over 600 lymph nodes are distributed in different territories of the human body, however merely those in the neck, axilla, and groins can be palpated normally. Abnormal lymph nodes may indicate change in their size, number or consistency. Lymphadenopathy can be localized if involves one territory or

generalized if more areas are affected. Overall, lymph nodes larger than 1 cm in diameter are estimated to be abnormal. Yet, some writers propose that epitrochlear nodes larger than 0.5 cm should be considered abnormal. Likewise inguinal nodes smaller than 1.5 cm must be considered normal [5].

Submental and submandibular lymph nodes (level Ia and Ib) might be involved by malignant tumors of oral cavity, tongue, lips, oropharynx, nasopharynx, and scalp [6,8]. Jugulodiagastric lymph nodes (level II) can harbor malignant cells from tonsils, pharynx, larynx, nasal sinuses as well as salivary glands and scalp. Level III, and IV lymph nodes drains malignancy from pharynx, larynx, skin, as well as thyroid [9, 11]. Maximal risk of harboring malignancy is recognized in the supraclavicular nodes (level V) expected to be as high as 25 percent of those under 40 years of age, and up to 90 percent in those above 40 years [12]. Moreover, malignant tumors in the mediastinum, lungs or cervical and thoracic esophagus may involve lymph nodes of the right supraclavicular area. Likewise, left supraclavicular lymph node (Virchow's node) drain the thorax and abdomen, and might hint pathology in the pancreas, stomach or other intra-abdominal organs, commonly described as Troissier's sign[13]. Furthermore, to

increase complexity, a 10-20% of metastatic cervical lymph nodes are of unknown primary. Most of these are squamous cell carcinomas arising in a hidden area in the nasopharynx or oropharynx [14, 16].

Histopathological examination can be obtained through different methods. Excisional and incisional biopsies are most reliable types [17, 18]. Fine-needle aspiration is occasionally considered an alternative to excisional biopsy but often yields a high number of non-diagnostic outcome presumably due to the scanty quantity of tissue retrieved and the inability to inspect the architecture of the node [19, 20]. A core needle biopsy can mitigate some of the pitfalls of FNAC, however, vital structures of the neck makes its use limited [21]. The aim of the current study is to describe the clinic-pathological patterns of metastatic cervical LAP in Al-Najaf city.

Methods

A descriptive cross-sectional study was carried out for a period of one year from Jan 1, 2013 to Jan 1, 2014 in the general surgery and otolaryngology departments of Al-Sadar Medical City and surgical department of Kufa University, Faculty of medicine. Inclusion criteria include all patients presenting to these departments with cervical LAP whether it is

localized or part of generalized LAP. Exclusion criteria include those who have their nodes disappeared after conservative treatment, and those who refused biopsy. Those with benign histopathological findings on biopsy are excluded from the study. Data were collected by using a predesigned form including information as age, gender, level of lymph node involvement, other clinical features and duration between start of symptoms and consultation.

Full detailed history is taken followed by thorough physical examination for every patient concentrating on local symptoms and signs suggesting infection or primary tumor. Features of tuberculosis and lymphoma are meticulously looked for. Both axillae and groins are examined for lymphadenopathy as well as abdomen for organomegaly. Those with innocent cervical LAP on initial examination are reassessed after a 3-4 weeks period of observation with/without antibiotics. Those with obvious primary tumor are assessed by biopsy from the tumor itself and FNAC from the lymph nodes as FNAC has a high yield in such situation. Excisional biopsy is the standard in other cases as full architecture of the node with intact capsule is obtained. The most abnormal node even if deep is chosen to increase the yield. Occasionally, incisional biopsy or core

needle biopsy under ultrasound guide are indicated in cases of a large lymph node, difficult anatomy, or frail patient in whom longer procedure is not prudent. Statistical analysis is made using SSPS version 18, with a p value < 0.05 is regarded to be significant.

