

An Uncommon Presentation of Single Bony Metastasis in Oropharyngeal Carcinoma: A Rare Case Report

ANKITA PANDEY¹, PUSHKAR MISHRA², LAXMAN PANDEY³, ANKIT KUMAR TEBRAWAL⁴

(CC) BY-NC-ND

ABSTRACT

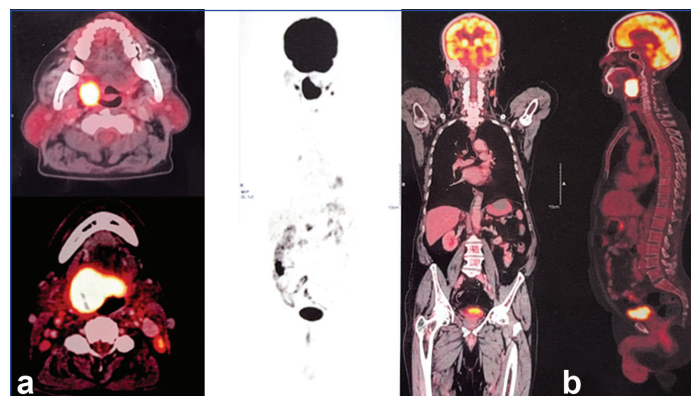
Oropharyngeal Squamous Cell Carcinoma (OPSCC), a subtype of Head and Neck Squamous Cell Carcinoma (HNSCC), is known for its aggressive behaviour and tendency for local and distant metastasis. While lymphatic spread is the primary mode of metastasis, distant bone metastases, although rare, significantly impact patient prognosis and quality of life. This case report highlights an unusual occurrence of isolated clavicular bone metastasis in a 75-year-old male with OPSCC, presenting as a solitary lesion despite completing radiotherapy. The patient, with a history of tobacco use, initially underwent radical radiotherapy and concurrent chemotherapy for locally advanced OPSCC. Three months post-treatment, a follow-up Positron Emission Tomography (PET)/Computed Tomography (CT) scan revealed a metabolically active lesion in the right clavicle, indicative of bone metastasis. The rare nature of this metastasis site, combined with the absence of neurological or respiratory symptoms, underscores the need for vigilant monitoring and extended metastatic surveillance beyond typical sites. This report emphasises the importance of considering atypical metastatic patterns in OPSCC, particularly in non-Human Papilloma Virus (HPV)-associated cases, to facilitate early detection and timely intervention, ultimately improving patient outcomes and quality of life.

Keywords: Bone metastases, Isolated bony lesion, Oropharyngeal squamous cell, Radiation therapy

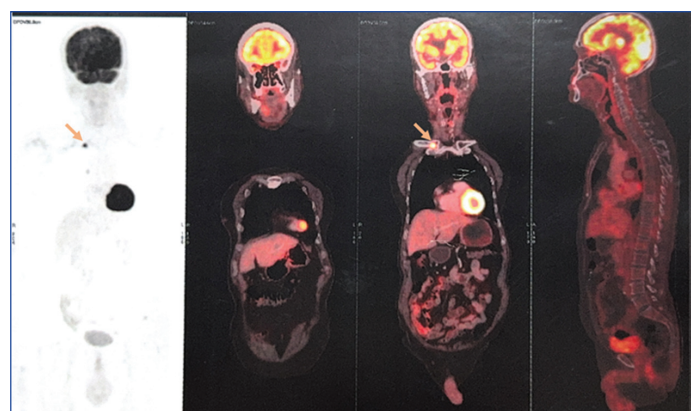
CASE REPORT

A 75-year-old male presented with a two-month history of progressive dysphagia and gradual-onset pain in the neck on the right side, relieved by pain medication (Tab diclofenac, two times a day). His past medical history included a left-sided melanoma excised in 2021 and successfully treated at our institution as per protocol with surgery followed by chemotherapy, six cycles of Inj. Dacarbazine and Inj. Cisplatin. He was apparently alright for four years when he reported a significant loss of appetite along with progressive dysphagia. Personal history included a 15-year history of bidi smoking, one pack per day. Physical examination revealed mild pallor, stable vital signs, and no lymphadenopathy, with intact neurological and cardio-respiratory assessments. On oral cavity examination, ulceroproliferative growth was seen involving the base of the tongue on the right side, extending to the tonsillar pillars. Indirect laryngoscopy showed extension inferiorly up to the vallecula. Based on history, whole body 18-F Fluorodeoxyglucose (FDG) Positron Emission Tomography (PET) was done, which revealed a highly FDG-avid heterogeneously enhancing soft tissue lesion of size 2.6×4.1×2.6 cm [The Maximum Standardised Uptake Value (SUVmax): 19.9] involving the base of tongue, extending superiorly to right tonsillar fossa, inferiorly involving right vallecula, and crossing midline to involve left vallecula [Table/Fig-1]. A biopsy from the gross lesion was obtained. Histology was suggestive of non-keratinising moderately differentiated Squamous Cell Carcinoma (SCC), consisting of sheets of oval, hyperchromatic cells with indistinct cell borders and a lack of prominent nucleoli. Patient was treated with radical radiotherapy 66 Gy in 30 fractions, one fraction per day, completed in six weeks with Intensity Modulated Radiotherapy Technique (IMRT), with concurrent weekly cisplatin at the dose of 40 mg/m². Patient tolerated the complete treatment well. The follow-up 18F-FDG PET/CT scan after three months was suggestive of post-radiotherapy changes in the head and neck, and a metabolically active bony lesion in the right clavicle (SUVmax7.6), suggestive of metastatic disease. Additionally, mildly active sub-centimetric calcific mediastinal lymph nodes (SUVmax 3.2) were noted, likely indicating an inflammatory process [Table/Fig-2]. There

