CLINICAL DENTISTRY AND RESEARCH 2021; 45(3): 163-168 A Case Report

LUNG CANCER WITH GINGIVAL METASTASIS: A CASE REPORT

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ABSTRACT

Metastasis is the spread of cancer cells from different areas of the body to different tissues and organs. Many cancers, especially breast, lung and prostate cancers can metastasize to the oral cavity. While lung cancers are frequently seen as distant organ metastases such as bone, brain and surrenal gland, gingiva metastases are very rare in the literature (0.1%). Fifty-four years old male patient, who had been operated for lung carcinoma, referred to the clinic with complaints of swelling and non-stop bleeding in the gingiva. In the oral examination, the remaining roots of the tooth #47 and the exophytic lesion with bleeding were observed. In the panoramic view, there were remaining roots of the tooth #47 with no bone support. Minimally irregular bone resorption was detected in the cone beam computed tomography. Biopsy was performed with suspicion of metastasis. The pathological examination revealed the metastatic carcinoma. The patient received radiotherapy and called for recall appointments. Neoplastic lesions in the gingiva can also occur as malignant metastases of the primary focus. When dentists encounter sudden, exophytic bleeding lesions in the gums that cannot be attributed to any cause, they should deepen the anamnesis and suspect neoplasia. Early diagnosis of dentist is important for the prognosis of the disease, right treatment protocols and the quality of life of the patient.

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CLINICAL DENTISTRY AND RESEARCH 2021; 45(3): 163-168 Olgu Bildirimi

DİŞETİ METASTAZI İLE SEYREDEN AKCİĞER KANSERİ OLGUSU

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ÖZ

Metastaz, kanser hücrelerinin köken aldıkları bölgeden vücudun farklı doku ve organlarına yayılmasıdır. Özellikle meme, akciğer ve prostat kanserleri başta olmak üzere bir çok kanser oral kaviteye metastaz yapabilmektedir. Akciğer kanserlerinde sıklıkla kemik, beyin ve surrenal bez gibi uzak organ metastazı görülürken, diş eti metastazları literatürde oldukça nadirdir (% 0.1). Akciğer karsinomu nedeniyle opere olan 54 yaşındaki erkek hasta dişetinde şişlik ve durmayan kanama şikayetiyle kliniğimize başvurmuştur. Ağız içi muayenesinde 47 nolu dişin kalmış kökleri ve etrafında kanamalı ekzofitik lezyon görülmüştür. Panoramik görüntüsünde, kemik desteği olmayan 47 nolu dişin kalmış kökleri tespit edilmiştir. Alınan konik ışınlı bilgisayarlı tomografide minimal düzeyde düzensiz kemik rezorpsiyonu saptanmıştır. Metastaz şüphesi ile biyopsi yapılmıştır. Patolojik inceleme lezyonun metastatik karsinom olduğunu ortaya çıkarmıştır. Hastaya radyoterapi uygulanmış ve kontrollere çağırılmıştır. Dişetinde neoplastik lezyonlar, primer odağın malign metastazları olarak da oluşabilir. Diş hekimleri diş etlerinde herhangi bir nedene atfedilemeyen ani, ekzofitik kanama lezyonları ile karşılaştıklarında anamnezi derinleştirmeli ve neoplaziden şüphelenmelidirler. Hastalığın prognozu, en iyi tedavinin uygulanması ve hastanın yaşam kalitesi için diş hekiminin erken tanısı önemlidir.

Sorumlu Yazar
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Anahtar Kelimeler: Akciğer Karsinomu, Konik Işınlı Bilgisayarlı Tomografi, Dişeti, Metastaz

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INTRODUCTION

In the developed countries, 25% of deaths occur as a result of cancer.[1] Metastasis, the spread of cancer cells from different areas of the body to different tissues and organs, is responsible for 90% of cancer deaths.[2] Metastasis occurs with a series of interrelated complex and multi-step events chains, such as angiogenesis, invasion, migration-motility, extravasation and proliferation.[3] First, tumor cells stimulate new vascular formation and then break off their primary tumor tissue by breaking their bond with neighboring cells. Tumor cells then proceed to the extracellular matrix, where they advance and reach the surrounding tissues or enter the circulatory system and invade distant tissues.[4]

