

GİNGİVAL METASTASİS FROM THE SQUAMOUS CELL CARCİNOMA OF THE LUNG: A CASE REPORT AND REVIEW OF THE LİTERATURE

SKUAMUZ HÜCRELİ AKCİĞER KARSİNOMUNUN GİNGİVA METASTAZI: VAKA RAPORU VE LİTERATÜR TARAMASI

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ABSTRACT

Metastasis of a lung carcinoma to the gingiva is very uncommon, but it must be considered as a first sign of the primary tumour. Most reported cases involve the jaws rather than the soft tissues. The clinical presentation of gingival metastasis include: rapid growth, pain, swelling, chewing dysfunction, trismus, haemorrhagic tendency, paresthesia, dysphagia and pathological fracture. However, the final diagnosis is based on the histopathological evaluation. In this case report, a 59 years-old male patient with a gingival metastasis from lung squamous cell carcinoma was presented. Also, the review of 23 case reports of the oral metastasis from lung carcinoma in English literature were demonstrated.

Keywords: Squamous cell carcinoma, lung, metastasis, gingiva, oral cavity

ÖZET

Gingivaya akciğer karsinomundan metastaz oldukça nadirdir fakat bu durum primer tümörün ilk işareti olarak dikkate alınmalıdır. Yayınlan vakaların çoğunda yumuşak dokuya nazaran sert doku tutulumu görülür. Gingiva mestazlarında hızlı büyüme, ağrı, şişlik, çiğneme disfonksiyonu, trismus, hemorajiye eğilim, parestezi, disfaji ve patolojik fraktür şeklinde klinik görünüm mevcuttur. Bunun yanında, kesin teşhis histopatolojik inceleme sonunda belirlenir. Bu vaka raporunda, 59 yaşında erkek hastada, skuamoz hücreli akciğer karsinomundan gingiva metastazı sunulmuştur. Ayrıca, İngiliz literatüründe ki akciğer karsinomunun dişeti metastazı olan 23 vaka raporu da demostre edilmiştir.

Anahtar kelimeler: Skuamoz hücreli karsinom, akciğer, metastaz, gingiva, oral kavite

INTRODUCTION

Metastatic cancers of the oral cavity from distant sites are very uncommon and overall incidence has been reported to the 1-3% of all oral malignancies.¹ The most common primary sites for lesions metastasizing to the oral tissues are the lung, prostate, colon, stomach and kidney for men, breast, female genital organs, kidney and colo-rectum for women.^{2,3} The jawbones, especially the mandible, were more frequently influenced than the oral soft tissues (2:1).⁴ In the oral soft tissues, most cases affect the gingival and alveolar mucosa in that order, although some of them can be located in the tongue, lips, buccal and palatal mucosa.^{5,6}

The clinical presentation of the metastatic lesions diverge between the different sites in the oral

cavity.⁴ The clinical signs of an oral metastatic lesion include: rapid growth, pain, swelling, chewing dysfunction, trismus, discontinuous hemorragia, paresthesia, dysphagia and pathological fracture.⁵ Symptoms evolved in a relatively short period. Gingival metastases are polypoid or exophytic, highly vascularized and haemorrhagic.⁵

Pulmonary cancers are common malignant lesions, and bronchogenic carcinoma of the lung is one of the main cause of mortality among adult men, with an increase in prevalence among women during the last decades.⁷ Pathogenesis of metastasis to the soft tissues in the oral cavity is unclear. The metastatic process is a complex biological process, involving detachment from the surrounding cells, regulation of cell motility and invasion, survival,

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proliferation and evasion of the immune system.⁴ In 30% of cases, oral metastasis is the first sign of the pulmonary cancers.² It is usually a sign of an advanced, multiple-metastatic state of the disease.⁷ In literature, there are a few reports published related to the metastasis of lung cancer to oral cavity.

In this case report, a 59 years-old male patient with a gingival metastasis from lung squamous cell carcinoma was presented. Also, the review of 23 case reports of the oral metastasis from lung carcinoma in English literature were demonstrated (Table-1).

