

Prevalence of Verrucous Carcinoma in Laryngeal Cancers and Their Metastatic Potential

Muhammad Yasir Khan, Abdul Saeed Khan, Farooq Ahmed, Anjum Khawar, Altaf Hussain
Department of ENT, Shifa College of Medicine, Islamabad

ABSTRACT

Objectives: To study the frequency of: (1) Verrucous carcinoma in malignant laryngeal tumours (2) Lymph node metastasis in patients with laryngeal verrucous carcinoma. **Study design:** Descriptive study. **Method of sampling:** Purposive type. **Place and Duration of study:** Department of ENT and head and neck surgery, Pakistan institute of medical sciences, Islamabad. Period of study extended from 1st January 2001 to 31st December 2003. **Subjects and methods:** Frequency of verrucous carcinoma was evaluated among One hundred and twenty (120) cases of malignant laryngeal tumours presented and primarily diagnosed in our ENT department. Cases of verrucous carcinoma were also evaluated for presence or absence of lymph node metastasis. **Results:** Frequency of verrucous carcinoma in malignant laryngeal tumours was 2.5%. None of these patients had palpable lymph nodes at the time of presentation. **Conclusion:** Verrucous carcinoma in our population is relatively uncommon disease. Lymph node involvement is rare even with advanced tumours.

Key words: Squamous cell carcinoma, verrucous carcinoma, metastasis, histopathology.

INTRODUCTION

Verrucous carcinoma is a highly well differentiated variant of squamous cell carcinoma with minimal cytological atypia. It is an infrequent neoplasm, accounting for 1% to 3.8% of all laryngeal carcinomas^{1,2}. It affects mostly the oral cavity (55%)³. However, it can rarely involve the larynx. (35%) Majority of cases occur in glottis (72% in one series) however it can occur in supraglottis though no case of verrucous carcinoma involving the subglottis has been reported as yet⁴.

Verrucous carcinoma has specific morphological behavior and clinical features which can be confused with benign process. The diagnosis requires close cooperation between laryngologist and pathologist as tumour appears to be malignant clinically but histologically benign⁵. Although curable in early stage, it can be locally aggressive if left untreated.

Verrucous carcinoma has never been documented to metastasize to lymphnodes. studies exist describing verrucous carcinoma with enlarged

lymph nodes but these enlarged lymph nodes were found to be secondary to inflammatory reaction to the lesion^{5,6}.

The patient mostly presents with hoarseness of voice⁵. Stridor as presenting symptom is very rare. Verrucous carcinoma has the clinical appearance of a fungating, often papillomatous mass which is clearly demarcated from adjacent mucosa. Due to gross morphology, biopsies are usually superficial therefore its diagnosis requires multiple biopsies¹. On histopathology, well differentiated keratinizing squamous epithelium arranged in compressed invaginating folds is seen. The usual cytological and infiltrating growth pattern of squamous carcinoma is absent.

In Pakistan, laryngeal cancers are reported as fifth commonest malignancy in males and 6.3% of all the body cancers⁷. Although international literature shows verrucous carcinoma as a very rare disease. However this rare entity poses problems in diagnosis and management. This study determined the frequency of verrucous carcinoma among other laryngeal cancers along with presence or absence of

lymph node metastasis at time of presentation.

PATIENTS AND METHODS

This was hospital based purposive type of descriptive study. Patients who presented with laryngeal symptoms in our department between January 1st 2001 and December 31st 2003 were evaluated through careful history, in which important points after demographic data were: presenting complaints, history of smoking, and status of the neck nodes at time of presentation. Then these patients underwent direct laryngoscopy under general anaesthesia. Peroperatively, the laryngeal tumours were staged according to TNM classification and multiple biopsies taken for histopathology purposes. Patients with clinically palpable neck nodes underwent FNAC to confirm the spread of disease to neck nodes. On histopathology, if the patients were found to have verrucous carcinoma or in some cases if the histopathology showed benign lesion while clinical suspicion was of malignancy, then the histopathology slides were reviewed by another histopathologist. Such situation arose in two cases where the patients were ultimately diagnosed as having verrucous carcinoma. And after confirmation, patients underwent appropriate treatment for their malignancies. All of this data was collected on aptly designed Proforma. After collecting data of all the patients, it was reviewed and number of patients with laryngeal verrucous carcinoma was found. Their frequency was determined in terms of percentage of all the malignant laryngeal tumours. Also noted was the number of verrucous carcinoma patients who had neck node disease clinically at the time of presentation, which was none in this case.