Results

The demographic data for the 60 patients were presented in table 1. This table shows that 28 patients were males and 32 were females. Their age ranging from 20 to 68 years with a mean age of 53.6 y. The highest age group was the sixth decade with 32(53.3%) patients. Table 2 shows that a known primary site was discovered in 93.3% of the patients, while 6.7% had metastatic cervical lymphadenopathy with unknown primary. In patients with known primary tumors, 80.4% had squamous cell carcinoma while 19.6% had malignant tumors of non-squamous origin (Table 3). Table 4 shows that 35.7% of patients with malignant cervical lymph nodes had malignancy in the larynx as the primary site of origin. The second group were those with hypopharyngeal tumors which comprise 23.3% of the total patients with known primary site. The third one was the nasopharynx with 19.6%. When the lymph nodes staging were considered, 45.5% of the nasopharyngeal carcinoma patients

presented with N1 stage while 36.3% of the patients had N3 stage at the time of the presentation (Table 5). For patients with malignant thyroid tumors, all of them had N1b stage at the time of the presentation. In those with other head and neck malignancy as the primary site of origin, 30.8% presented with N1 stage and 38.3% had N3 stage at the time of presentation.

Table 1:

Age and gender distribution

Age groups (years)	No. of Males	No. of Females	Total (%)
21-30	1	-	1(1.7)
31-40	3	2	5(8.3)
41-50	4	8	12(20)
51-60	15	17	32(53.3)
61-70	5	5	10(16.7)
Total	28	32	60(100)

Table 2:

Incidence of the known and unknown primary tumors

Percentage (%)	No. of the patients	Type of the primary tumors
93.3	56	Known primary
6.7	4	Unknown primary
100	60	Total

Discussion

The treatment and management of malignancies of the head and neck is directly altered by the presence of metastatic cervical lymphadenopathy. The treatment of nodal metastases in squamous cell carcinoma of the head and neck (HNSCCA) is determined by the lymphatic drainage of the upper aerodigestive tract. The lymphatic drainage is site-specific and occurs in a predictable manner. An understanding of the topographical distribution and incidence of cervical lymph node metastases plays an integral role in the physical examination and radiological evaluation of patients with HNSCCA [22].

Table 3:

Histological diagnosis of Known primary tumors

Percentage (%)	No. of cases	Histological type
80.4	45	Squamous origin
19.6	11	Non squamous origin
100	56	Total

In the present study, 60 cases of metastatic neck node had been studied. Thirty two (53.3%) patients were females & 28(46.7%) were males with female to male ratio being of 1.14:1. Their ages ranging from 20 years to 68 y with a mean age of 54.6 y. The primary lesions could be identified in 54 (93.3%)

cases while they remained undetected in 4 (6.7%) cases. However, a study carried out in UK showed similar rate of incidence where 89.3% cases of known & 10.3% cases of unknown primary [23].

Table 4:

Distribution of known primary sites

Primary sites	No. of patients	Percentages (%)
Larynx	20	35.7
Hypopharynx	13	23.3
Nasopharynx	11	19.6
Thyroid	10	17.8
Oral cavity	1	1.8
Parotid gland	1	1.8
Total	56	100

Among the primary sites, 45 (80.4%) cases were seen to arise from squamous lining of upper aerodigestive tract & 11 (19.6%) cases were having a non-squamous origin arising from the thyroid (17.8%) & parotid (1.8%) glands. The study shows that metastasis from thyroid gland carcinoma is not a very uncommon entity. The incidence of metastatic neck node of the thyroid origin in other series varied from 6.25% to 9.5% [24]. In the current study, metastatic neck node of the thyroid origin was found in 10 (17.8%) cases. The higher incidence in the present series might be due to the fact that there was

no selectivity for either the site of primary tumor or the histological type. Among the known primary sites, the highest incidence of metastatic neck node was found with Cancer of the larynx (35.7%). The incidence of carcinoma of the hypopharynx was seen in 13 (23.3%) cases. Eleven (19.6%) cases of metastatic neck node were seen to take origin from nasopharynx, and 1 (1.8%) from buccal mucosa of the oral cavity. Other studies carried out with metastatic neck node showed a diverse picture. In a study with metastatic neck node in the department of Otolaryngology Mount Sina Hospital & Sunnybrook Medical center, Toronto, 40% of cases were found to arise from the tongue, 20% from the larynx, 20% from the floor of mouth, 7% from the tonsil, 3% from the palate & 10% from miscellaneous sites. The absence of selectivity of the primary sites was the reason behind it as noted by them [25]. In another study with metastatic neck node in Khartoum Teaching Hospital, Sudan, It was found that the most common primary site was the nasopharynx[26]. It might be due to their social habits and genetic predisposition.