CASE PRESENTATION

A 59-year-old men presented with 2 months history of a rapidly growing mass around the right maxillary molar teeth was referred to Karadeniz Technical University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery in January, 2013. The patient was a heavy smoker, had no systemic disease, and was not taking any medication. In medical history,

the death of his two brothers and father due to the lung cancer were identified. The lesion presented as approximately 2x1 cm, soft, ulcerated, haemorrhagic and focally pediculated mass of the attached gingiva (Figure-1). Poor oral hygiene, tooth decays and periodontal problems were detected in intraoral examination. Also submandibular lymph node was palpable at the right side. Panoramic and periapical radiography revealed bone destruction on the alveolar bone surrounding the teeth (Figure-2,3). An incisional biopsy was performed for histological evaluation. The specimen was fixed in formalin and embedded in paraffin. Histological analysis revealed a malign tumour exhibiting the development of invasion. The tumour consisted of atypical squamous cells which had distinct nuclear polymorphism, exhibiting partly keratinization and created solid islands in desmoplastic stroma (Figure-4,5). The definitive histological diagnosis of the lesion was SCC. The reason why we suspected from metastasis in this case was, the fact that the specimens showed a higher grade carcinoma than oral carcinomas. After final diagnosis, patient was

Table-1: Previous literature of gingival metastasis from primary lung carcinoma. AC: Adenocarcinoma pdAC: Poorly differentiated adenocarcinoma SCC: Small cell carcinoma SC: Squamous cell carcinoma pdSC: Poorly differentiated squamous cell carcinoma UDC: Undifferentiated carcinoma LCC: Large cell carcinoma LS: Leiomyosarcoma DECC: Differentiated epithelial cell carcinoma MFH: Malignant fibrous histiocytoma

Author/year	Sex/age	Site of lesion in oral cavity	Tumour type	Treatment for oral metastases	Follow-up
O'Neil, 1964	M/58	Mandible	pdAC	Surgery	Died, 5 months
Adler et al, 1973	M/51	Maxilla	UDC	ND	ND
Donoff et al, 1976	M/70	Mandible	SCC	ND	ND
Donoff et al, 1976	M/49	Mandible	SC	ND	ND
Donoff et al, 1976	M/50	Mandible	UDC	ND	ND
Ellis et al, 1977	M/58	Maxilla	AC	ND	ND
Sanner et al, 1979	M/57	Maxilla	UDC	Chemotherapy	ND
Stalsen&Nielsen, 1992	M/66	Mandible	AC	Surgery	Died, 2months
Peris et al, 1994	ND	Maxilla	UDC	Surgery	ND
Alandez et al, 1995	M/47	Maxilla	pdSC	Surgery	ND
Kodakura et al, 1999	M/54	Mandible	AC	ND	ND
Tanaka et al, 1999	M/82	Maxilla	AC	Chemotherapy&Radiotherapy	Died, 1.5 months
Tanaka et al, 1999	M/71	Mandible	LCC	Chemotherapy&Radiotherapy	Died, 5 months
Tanaka et al, 1999	M/63	Maxilla	AC	Chemotherapy&Radiotherapy	Died, 1.5 months
Vieria et al, 2001	M/57	Maxilla	AC	ND	Died, 2 months
Yoshii et al, 2002	M/61	Mandible	LCC	Chemotherapy	Died, 3 months
Aoe et al, 2003	M/84	Mandible	SCC	ND	ND
Huang et al, 2005	M/49	Maxilla	AC	Surgery	Died, 2 months
Rajappa et al, 2005	M/59	Maxilla	LS	Chemotherapy	Died, 4 months
Rajappa et al, 2005	M/40	Mandible	SC	Chemotherapy&Radiotherapy	Died, 2months
Jaguar et al, 2006	M/52	Maxilla	UDC	Surgery	Died, 1 week
Curien et al, 2007	M/64	Maxilla	AC	Chemotherapy	ND
Pozzi et al, 2008	W/57	Mandible	AC	Surgery	Died, 9 months
Dhawad&Nimonkar, 2011	M/46	Mandible	pdAC	Surgery	Died, 1.5 month
López-Jornet et al, 2011	M/76	Mandible	DSCC	Surgery	ND
You et al, 2012	M/45	Mandible	AC	Chemotherapy&Radiotherapy	Died, 1month
Ravi et al, 2012	M/57	Maxilla	AC	ND	Died, 1month
Thomas&Koshi, 2013	M/47	Maxilla	MFH	Chemotherapy&Radiotherapy	Died, 9 weeks
This study,	M/59	Maxilla	pdSC	Chemotherapy&Radiotherapy	Died, 3 weeks