was no history of localised pain on the right side of the neck. In view of a single metastatic lesion on the clavicle, the patient was planned for radiotherapy to the gross lesion to a dose of 60 Gy/30#/ six weeks with IMRT technique. The patient was then followed monthly for three months and then three months thereafter. Patient has completed six months of follow-up and is asymptomatic.



[Table/Fig-1]: Axial (a) and sagittal (b) sections of wholebody PET showing FDG avid heterogeneously enhancing soft tissue lesion involving the base of tongue.



[Table/Fig-2]: Whole body PET scan showing metabolically active isolated bony lesion in the right clavicle (SUVmax7.6), suggestive of metastatic disease.

DISCUSSION

Oropharyngeal cancer, a subset of HNSCC, is recognised for its aggressive nature and intricate metastatic behaviours. HNSCC typically metastasises via the lymphatic system, though non-lymphatic distant metastases occur in approximately 10% of cases [1]. These metastases predominantly involve the lungs, brain, bones, and skin. Factors such as advanced tumour stage (T4), larger primary tumour size, high-grade lesions, and specific anatomical sites like the hypopharynx, base of the tongue, and anterior tongue significantly increase the likelihood of distant spread. OPSCC, particularly the HPV-associated type, is known for its better prognosis due to increased sensitivity to radiotherapy. However, in non-HPV-associated cases- like the current study, where the patient has a history of tobacco use- the disease tends to behave more aggressively, with a higher likelihood of spreading locally and, in rare cases, to distant sites [2]. While lymphatic dissemination remains the primary pathway, bone metastases, although uncommon, tend to affect the axial skeleton, including the spine, pelvis, and ribs. These metastases are predominantly lytic in nature and are indicative of advanced disease with a poor prognosis [3].

Although distant metastases in HNSCC are infrequent at initial diagnosis (1.2-2.8%), their incidence increases significantly during the disease course, reaching 8.9-13.8% [4]. When OPSCC does metastasise distantly, it usually affects the lungs, liver, or bones, most often in the axial skeleton, such as the spine, pelvis, or ribs [3]. This case, featuring a solitary metastasis to the clavicle, is highly unusual and adds to the sparse reports of skeletal metastasis in head and neck cancers. Bone metastases in HNSCC are associated with a dire prognosis, with survival typically limited to a few months after detection [5]. Despite their clinical importance, bone metastases in the context of HNSCC remain underreported in the literature, underscoring the need for more comprehensive studies [6]. In this case, the PET scan showing high metabolic activity in the right clavicle (SUVmax 7.6) strongly pointed to metastasis, even though the location is uncommon. The fact that this metastasis appeared after the patient had completed radiotherapy and involved a non-axial bone highlights the importance of continued follow-up imaging and monitoring, particularly when patients report unusual pain or discomfort [7]. Current literature supports extending metastatic surveillance beyond the typical sites in head and neck cancers, especially for older patients or those with a significant smoking history.

Interestingly, this patient did not experience any neurological or respiratory symptoms despite metastasis progression. This underscores that skeletal metastases can sometimes be subtle, making it critical for clinicians to stay alert to even vague symptoms like persistent pain. Early detection of such metastases allows for timely palliative care, which can improve a patient's overall quality of life. Several reports highlight the incidence of bony metastasis, either solitary or multiple, in oral cavity cancers [8,9].

In a report by Suzuki A et al., the authors reported a 57% incidence of solitary bony metastasis in 772 patients with HNSCC. Notably, metastases to bones above the clavicle (craniofacial bones and cervical spine) accounted for only 3% of all bone lesions [9].

The present case also raises intriguing questions about why metastasis to the clavicle occurred- a location that's rarely involved in OPSCC. It suggests there could be unique biological or vascular factors at play, and further research into these mechanisms could

help refine how we predict and monitor for such uncommon patterns. To the best of the authors' knowledge, this is the first case where a patient with oropharyngeal carcinoma presented with isolated bony metastasis to the clavicular bone. Hampton RL et al., reported a case of isolated bony metastasis in a 79-year-old female with SCC of the base of the tongue. Here, an isolated metastasis was seen in the greater trochanter. Similar to our case, the patient was initially diagnosed as having non-metastatic disease and treated with definitive Radiotherapy Technique (RT) with concurrent chemotherapy. Eleven months after the treatment completion, the patient presented with pain in the limb. PET-CT showed a hot spot in the greater trochanter of the right femur [10].