When the lymph nodes staging was considered, 45.5% of the nasopharyngeal carcinoma patients had N1 stage at the time of presentation while 36.3% of them presented with N3 stage. For the remainders

of the patients with carcinoma of other head and neck sites, 30.8% presented with N1 stage and 38.3% had N3 stage at the time of presentation. In a study carried out by Snow and his team, It was demonstrated that 85% of the patients presented with N1 stage and only 15% of them had N3 stage at the time of presentation [27]. Differences in the presentation of the current study relative to those of Snow team`s study were evident, it may reflect the educational and socioeconomic status of our society.

Table 5:

N staging of the lymphatic metastasis

Primary sites	N staging	No. of patients (%)
Nasopharynx	N1	5 (45.5)
	N2	2 (18.2)
	N3a	3 (27.3)
	N3b	1 (9)
Total		11(100)
Thyroid gland	N1a	0 (0.0)
	N1b	10 (100)
Total		10 (100)
Other head and neck sites	N1	12 (30.8)
	N2a	2 (5.1)
	N2b	6 (15.4)
	N2c	4 (10.2)
	N3	15 (38.5)
Total		39 (100)

Though inflammatory neck disease is very common in our country, one should not forget the possibility of metastatic carcinoma in an adult presenting with a rapidly growing, hard, non-tender, lateral neck mass. Early diagnosis is paramount as any delay will eliminate the best opportunity for effective treatment with curative intent.

References

1. Papadepouli E, Michailidi E, Papadopoulou E, Paspalki P, Vlahakis I, Kalmanti M (2009) Cervical lymphadenopathy in childhood epidemiology and management. *Pediatr Hematol Oncol* 26(6):454-460
2. Bhatt JV, Shah JM, Shah F (2002) Clinico-pathological profile of cervical lymphadenopathy: a prospective study. *J Appl Basic Med Sci* 2(2):35-39.
3. Shaikh SM, Balochi I, Bhatti Y, Shah AA, Shaikh GS, Deenari RA (2010) An audit of 200 cases of cervical lymphadenopathy. *Med Channel* 16(1):85-87
4. Sharma SK, Mohan A. Extrapulmonary tuberculosis. *Indian J Med Res* 2004; 120:316-53.
5. Bazemore AW, Smucker DR (2002) Lymphadenopathy and malignancy. *Am Fam Physician* 66:2103-2110.
6. Werner JA, Dünne AA, Myers JN. Functional anatomy of the lymphatic drainage system of the upper aerodigestive tract and its role in metastasis of squamous cell carcinoma. *Head Neck*. 2003 Apr; 25(4):322-32.
7. Cantù G, Bimbi G, Miceli R, Mariani L, Colombo S, Riccio S, Squadrelli M, Battisti A, Pompilio M, Rossi M. Lymph node metastases in malignant tumors of the paranasal sinuses: prognostic value and treatment. *Arch Otolaryngol Head Neck Surg*. 2008 Feb; 134(2):170-7.
8. Byers RM, Weber RS, Andrews T, McGill D, Kare R, Wolf P. Frequency and therapeutic implications of "skip metastases" in the neck from squamous carcinoma of the oral tongue. *Head and Neck*. 1997 Jan; 19(1):14-9.
9. Shimizu K, Inoue H, Saitoh M, Ohtsuki N, Ishida H, Makino K, Amatsu M, Nibu K. Distribution and impact of lymph node metastases in oropharyngeal cancer. *Acta Otolaryngol*. 2006 Aug; 126(8):872-7.