Metastatic tumors of the jaws usually occur in individuals over 40 years old. Many cancers, mostly breast, lung and prostate, can metastasize to the oral cavity. Oral cavity metastases can be observed in soft tissues or jaws but metastasis to jaws is more common. In addition, more metastases are seen in the mandible than the maxilla and in males than females with the ratio of 2:1.[5] Studies stated that oral cavity metastases are most common in the lung, kidney, liver and prostate cancers for men; in the breast, genital organs, liver and colorectum cancers for women.[5] However, only 1-3% of all malignant tumors metastasize to the bone and soft tissues in the oral region.[6] Especially soft tissue metastases progress rapidly and have poor prognosis. Metastases to the jaws are mostly from breast cancers whereas metastases to soft tissues are mostly from lung cancers. Lung cancer is one of the most common types of cancer in the world and has a high mortality.[7] More than 1.5 million new cases of lung cancer are diagnosed annually worldwide and carcinoma of the lung is currently the leading cause of death due to cancer worldwide.[8] Individual cigarette smoking is by far the most common risk factor for lung carcinoma; other risks include passive smoke inhalation, residential radon, occupational exposures, infection and genetic susceptibility.[9]

The most common metastasis areas of lung cancers are regional lymph nodes, central nervous system, skeletal system, liver and surrenal glands.[10] Metastatic lung cancer survival has been reported as four months for men and five months for women. [11] Lung metastases constitute approximately 0.1% of all oral cavity tumors.[12] In this case report, lung adenocarcinoma with gum metastasis is presented.

CASE REPORT

Fifty-four years old male patient applied to our clinic with complaints of bleeding and swelling in the gingiva. It was learned from the patient's history that lung adenocarcinoma along with adrenal gland metastasis was diagnosed in February 2019. Also, it was learned that his surrenal gland and lung were operated in April 2019 and in May 2019, respectively. He had received 4 cycles of chemotherapy (paclitaxel 175mg/m2 and carboplatin 500mg/m2) at 21 days interval. Radiofrequency ablation to the liver was planned because a new lesion in the liver was observed on computed tomography taken at the control appointment and a liver-compatible lesion in sternum was observed in Positron Emission Tomography/Computed Tomography (PET-CT). In October 2019, a total of 30 Gy Stereotactic Body Radiotherapy from 10 Gy/frk was applied to the sternum and Cyberknife Stereotactic Radiosurgery (a total of 2400cGy with 1 fraction) was applied to sternum and brain metastasis. In November 2019, it was decided to apply 6 cycles of chemotherapy (Day 1 Gemicitabine 1000 mg/m^2 and day 8 docetaxel 75 mg/m^2) with 21 days interval due to recurrent lung carcinoma.

In addition to cancer, the patient had diabetes mellitus and was using insulin. He had myocardial infarction in 2018 and had a stent in the coronary artery. The patient, who has no alcohol habits, had smoked for 20 years and quit smoking for the last 1 year. The patient had no complaints other than bleeding in the lesion area in the oral cavity. In the intraoral examination, he did not have pain, paresthesia, difficulty in swallowing, and limitation in mouth opening but an exophytic lesion with bleeding was detected around the remaining roots of tooth #47 (Figure 1).

In the digital panoramic view, as the remaining roots of the tooth #47 had no bone support, the appearance of a floating tooth was observed (Figure 2). Minimally irregular bone resorption was also detected in the cone-beam computed tomography (CBCT) scan, taken because of irregular bone resorption in the alveolar crest in the relevant tooth region (Figures 3 and 4).

Since the patient had a history of lung carcinoma, and had a bleeding, rapidly developed lesion in his oral cavity, biopsy was performed with suspicion of metastasis. In the histopathological examination, the lesion was diagnosed as metastatic adenocarcinoma. A total of 30 Gy Stereotactic Body Radiotherapy from 6 Gy/frk was applied to the patient and scheduled for recall appointments.



