

Short Report

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Lung cancer metastasis to the tongue: Presentation of a case and review of the literature**Anna-Maria Simón-Flores^{1*}; Cristina Cárdenas-Serres¹; Noemí Vieira-Sebe¹; Kora Sagüillo¹; Guillermo García-Serrano¹; Mario Pezzi-Rodríguez¹; Julio Acero Sanz²**¹Department of Oral and Maxillofacial Surgery, University Hospital Ramon Y Cajal, Madrid, Spain.²Professor and Head of Department of Oral and Maxillofacial Surgery, University Hospital Ramon Y Cajal, Madrid, Spain.***Corresponding Author: Simón-Flores AM**

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Abstract**Background:** Oral cavity metastases from lung cancer are exceedingly rare, accounting for only 1% of oral malignancies. We report an 86-year-old female with lung cancer metastasis to the tongue and review existing literature.**Results:** The patient presented with severe tongue pain. Imaging indicated a necrotic tumoral lesion, confirmed by fine-needle aspiration. She received palliative care involving oral cavity radiotherapy and atezolizumab.**Discussion:** Tongue metastases are unusual, often mimicking benign lesions, making diagnosis challenging. Treatment options include surgery, radiotherapy, and chemotherapy, but prognosis remains poor.**Conclusions:** Although rare, tongue metastases from lung cancer pose diagnostic challenges, emphasizing the importance of understanding their clinical characteristics and treatment options.**Introduction**

Metastasis to the oral cavity is an exceedingly rare occurrence, accounting for just 1% of all malignancies affecting the oral cavity [1,3]. When present, the jaws are the most commonly affected site, with soft tissue involvement accounting for only 33% of such cases [3]. Conversely, lung cancer is known to disseminate to various body regions, with common metastatic sites including the liver, kidney, adrenal glands, brain, bones, and scalp. The oral cavity is an atypical site for lung cancer metastasis, predominantly affecting soft tissues rather than the jaw bones [2]. The diagnosis of these lesions is challenging due to their similarity to benign growths, delayed presentation, and at times, a lack of interpretive clarity. To date, only 21 cases of tongue metastasis from lung cancer have been documented since 1979 [2]. Our objective is to present a new case of oral metastasis from lung cancer and compare it with the existing literature.

Materials and methods

We present the case of an 86-year-old woman with a metastasis originating from lung cancer localized in the right portion of the tongue, diagnosed within our hospital's department. Additionally, we conduct a review of the current literature.

Results

An 86-year-old woman presented at our outpatient clinic in August 2023 with severe pain in the right side of her tongue. Her medical history included a hiatal hernia and a hysterectomy due to a myomatous uterus. She was under the care of the Medical Oncology department for a left lower lobe lung adenocarcinoma, non-mutated EGFR, non-translocated ALK and ROS1, PDL1 15%, staged as cT3cN1cM0 (IIIA according to TNM UICC 8th Ed). She underwent concurrent treatment involving radiotherapy (60 Gy in 30 sessions) targeting the pulmonary and ganglionic areas and chemotherapy using carboplatin and paclitaxel. Our examination revealed a submucosal indurated area causing lim-

ited mobility of the tongue, restricting lateral deviation to the right and impeding complete tongue protrusion. However, no biopsy-accessible mucosal lesions were observed.

Facial MRI disclosed a necrotic lesion in the lower portion of the mobile tongue, exhibiting peripheral contrast enhancement and involving the floor of the mouth, measuring 2.1 x 1.7 cm, indicative of tumoral infiltration (Figure 1). A fine-needle aspiration of the lesion yielded positive results for malignant tumour cells (non-small cell carcinoma), strongly suggesting metastasis originating from a pulmonary neoplasm, considering the patient's medical history. The case was presented in a multidisciplinary committee, and palliative radiotherapy for the oral cavity was recommended due to the metastatic nature of the condition. The patient is currently receiving palliative care, including treatment with atezolizumab, in light of her overall condition.



Figure 1: axial (A), saggital (B) and coronal (C) cuts of an MRI showing a necrotic lesion with peripheral captation of contrast in the interior portion of the mobile tongue, affecting the floor of the mouth, suggesting tumoral infiltration.

Discussion

Metastasis to the oral cavity remains an uncommon event [2,3] published a systematic review in 2022 encompassing oral soft tissue metastasis from lung cancer, with data collected from August 1977 to December 2021. This review identified 122 cases, of which 21 were related to tongue metastasis. Among these 21 cases, the most frequently affected site was the gingiva (57%), with the tongue being the second most common site (27%). When considering the tongue metastases exclusively (n = 21), the average patient age was 61 years, with a slightly higher incidence in men compared to women (M:W, 5:3). Twelve patients had no prior history of lung cancer, and 11 were smokers. Detailed information varied among articles; however, the anterior and dorsolateral regions and the base of the tongue were most frequently involved. The majority of patients presented with swelling, with only one patient reporting no pain. In 12 patients, the tongue was the initial site of metastasis, and in an equal number, it was the sole site of metastasis. The types of lung cancer varied, with seven cases of mesothelioma, six of adenocarcinoma, five of squamous cell carcinoma, one of sarcoma, one of neuroendocrine carcinoma, and one of sarcomatoid carcinoma. In our case, the metastasis stemmed from lung adenocarcinoma.

Possible routes of tongue metastasis from lung cancer include hematogenous and lymphatic dissemination. Additionally, metastatic cells may reach the oral cavity via direct aspiration, entry into the pulmonary vein, drainage into the left side of the heart, and eventually arriving at their final metastatic destination [4]. Chronic inflammation in oral soft tissues creates a rich capillary network that can entrap malignant cells and promote metastasis. Oral cavity post-extraction sites can also serve as locations for metastasis, as the wound area and the tooth extraction process generate an environment rich in growth factors, attracting circulating tumour cells [2].

Treatment of tongue metastasis from lung cancer typically involves radiotherapy, chemotherapy, and, in some cases, surgery. Surgical excision may be performed to alleviate pain, prevent bleeding, and reduce the risk of infection [4]. Radiotherapy is a valuable tool for achieving local control and providing palliative care. In most cases, a combination of chemotherapy and radiotherapy was employed following chemotherapy alone. Unfortunately, the prognosis for such metastases is grim, with reported survival rates of less than five years [2].

In our case, the patient was reviewed by a multidisciplinary committee, and due to the metastatic nature of the condition, palliative radiotherapy for the oral cavity was recommended, along with atezolizumab treatment, considering the patient's overall condition.

Conclusions

Tongue metastases originating from lung cancer are an exceedingly rare phenomenon. Their diagnostic challenge arises from their resemblance to benign lesions or other malignancies, complicating clinical assessments.

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