RESULTS

Out of 120 patients of malignant laryngeal cancers 3 had verrucous carcinoma. 114 were squamous cell carcinomas and 3 were carcinoma in situ. The frequency of verrucous carcinoma in malignant laryngeal cancers was 2.5%. None of the patient had clinically palpable neck nodes at time of presentation. All Verrucous carcinoma patients were

male with history of smoking present in all of them. These patients were diagnosed at stage T3NoMo.

DISCUSSION

Carcinoma of larynx holds a significant place in over all cancers of head and neck. The incidence of laryngeal cancer in England is approximately 4 per 100000 with peak incidence between 55 and 65 years. There are areas in the world where incidence is higher (greater than 10 per 100000) including Brazil, Caribbean population, India, France, Italy, Poland, Spain and Switzerland. Areas of low incidence (less than 2 per 100000) include Japan, Norway and Sweden¹.

Squamous cell carcinoma comprises 90% of all laryngeal cancers. In our country reports from south and north of country quote varying prevalence of head and neck tumours. Aziz *et al* in a retrospective study evaluated all tumours of head and neck. Squamous cell carcinoma was the most encountered histological category (45.8%) and larynx was the most common anatomical site involved with this squamous cell carcinoma (53.5%)⁷.

Verrucous carcinoma is a highly well differentiated variant of squamous cell carcinoma. It is an infrequent neoplasm, accounting for 1% to 3.8% of all laryngeal carcinomas^{1,2}.

O'Sullivan *et al.* from Canada, studied laryngeal cancer patients between 1961 and 1990 and found that verrucous carcinoma comprised 1.1% of all laryngeal cancers⁸. A similar percentage of verrucous carcinoma was noted by Sllamniku B *et al* when they evaluated 1504 patients of laryngeal cancers between 1962 and 1982 and found 15 patients having verrucous carcinoma⁹.

Lopez Amado *et al.* from Spain, over 20 years treated 10 cases of verrucous carcinoma that accounted 1.9% of all the cancers seen over that period of time¹⁰.

In our study, out of 120 malignant laryngeal tumours 3 cases were of verrucous carcinoma i.e. 2.5% of all laryngeal cancers. This is very much in accordance with resent studies done on verrucous carcinoma in Europe and North America.

Verrucous carcinoma rarely, if ever metastasize to neck nodes. ¹ In review of 53 patient

of verrucous carcinoma, Orvidas and Olsen found no cervical neck node metastasis in patients of pure verrucous carcinoma. If metastasis was seen, then those cancerous lesions had foci of squamous cell carcinoma¹¹. Lymph node enlargement may be seen in patients with verrucous carcinoma however, presence of true metastasis is very unlikely and it is usually secondary to inflammatory reaction to the lesion^{12,13}. Maurizi M et al in their study based on their observation concluded that verrucous carcinoma patients do not need neck dissection, as clinically positive neck node in their 7 patients of verrucous carcinoma out of 31, did not have metastasis⁵. Similar results were drawn by Sllamniku et al⁹ and Hagen et al¹⁴.

It's generally thought that advanced cancerous lesions usually metastasize to neck nodes. The single most important factor in determining the prognosis in SCC of larynx is presence or absence of metastasis in the lymph nodes. The factors that affect the presence or absence of metastasis in laryngeal carcinoma in the lymph nodes vary from series to series. The site and size of the primary tumor is an important factor for metastasis. The more is the size more are the chances of metastasis¹⁵. In developing countries, cancers are diagnosed late as compared to developed world. In a study by Rodriguez-Cuevas SA, Labastida S. from Mexico found 68% of their patients of laryngeal cancers were in advanced stage of T3 and T4 at time of diagnosis¹⁶. In contrast a study from Washington by Orvidas et al found that 72% were T1 lesions at presentation¹¹.

As literature from developed countries shows that their patients were diagnosed in relatively early stage so chances of metastasis at these stages are less. And there is a possibility that advanced verrucous carcinoma may metastasize to neck. However our study shows that though all 3 patients of verrucous carcinoma were diagnosed at T3 stage, there were no clinically palpable lymph nodes at time of diagnosis i.e. N0 neck.

CONCLUSION

Verrucous carcinoma of larynx accounts for 2.5 % of all laryngeal tumours in studied population. Which is comparable to international data available

regarding this disease. Despite advanced lesions (T3), neck node involvement was not found in any patient of verrucous carcinoma.