Figure 1. Intraoral view of the patient

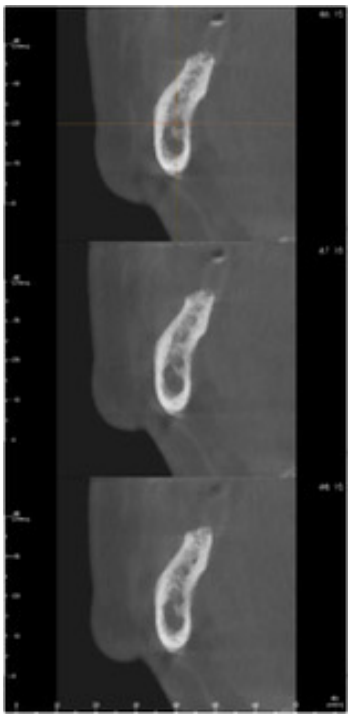


Figure 3. Sagittal CBCT image from the relevant tooth region

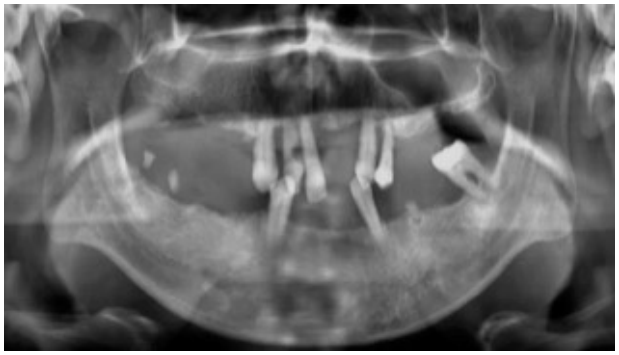


Figure 2. Panoramic image of the patient

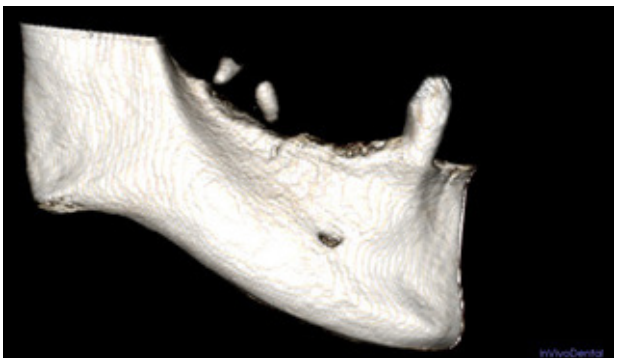


Figure 4. 3D view of the patients mandible

DISCUSSION

Neoplastic lesions in the gingiva can occur as malignant metastases of the primary focus. Pathogenesis of oral metastasis is unclear. In oral soft tissues, passage of tumor cells in the gingival tissue can be facilitated by the greatest permeability of vessels with rich capillary network and the presence of adhesive molecules.[13]

In a literature review conducted by Hirshberg et al.[5], out of 673 cancer cases, 169 cases with oral metastases were diagnosed before the primary tumor. Besides, the first finding of 155 cases was oral metastasis. 218 of 673 cases had metastasized to oral soft tissues. In the oral soft tissues, the attached gingiva was the most common affected site (118 cases, 54%), followed by the tongue (49 cases, 22.5%), and with much less frequency by the remaining oral soft tissues. Most of the metastases that involve oral soft tissues are located in the gingiva (54%) similar to pyogenic granuloma, peripheral giant cell granuloma or hyperplastic or reactive lesions such as fibrous epilus.[5] These tumors with insignificant findings should be dealt with great caution, as their appearance may be the first indication of an undiscovered malignancy at a distant primary site or the first evidence of dissemination of a known tumor from its primary site.[14]

