



Carcinoma Tonsil with Rib Metastasis: A Maiden Report

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Presentation of the Case

The sixth most common cancer worldwide is Head and Neck squamous cell carcinoma (HNSCC).¹ Twenty five percent of male cancers and ten percent of female cancers in India is Head and Neck squamous cell carcinoma (HNSCC).² Due to oral consumption of tobacco in various forms, use of lime with betel nut and leaves and smoking, incidence of HNSCC is about six times higher in India as compared to western countries.³ In squamous cell carcinoma of head and neck, distant haematogenous spread is less frequent as compared to involvement cervical lymph node. Fourteen percent is incidence of distant metastasis of Head and Neck squamous cell carcinoma (HNSCC) in India.⁴

The oropharynx consists of the soft palate, tonsillar fossae, tongue base and the pharyngeal walls from the level of the soft palate cephalad to the level of the epiglottis caudad. Perhaps its most distinguishing anatomical characteristic is as the location for most of the Waldeyer's lymphatic ring, including the palatine tonsils and the lingual tonsils and distant metastasis is a significant problem in patients with carcinoma of the oropharynx, occurring in approximately 15–20% off all patients over the course of the disease.⁵

Distant metastasis was 15.1% in five year incidence. Metastases to lung, bone and liver were 65.9%, 22.3% and 9.5% respectively. Decreasing order of involvement of bone metastases is-spine (12.7%), followed by skull (4.2%) & rib/s (3.1%).⁶ About 50% of occurrences of distant metastases became apparent within one year of treatment, and 80% became apparent within two years. Eight percent of all patients who had local control developed metastases, while 23% of patients with T3 to T4 lesions had local control and developed distant spread.⁷

To the best of our knowledge, metastasis of carcinoma tonsil to rib/s has not been reported so far and we claim maiden report of 50 years male, presented in Radiotherapy Department, PGIMS Rohtak, in 2016 with 1.6 months history of change of voice. Physical examination revealed ulcero-proliferative growth over right tonsil and was diagnosed as case of moderately differentiated squamous cell carcinoma of Right Tonsil (T3, N2b, M0 staged-IVA). He received concomitant chemo-radiation (66Gy/33fraction/6.3weeks by bilateral parallel opposed field to face and neck with injection Cisplatin 110mg i.v. 3weekly).

Merely 15 days after completion of treatment, patient reported back with lump on right side of chest wall (Image-1) which on examination was hard, fixed to chest wall, non tender, of size 7cmx5cm. CECT chest and abdomen showed right rib destruction (Image-2), raising suspicion of metastasis. Further, it revealed multiple rounded hypoechoic, hypodense lesions of variable sizes, in liver and small nodule noted in left upper lobe of lung, suggestive of metastasis.



Image -1 showing swelling of right anterior chest wall

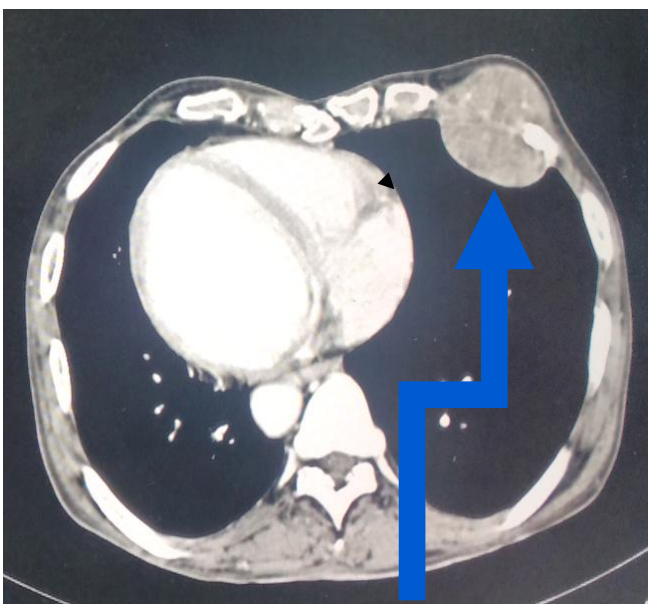


Image-2 Contrast enhanced computed tomography of chest showing destruction of right rib (metastasis)

Clinical diagnosis: Carcinoma tonsil with rib metastasis

Differential diagnosis

Soft tissue infections/abscesses (mycobacterial origin) Metastasis, chondrosarcoma and lymphoma, lipoma, osteochondroma, fibrous dysplasia, and chondroma.