It is recommended that multiple biopsies should be taken at the time of laryngoscopy, as this will help in diagnosis. In addition surgeon and pathologist should have this disease in mind when ever diagnosing benign laryngeal diseases.

Our population needs to be educated about laryngeal diseases. So that they present early in the course of disease. This positively affects the prognosis and treatment as in early malignant lesions, voice saving procedures (endoscopic laser excision, cordectomy etc.) can be adopted for cure of the patient.

REFERENCES

1. Watkinson JC, Gaze MN, Wilson JA eds. Stell and Maran's Head and neck surgery. Oxford : Butterworth Heinemann, 2000: 233-73.
2. Ferlito A. Diagnosis and treatment of verrucous squamous cell carcinoma of the larynx: a critical review. *Ann Otol Rhinol Laryngol* 1985; 94: 575-9.
3. Koch BB, Trask DK, Hoffman HT, Karnell LH, Robinson RA, Zhen W, et al. National survey of head and neck verrucous carcinoma: patterns of presentation, care, and outcome. *Commission on Cancer, American College of Surgeons. Cancer* 2001; 92: 110-20.
4. Olsen KD, Lewis JE, Orvidas LJ. Verrucous carcinoma of the larynx. *Laryngeal Cancer* 1994; 23: 75 - 86.
5. Maurizi M, Cadoni G, Ottaviani F, Rabitti C, Almadori G. Verrucous squamous cell carcinoma of the larynx: diagnostic and therapeutic considerations. *Eur Arch Otorhinolaryngol* 1996; 253: 130-5.
6. Stanley E.T. Cysts and tumors of the larynx. In: Paparella MM, Shumrick DA, Gluckman JL, Meyerhoff WL eds. *Otolaryngology: Head and neck*. Philadelphia: W.B. Saunders, 1991: 2307-69.

7. Aziz F, Ahmed S, Malik A. Malignant tumours of head and neck- a retrospective analysis. JCPSP 2001 May; 14(1):23-5.
8. O'Sullivan B, Warde P, Keane T, Irish J, Cummings B, Payne D. Outcome following radiotherapy in verrucous carcinoma of the larynx. Int J Radiat Oncol Biol Phys 1995 Jun; 32(3): 611-7.
9. Sllamniku B, Bauer W, Painter C, Sessions D. Clinical and histopathological considerations for the diagnosis and treatment of verrucous carcinoma of the larynx. Arch Otorhinolaryngol 1989; 246: 126-32.
10. Lopez Amado M, Lozano Ramirez A, Labella Caballero T. Verrucous carcinoma of the larynx. An analysis of 20 years of experience. Ann Oto Rino Laryngol Ibero Am 1997; 24: 39-48.
11. Orvidas LJ, Olsen KD, Lewis JE, Suman VJ. Verrucous Carcinoma of the larynx: a review of 53 patients. Head Neck 1998; 20:197-203.
12. Fisher HR. Verrucous carcinoma of the larynx. - A study of its pathologic anatomy. Can J Otolaryngol 1975; 4(2):270-7.
13. Stanley E.T. Cysts and tumors of the larynx. In: Paparella MM, Shumrick DA, Gluckman JL, Meyerhoff WL eds. Otolaryngology: Head and neck. Philadelphia: W.B. Saunders, 1991: 2307-69
14. Hagen P, Lyons GD, Haindel C. Verrucous carcinoma of the larynx: role of human papillomavirus, radiation, and surgery. Laryngoscope 1993 Mar; 103(3):253-7.
15. Eiband JD, Elias EG, Suter CM, Gray WC, Didolkar MS. Prognostic factors in squamous cell carcinoma of the larynx. Am J Surg 1989 Oct; 158(4): 314-7.
16. Rodriguez-Cuevas SA, Labastida S. Cancer of the larynx in Mexico: review of 357 cases. Head Neck 1993 May; 15(3):197-203.

The Authors:

Muhammad Yasir Khan
Senior Registrar
Department of ENT
Shifa College of Medicine
Islamabad

Abdul Saeed khan
Assistant Professor
Department of ENT
Sheikh Zayed Hospital Lahore

Farooq Ahmed
Dist. ENT specialist
Dept of ENT ,
District Hospital Chitral, NWFP

Anjum Khawar
Associate Professor
Dept. of ENT
PIMS Islamabad

Altaf Hussain
Senior Registrar
PIMS Islamabad

Address for Correspondence:

Muhammad Yasir Khan
Senior Registrar
Department of ENT
Shifa College of Medicine
Islamabad