The main reflection concerning why gingival metastasis is the most often soft tissue metastasis is the impact

of inflammation on the gingival cells. Some degree of inflammation in gingival tissue is observed in the vast majority of people. In chronically inflamed gingiva, the capillary vessels constantly proliferate and may create fragmented basement membranes in immature capillaries.[15,16] The remote favorable microenvironment appears to serve as a premetastatic site suitable for proper inoculation and proliferation. That is, an inflammation of the tumor far from the primary tumor comes from an area suitable for metastasis.[17-19] In this respect, some studies have demonstrated a significant association between the presence of teeth and the gingival location of the metastasis whereas in edentulous cases the metastases were more frequently located in other mucosal sites, mainly in the tongue.[20,21]

In the present case, there were remaining roots that had probably been in the mouth for many years and caused chronic inflammation in the area where metastasis had occurred. The roots and accompanying inflammation might have been responsible for metastasis. In oral mucosa metastasis, patients mostly refer to the clinic with complaints of swelling, pain, bleeding, and less frequently restricted mouth opening, difficulty in chewing and swallowing.[20] In our case, the reason for the patient's arrival was only swelling and bleeding. According to a recent review, oral metastases are more common in male patients and between the 5th and 7th decades. According to the same review, oral soft tissue metastases are most common in the posterior mandible.[22] In accordance with aforementioned findings, our case was a 54-year-old male patient with the lesion located posterior to the mandible.

In the present case, the lesion in the gingiva has bleeding and was similar to pyogenic granuloma. Hirshberg et al.[23], mentioned that in few cases ulceration was observed in metastatic lesions. There was no ulceration in the lesion in our case. Metastasis to the oral cavity mostly occurs in the advanced stage of the disease and indicates widespread disease.[24] Therefore, early diagnosis and treatment of malignant lesions of the oral cavity and jaws is of primary importance. Metastasis should always be considered in the differential diagnosis of the lesions in the maxilla and mandible. In our case, we suspected resorption in panoramic imaging and obtained CBCT scanning. On CBCT scanning minimal resorption was detected (Figure 3). Although many metastatic lesions show osteolytic findings on the radiographs, sometimes osteolytic findings may not be seen on radiographs even there are symptoms. It may have similar clinical and radiological features as cyst, bone abscess, osteomyelitis and primary tumor of bone.[5]

Clinically, early gingival metastases are polypoid or exophytic, highly vascularized, and resemble hyperplastic or reactive lesions such as pyogenic granuloma, giant cell granuloma, and peripheral fibroma.[25,26] Early lesions can be examined with Ultrasonography (US) imaging and deep lesions can be examined with both Magnetic Resonance Imaging (MRI) and US. MRI is useful in determining the tumor infiltration. Color Doppler ultrasonography (CD-USG) has been used for detecting blood flow signals in vessels of malignant tumors by means of continuous pulsed-wave Doppler and color flow mapping techniques.[27]

The US is a non-invasive and ionized radiation-free radiological technique that has ease of application. It is hard to get diagnostic images from deep tissues but it can be easily used for the superficial soft tissue masses. Previous reports show the effectiveness of the US for the diagnosis of both benign and malign tumors. It is highly recommended to use the US as the initial evaluation of soft tissue masses since it can prevent the surgery and/or costly examinations.[28]

For patients presenting oral cavity metastasis, if the primary tumor is under control and there is no other metastasis, radiotherapy, surgical excision or combination of both treatment options can be applied. If the metastatic lesion in the oral cavity causes nutritional problems, excision should be considered. Mayadağlı et al.[29] excised the lesion as it caused a nutritional problem. In our case, excision was not the option as the lesion did not cause nutritional problems and the patient had no complaints other than bleeding. In the presence of diffuse metastases, it has been stated that if there is no need for palliation in gingiva, treatment for gingival metastasis is not required.[30]

Since lung cancer metastases are rare in the oral cavity, it is difficult to diagnose. It should be kept in mind that when a lesion is seen in the oral cavity, it can be the metastasis of lung cancer. Therefore, in the presence of a suspicious lesion in the mouth, dentists should request a histopathological examination by supporting the preliminary diagnosis with advanced imaging techniques, when necessary. Early diagnosis of the dentist is important for the prognosis of the disease, the best treatment and quality of life of the patient.

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