10. Iyer NG, Shaha AR, Ferlito A, Thomas Robbins K, Medina JE, Silver CE, Rinaldo A, Takes RP, Suárez C, Rodrigo JP, Bradley PJ, Werner JA. Delphian node metastasis in head and neck cancers--oracle or myth? *J Surg Oncol.* 2010 Sep; 102 (4):354-8.
11. Candela FC, Kothari K, Shah JP. Patterns of cervical node metastases from squamous carcinoma of the oropharynx and hypopharynx. *Head Neck.* 1990 May-Jun; 12 (3):197-203.
12. Moore S, Jhonson A, Pierce A. (2006). The epidemiology of mouth cancer. *Oral Dis* 6:65-74
13. Naeimi N, Sharifa A, Erfanian Y, Velayati A, Izadian S (2009) Differential diagnosis of cervical malignant lymphadenopathy among Iranian patients. *Saudi Med J* 30(3):377-381.
14. Aslani M, Sultanem K, Voung T, Hier M, Niazi T, Shenouda G. Metastatic carcinoma to the cervical nodes from an unknown head and neck primary site: Is there a need for neck dissection? *Head Neck.* 2007 Jun; 29 (6):585-90.
15. Nieder C, Gregoire V, Ang KK. Cervical lymph node metastases from occult squamous cell carcinoma: cut down a tree to get an apple? *Int J Radiat Oncol Biol Phys.* 2001; 50:727-33.
16. Jereczek-Fossa BA, Jassem J, Orecchia R. Cervical lymph node metastases of squamous cell carcinoma from an unknown primary. *Cancer Treat Rev.* 2004 Apr; 30 (2):153-64. DOI: 10.1016/j.ctrv.2003.10.001.
17. Mansoor I, Sayed AA (2002) cervical lymph node biopsy: clinical and histological significance. *Saudi Med J* 23(10):1291-1292.
18. Ojo BA, Buhari MO, Malami SA, Abdulrahaman MB. Surgical lymph node biopsies in university of Iorin teaching hospital, Ilorin, Nigeria. *Niger Postgrad Med J.* 2005 Dec; 12(4):299-304.
19. Bondt RB, Nelemans PJ, Hofman PA, Casselman JW, Kremer B, van Engelshoven JM, Beets-Tan RG: Detection of lymph node metastases in head and neck cancer: a meta-analysis comparing US, US-guided FNAC, CT and MR imaging. *Eur J Radiol* 2007, 64:266-272.
20. Ustn M, Risberg B, Davidson B, Berner A: Cystic Change in Metastatic Lymph

- Nodes: A Common Diagnostic Pitfall in Fine-Needle Aspiration Cytology. *Diagnostic Cytopathology* 2002, 27:387-392.
21. Song JY, Cheong HJ, Kee SY, Lee JKim MJ, Seo SI. Disease spectrum of cervical lymphadenitis: analysis based on ultrasound-guided core-needle gun biopsy. *J Infect.* 2007; 55(4): 310-6.
 22. Mukherji SK, Armao D, Joshi VM. Cervical nodal metastases in squamous cell carcinoma of the head and neck: what to expect. *Head Neck.* 2001 Nov;23(11):995-1005.
 23. Jose J , Coatesworth AP, MacLennan K. Cervical metastases in upper aerodigestive tract squamous cell carcinoma: histopathologic analysis and reporting. *Head Neck.* 2003 Mar;25(3):194-7.
 24. Nobuyuki Wada, Quan-Yang Duh, Kiminori Sugino, Hiroyuki Iwasaki, Kaori Kameyama, Takashi Mimura, Koichi Ito, Hiroshi Takami, and Yoshinori Takanashi. Lymph Node Metastasis From 259 Papillary Thyroid Microcarcinomas. *Ann Surg.* Mar 2003; 237(3): 399–407.
 25. David E. Schuller, W. Fred. Mc Guirt and others. The prognostic significance of metastatic cervical lymph nodes, *Laryngoscope*, vol XC, no-4 : 557- 570.
 26. Kheiry J.Ahmed M.E. Cervical lymphadenopathy in Khartoum, A report of 92 cases. *Khartoum med. J .* Apr 1992; 25(3): 244–51.
 27. Snow GB, Annyas AA, van Slooten EA, Bartelink H, Hart AA. Prognostic factors of neck node metastasis. *Clin Otolaryngol Allied Sci.* Jun1982;7(3):185-92.