

# A Rare Case of Metastasis of Squamous Cell Carcinoma of Oral Cavity to Thoracic Vertebrae

## Oral Kavite Skuamöz Hücreli Karsinomu Torasik Vertebra Metastazı: Nadir Bir Olgu

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**ABSTRACT** Oral squamous cell carcinoma (SCC) has a low prevalence of hematogenous dissemination and typically spreads by direct extension and lymphatic metastases. In general, bone metastases from advanced cases of these carcinomas are unusual. We represent a 57-year-old patient with SCC of the lower jaw who has an aggressive oral SCC metastatic spreading the thoracic vertebrae. After the second surgery, the patient was followed up without locoregional recurrence. After the development of gait disturbance and falls, radiological examination revealed metastasis in the thoracic vertebrae. Pretreatment bone scans might be helpful in the identification of oral cavity carcinomas at the time of diagnosis to establish the treatment strategy in cases of recurrent disease. Patients with peripheric neuropathic symptoms associated with oral SCCs should have such metastases taken into account as part of their etiology.

**Keywords:** Mouth neoplasms; neoplasm metastasis; thoracic vertebrae

**ÖZET** Oral skuamöz hücreli karsinom (SCC) düşük bir hematojen yayılım olasılığına sahip olup genellikle doğrudan veya lenfatik metastazlarla yayılır. Genel olarak, bu karsinomların ilerlemiş vakalarında kemik metastazları nadirdir. Bu yazıda, alt çenesinde SCC'si olan ve torasik vertebralara metastatik yayılım gösteren agresif oral SCC'li 57 yaşında bir hasta sunulmuştur. İkinci ameliyattan sonra hasta lokorejyonel lüksasyon olmadan takip edildi. Yürüme bozukluğu ve düşmelerin gelişmesinden sonra radyolojik incelemede torasik vertebralarda metastaz saptandı. Tedavi öncesi kemik taramaları, tekrarlayan hastalık vakalarında tedavi stratejisini belirlemek için tam anında oral kavite karsinomlarının tanımlanmasında yardımcı olabilir. Oral SCC'lerle ilişkili periferik nöropatik semptomları olan hastalarda etiyojinin bir parçası olarak bu tür metastazlar göz önünde bulundurulmalıdır.

**Anahtar Kelimeler:** Ağız neoplazileri; neoplazm metastazı; torasik vertebra

Oral squamous cell carcinoma (SCC) is one of the most common head and neck cancers. Although definitive treatment is considered to be surgery, chemoradiotherapy (CRT) may be given in some selected cases, either alone or in combination with surgery.<sup>1</sup> This type of cancer usually invades the surrounding tissues directly. The incidence of distant metastasis is less than that of other malignant tumors,

ranging from 3% to 11%.<sup>2</sup> Primary oral cavity tumors infrequently metastasize to distant regions, and bone metastasis is rare in head and neck cancers. The lung was reported to be the most prevalent location of distant metastases in head and neck SCC, followed by the mediastinal nodes, liver, and bone.<sup>3</sup> They commonly spread locally or metastasize to regional lymph nodes. Better treatment for such tumors was

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achieved due to the development of improved radiotherapy methods and concurrent chemotherapy. However, certain tumors with an aggressive course may present with distant metastases during the long-term course of the disease. The main sites of involvement, Tumor (T) and Nodal (N) stages and nodal disease management affect metastases in the bone.<sup>4</sup>

There have only been a small number of case reports published in the medical literature about the occurrence of vertebral metastases.<sup>1,2,4,5</sup> In this report, we aimed to present a highly uncommon case of vertebral metastases of oral cavity SCC.

## CASE REPORT

In 2019, a 57-year-old male patient with a 30-pack-year history of smoking underwent mass excision from the floor of the mouth via lip split paramedian mandibulotomy and left functional neck dissection for oral cavity SCC at a different institution. The postoperative pathology indicated metastatic lymph nodes at the left level 1-2 of the neck, and CRT was administered. Two years later, he presented to our clinic with a new lesion at the initial surgery site. Computed tomography (CT) and magnetic resonance imaging (MRI) of the neck revealed a newly emerged 1.5x0.9x1.8 cm mass in the left paramedian region of the mandible, compatible with recurrence (Figure 1).

The positron emission tomography-CT scan result confirmed the lesion with an SUV-max value of

15.3, and no metastatic lymph nodes were present. We performed segmentary mandibulectomy and reconstruction with the plate. Intraoperative frozen section assessment revealed that the surgical margins were safe. Definitive pathology demonstrated high-grade SCC, with no tumor at the surgical margins, but perineural and lymphatic infiltration were present. Therefore, 2 Gy x 25 fractions = 50 Gy adjuvant radiotherapy was applied to the recurrent mass with the volumetric modulated arc therapy technique. Cisplatin was administered in five cycles concurrently with radiotherapy. No recurrent mass was found in the follow-up and imaging studies. One year after the second surgery, the patient falls due to loss of strength in the legs and presents to the emergency department. The vertebral MRI result, which was requested due to loss of strength, is reported as follows: The costochondral junction on the left, which causes approximately 70% height loss in the T5 vertebral corpus, extending to the more prominent posterior elements on the left, accompanied by a soft tissue component that surrounds the spinal canal at its thickest point anteriorly with a thickness of 7 mm, narrowing the spinal canal severely and causing a myelopathic signal change in the cord, A T1 hypo T2/STIR hyperintense contrasted metastatic mass lesion extending to the left superior facet and T4-6 vertebral corpus (Figure 2). The neurosurgery department removed paravertebral and extradural metastatic masses, performed a T5 corpectomy, and instrumented bilateral T3, T4, T6, and T7 vertebrae. T4-L1 vertebral areas



FIGURE 1: Contrast-enhanced computed tomography axial and coronal section of the neck: left paramedian mass near the mandible seen in favor of recurrence.