consulted to Karadeniz Technical University, Faculty of Medicine, Department of Chest Diseases. After clinical and radiological examinations, approximately 7x4 cm solid lesion was detected at the lower lobe of the right lung. A lung biopsy was performed and histology revealed SCC metastasized to oral cavity and brain. Patient was classified as $T_3N_2M_1$ according to TNM staging system. After a palliative cranial radiotherapy (650 cGy once a week), combined with chemotherapy of Carboplatin 150 mg flakon (Kocak, Istanbul, Turkey) and Taxotere 80 mg flakon (Sanofi Pasteur, Istanbul, Turkey) was started. Patient died 20 days after this procedure without any response to chemotherapy. No autopsies were performed.



Figure 3. Periapical radiography of the lesion



Figure 1. Intraoral view of the lesion

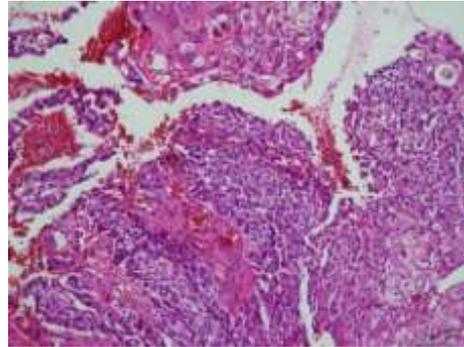


Figure 4. Photomicrograph of the lesion, showing a poor differentiated squamous cell carcinoma



Figure 2. Panaromic radiography of the lesion

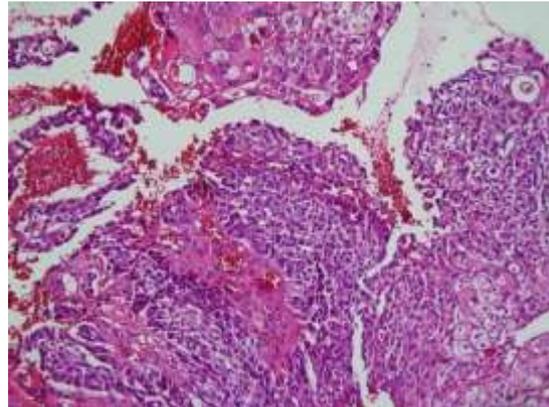


Figure 5. Atypical squamous cells with distinct nuclear polymorphism, exhibiting partly keratinization and created solid islands in desmoplastic stroma

DISCUSSION

From 1964 to 2013, 28 cases of gingival metastasis from the primary lung carcinoma were detected according to English literature. There were 9 adenocarcinoma^{1,7-14} (AC), 1 poorly differentiated adenocarcinoma¹⁵ (pdAC), 3 squamous cell carcinoma¹⁶⁻¹⁸ (SC), 2 small cell carcinoma^{17,19} (SCC), 1 poorly differentiated squamous cell carcinoma²⁰ (pdSC), 2 large cell carcinoma^{14,21} (LCC), 7 undifferentiated carcinoma^{17,22-27} (UDC), 1 leiomyosarcoma¹⁸ (LS), 1 malignant fibrous histiocytoma²⁸ (MFH) and 1 epithelial cell carcinoma²⁹ (ECC) in all of these cases. Maxillary (14 cases) and mandibular (14 cases) gingiva were affected equally according to review of the literature.