Pathological Discussion

The explanation to unusual sites of metastasis, such as ribs, is less clear. Previous surgery or radiotherapy can significantly alter predictable pattern of lymphatic tumor dissemination in head and neck cancer. A neck dissection removes lymph nodes and causes physical disruption of lymphatic channels in the cervical region and radiotherapy produces sclerosis of lymph nodes and fibrosis of lymphatic vessels, which lead to obstructive lymphedema.⁸ Therefore, both radiotherapy and neck dissection can result in the eradication of the primary lymphatics of the head and neck region. The lymphatic stasis that subsequently develops is relieved by the development of collateral channels through alternative drainage pathways. These pathways do not follow a predicted pattern of drainage, but may form anastomoses with lymphatic channels in the infraclavicular region⁴.

Cytological report of rib lesion in this case show metastasis from squamous cell carcinoma which lead to diagnosis of rib metastasis from carcinoma tonsil.

Final Diagnosis

Carcinoma Tonsil (Right) with rib metastasis

Discussion of management

Meta-Analysis of Chemotherapy on Head and Neck Cancer [MACH-NC]) demonstrated that the use of radiotherapy and concurrent chemotherapy (CRT) resulted in a 19% reduction in the risk of death and an overall 6.5% improvement in 5-year survival compared to treatment with RT alone ($p < .0001$). This benefit was predominantly attributable to a 13.5% improvement in local regional control. The 2.9% reduction in the risk of distant metastases was not statistically Significant.⁹ The concomitant chemoradiation is

considered as the standard of care for the treatment of locally advanced head and neck cancer.¹⁰ Palliative radiation therapy is beneficial for treating symptomatic metastatic sites.¹¹ The standard therapy for patients with recurrent or metastatic oropharyngeal cancer is systemic therapy with platinum-based chemotherapy.¹²

Patient received concomitant chemo-radiation (66Gy/33fraction/6.3weeks by bilateral parallel opposed field to face and neck with injection Cisplatin110mg i.v.3 weekly) for primary lesion. Patients received paclitaxel and carboplatin for metastasis and single session palliative radiotherapy 800cGy to right painful chest wall lump.

Conclusion

Ribs metastasis from squamous cell carcinoma of tonsils is a rare occurrence with no reported case in published literature with best of our knowledge. The present knowledge on this topic is very limited, possibility of unusual/rare site involvement must be kept in mind and addressed at the earliest accordingly.

References

1. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005;55:74-108.
2. Yeole BB. Trends in incidence of head and neck cancers in India. *Asian Pac J Cancer Prev* 2007;8:607-12.
3. Bhandari V, Jain RK. A retrospective study of incidence of bone metastasis in head and neck cancer. *J Cancer Res Ther.* 2013 Jan-Mar;9:90-3.
4. Alavi S, Namazie A, Sercarz JA, Wang MB, Blackwell KE. Distant lymphatic metastasis from head and neck cancer. *Ann Otol Rhinol Laryngol* 1999;108:860-3.
5. Goodwin WJ. Distant metastases from oropharyngeal cancer. *ORL J Otorhinolaryngol Relat Spec.* 2001 Jul-Aug;63:222-3.
6. Holsinger FC, Myers JN, Roberts DB, Byers RM: Clinicopathologic predictors of distant metastases from head and neck squamous cell carcinoma. Abstracts from 5th Int Conf on Head Neck Cancer, San Francisco 2000, abstr. 120.
7. Merino OR, Lindberg RD, Fletcher GH. An analysis of distant metastases from squamous cell carcinoma of the upper respiratory and digestive tracts. *Cancer* 1977;40:145-51.
8. Burn JI. Obstructive lymphopathy. In: Gooneratne BW, ed. *Lymphography: clinical and experimental.* London, England: Butterworths Publishing, 1974:36-7.
9. Pignon JP, le Maitre A, Maillard E, et al. Meta-analysis of chemotherapy in head and neck cancer (MACH-NC): an update on 93 randomised trials and 17,346 patients. *Radiother Oncol* 2009;92:4-14.
10. Paccagnella A, Morello M, Da-Mosto MC, Baruffi C, Marcon ML, Gava A, et al. Early nutritional intervention improves treatment tolerance and outcomes in head and neck cancer patients undergoing concurrent chemoradiotherapy. *Support Care Cancer.* 2010;18:837-45.
11. Price KA, Cohen EE. Current treatment options for metastatic head and neck cancer. *Curr Treat Options Oncol.* 2012 Mar;13:35-46.
12. Salama JK, Gillison ML, and Brizel DM . Oropharynx. In: Halperin EC, Wazer DE, Perez CA, Brady LW, editors. *Perez and Brady's Principles and Practice of Radiation Oncology.* Philadelphia: Lippincott Williams & Wilkins; 2013. p. 832.