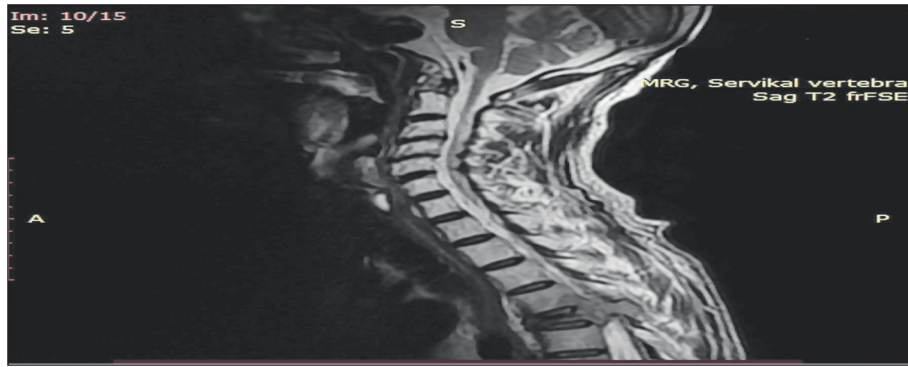


FIGURE 2: Magnetic resonance sagittal section of the vertebra with contrast: metastatic mass seen at T4-T5 vertebral level.

received 250 cGyx10 fractions=2500 cGy palliative radiotherapy. Medical oncology treated the patient with 5-fluorouracil, cisplatin, and cetuximab. Following chemotherapy, he was admitted to the emergency room with a general condition disruption, hypotension, and diarrhea. The patient died because of toxic hepatitis.

We obtained written informed consent from the patients family for this case presentation.

## DISCUSSION

Only a small number of oral cavity tumors with spinal metastases have been documented in the literature, and approximately 2% of head and neck tumors produce spinal metastases. The average survival time for these patients is about ten months.<sup>6</sup>

Patients with vertebral metastases are usually admitted to the hospital with complaints of numbness, weakness, and neurological deficits in the legs.<sup>7</sup> The main symptom is progressive neuropathic type pain, which is exacerbated especially at night, and the complaints gradually worsen secondary to medulla compression.<sup>4</sup>

With this case report, we aim to raise knowledge among medical professionals that patients with a history of oral cavity cancer may have spinal metastases as one of the potential causes of their peripheral neurological symptoms. The development of spinal metastases in our patient developed about a year following locoregional recurrence. The patient died shortly following the appearance of distant organ metastases despite receiving CRT and surgical re-

section. The typical survival time for patients with distant metastases is approximately ten months, even with the best treatment.<sup>6</sup> Among the significant risk factors for the development of distant organ metastasis are prognostic characteristics such as advanced T stage, lymph node metastasis, extracapsular spread, locoregional recurrence, high histological grade, and perineural invasion.<sup>8,9</sup> Treatment response declines and treatment success is less likely to occur when distant organ metastases occur.<sup>2</sup>

Two patients with a similar clinical picture were reported in the Lee et al. study. In a 52-year-old female patient who received CRT following a diagnosis of tongue SCC, they found a metastatic mass at the T10 level on vertebral MRI performed as a result of the development of lower extremity weakness during treatment. Also, a 60-year-old male patient with a diagnosis of tongue root SCC was diagnosed with vertebral metastasis at the level of L2 on MRI performed when he presented with low back pain one year after surgical treatment and CRT. It was stated that both patients died shortly after the diagnosis of metastatic mass.<sup>1</sup>

Despite early diagnosis and correct interventions, oral SCC has an aggressive course and may result in recurrence and death in a short period. In case of distant metastasis in head and neck cancers, palliative treatment is recommended since no treatment can provide a complete cure.<sup>10</sup> Our patient demonstrates that the last stage of oral SCC can be pretty aggressive. This case report indicates that in the latter stages of oral SCC, spinal cord metastases should be considered if the patient complains of lower back

pain or neurological abnormalities in the lower extremities.

### Source of Finance

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### Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise,

working conditions, share holding and similar situations in any firm.

### Authorship Contributions

**Idea/Concept:** Emre Demirel, Emre Tahir; **Design:** Emre Demirel, Emre Tahir; **Control/Supervision:** Emre Demirel, Emre Tahir; **Data Collection and/or Processing:** Emre Demirel, Emre Tahir, Nurlan Majidov, Oğuz Kuşçu; **Analysis and/or Interpretation:** Emre Demirel, Emre Tahir, Nurlan Majidov, Oğuz Kuşçu; **Literature Review:** Emre Demirel, Emre Tahir, Nurlan Majidov; **Writing the Article:** Emre Demirel, Emre Tahir; **Critical Review:** Emre Demirel, Emre Tahir; **References and Fundings:** Emre Demirel, Emre Tahir; **Materials:** Emre Demirel, Emre Tahir, Nurlan Majidov, Oğuz Kuşçu.

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