Ultimately, this report highlights the diverse ways OPSCC can spread and reinforces the need for personalised care. Advanced imaging techniques and tailored treatment strategies are essential to managing metastatic disease effectively. For clinicians, this case is a reminder to take persistent or unexplained bone pain seriously, even if it does not fit the typical pattern, and to adopt a multidisciplinary approach to provide the best care for patients facing these challenges.

CONCLUSION(S)

This case report describes an uncommon presentation of OPSCC with isolated clavicular bone metastasis, thereby contributing to the broader understanding of metastatic patterns in OPSCC. The unusual metastatic involvement of the clavicle, particularly in a non-HPV-associated subtype, highlights the need for comprehensive surveillance for skeletal metastasis in patients with advanced OPSCC. Early recognition of atypical metastatic spread can facilitate prompt intervention, improve pain management, and help preserve the patient's functional status. Such proactive care strategies ultimately enhance patient outcomes and quality of life in advanced-stage OPSCC, where early detection and tailored treatment are crucial. This case emphasises the importance of considering a wider range of metastatic sites in the follow-up care of OPSCC patients.

REFERENCES

- [1] Daloiso A, Franz L, Mondello T, Tisato M, Negrisola M, Zanatta P, et al. Head and neck squamous cell carcinoma with distant metastasis: A systematic review and meta-analysis. *Cancers*. 2024;16:3887.
- [2] Basu D, Siegel BA, McDonald DJ, Nussenbaum B. Detection of occult bone metastases from head and neck squamous cell carcinoma: Impact of positron emission tomography-computed tomography with fluorodeoxyglucose F 18. *Arch Otolaryngol Head Neck Surg*. 2007;133(8):801-05. 484806.
- [3] Gupta S, Dubey V, Verma S, Ali T, Palod S, Lodhi A, et al. Incidence of bone metastasis in head and neck malignancy: A retrospective study. *J Cancer Res Ther [Internet]*. 2022;18(9):S210-S214. .
- [4] Bhandari V, Jain RK. A retrospective study of incidence of bone metastasis in head and neck cancer. *J Cancer Res Ther*. 2013;9(1):90-93.
- [5] Wang M, Zhao B, Huang A, Song M, Wang J, Liu P. Radiation therapy improves survival in patients with distant metastatic head and neck squamous cell carcinoma: A retrospective study. *J Cancer*. 2025;16(3):996-1007.
- [6] Shin SJ, Roh JL, Choi SH, Nam SY, Kim SY, Kim SB, et al. Metastatic carcinomas to the oral cavity and oropharynx. *J Pathol Transl Med*. 2012;46(3):266-71.
- [7] Puthukudy PA, Feshan M, Puthukudy PA, Feshan M. Squamous cell carcinoma of the oropharynx presenting with distant metastasis to the ulna. *Int J Otolaryngol Head Neck Surg*. 2013;2(6):240-44.
- [8] Bhandari V. Incidence of bone metastasis in carcinoma buccal mucosa. *Indian J Med Paediatr Oncol*. 2016;37(2):70-73.
- [9] Suzuki A, Kashiwagi N, Doi H, Ishii K, Doi K, Kitano M, et al. Patterns of bone metastases from head and neck squamous cell carcinoma. *Auris Nasus Larynx*. 2020;47(2):262-67.
- [10] Hampton RL, Ilankovan V, Brennan PA. Long bone metastasis from squamous cell carcinoma of the base of the tongue. *Br J Oral Maxillofac Surg*. 2013;51(3):259-61.

PARTICULARS OF CONTRIBUTORS:

- 1. Assistant Professor and MD Radiation Oncology, Department of Radiation Oncology, Rohilkhand Cancer Institute, Bareilly, Uttar Pradesh, India.
- 2. Undergraduate Student, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India.
- 3. Associate Professor and MD Radiation Oncology, Department of Radiation Oncology, Rohilkhand Cancer Institute, Bareilly, Uttar Pradesh, India.
- 4. Consultant and MD Nuclear Medicine, Department of Nuclear Medicine, Rohilkhand Cancer Institute, Bareilly, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Ankita Pandey,
903, Tower Building, Rohilkhand Medical College and Hospital,
Bareilly-243006, Uttar Pradesh, India.
E-mail: docankitapandey@gmail.com

PLAGIARISM CHECKING METHODS: [\[Jain H et al.\]](#)

- Plagiarism X-checker: Jun 16, 2025
- Manual Googling: Jul 08, 2025
- iThenticate Software: Jul 21, 2025 (10%)

ETYMOLOGY: Author Origin

EMENDATIONS: 6

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: [Jun 10, 2025](#)
Date of Peer Review: [Jul 02, 2025](#)
Date of Acceptance: [Jul 23, 2025](#)
Date of Publishing: [Nov 01, 2025](#)