The lung carcinoma most frequently effects the adult men population and the male-to-female ratio was 2:1 in most metastatic tumours to the oral cavity.⁴ In these literature review for gingival metastasis from the primary lung carcinoma, 26 of the patients were male and age ranged from 40 to 84 (mean: 58.2) years old. Only a case report of a 57 years old female patient was detected.

SCC is the most common malignant neoplasm of the oral cavity, with a global variation in its incidence.³⁰ It has been reported to account for 70% to 90% of total oral malignant neoplasms.³¹ In literature, SCC due to lung metastasis to the oral cavity is a very rare condition. Only Alandez et al²⁰ and Donoff et al¹⁷ were reported cases about this situation. In this case report, poorly differentiated SCC of the gingiva was demonstrated as a first sign of primary lung carcinoma.

Squamous cell gingival carcinoma (SCGC) is an indolent, slow-growing carcinoma that has a low propensity to metastasize. Accounting for a little less than 10% of all intraoral carcinomas, it is present as a red-white thickening of the marginal and interdental gingiva. The most common condition from which to differentiate SCGC is chronic persistent periodontitis. In addition, lichen planus of the attached gingiva and the pemphigoid forms that involve the attached gingiva may each mimic SCGC by their red-white appearance and scar formation. Because SCGC is usually not ulcerated but appears as a thickened red-white gingiva, verrucous carcinoma and the benign hyperkeratosis form of clinical leukoplakia are also

distinct considerations.³² Also oral metastasis from the distant sites can mimic pyogenic granuloma, peripheral giant cell granuloma, hemangioma and fibroma.²⁶ The final diagnosis can be done after histological evaluation. In this study, lesion was resemble as chronic periodontitis or peripheral giant cell granuloma. After incisional biopsy the final diagnosis was determined as poorly differentiated SCC. The high grade of the lesion as different from the other intraoral carcinomas pointed to metastases from a primary carcinoma.

The histopathological evaluation is very important for the diagnosis of the oral metastatic malignancies. In some cases oral metastasis appeared as a first sign of the primary carcinomas. In this instance, immunohistochemical stains may be needed to characterize the primary tumour or confirm the metastasis.¹⁸ In this report, the grade of the carcinoma as unusual from the primer intraoral carcinomas and medical story of the patient aroused a suspicion. After the whole body examination, the primary lung carcinoma was detected.

Most patients with a metastatic tumour in the oral cavity have also developed metastasis at other organs, often leaving no other modality for treatment than palliation.³³ A literature survey of gingival metastasis from lung cancer revealed that most cases were poorly differentiated lung cancer and prognosis was very poor. In a survival study with a special focus on gingival metastasis, Seoane et al³⁴ showed that the survival time since the diagnosis of gingival metastasis was 6 months. In several cases, radiotherapy and chemotherapy were selected for the management of this unfavourable situation. Radiotherapy can potentially cure in local symptom control for a few months and some cases may utilize from chemotherapy.⁵ Therefore, those treatment regimens should be considered for gingival metastases in early stage cases.¹⁴ In this present review, most patients died within the first 3 months following the diagnosis of metastatic lesion. The treatment options considered as radiotherapy, chemotherapy and surgical exision of the lesion. In this case report, the gingival metastasis was the first sign of the primary lung carcinoma and patient treated with radiotherapy and chemotherapy. According to the literature the patient prognosis was very poor and died after the first cure of the chemotherapy procedure.



In conclusion, the gingival metastasis of a primary lung carcinoma is a very rare clinical condition and only 28 cases was reported in English literature. The clinicians must recognize these lesions in the differential diagnosis of other intraoral benign and malign lesions. Histological evaluation is very vital in this type of oral malignancies. After the diagnosis of the metastatic lesion in the oral cavity, the prognosis of the patient is very poor and palliative treatment is generally conducted.

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