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Metastatic tumors to the oral cavity - A retrospective analysis

Konstantinos Paraskevopoulos[1*], Konstantinos Vahtsevanos[2], Aris Ntomouchtsis[3], Ioanna Kalaitsidou[4], Anna Patrikidou[5], Charalampos Andreadis[6], Konstantinos Antoniades[7]

[1]PhD, Consultant, Department of Oral and Maxillofacial Surgery, G. Papanikolaou General Hospital, Thessaloniki, Greece. [2]PhD, Ass Professor, Department of Oral and Maxillofacial Surgery, G. Papanikolaou General Hospital, Thessaloniki, Greece. [3]PhD, Private OMF Surgeon, Lucerne, Switzerland. [4]Consultant, Department of Oral and Maxillofacial Surgery, G. Papanikolaou General Hospital, Thessaloniki, Greece. [5]PhD, Consultant, Department of Oncology, Geneva University Hospital, Geneva, Switzerland. [6]PhD, Director, Third Department of Oncology, Theageneion Anticancer Hospital, Thessaloniki, Greece. [7]PhD, Professor, Department of Oral and Maxillofacial Surgery, G. Papanikolaou General Hospital, Thessaloniki, Greece.

ABSTRACT

Objectives: Metastatic tumors to the oral cavity are observed extremely rarely, accounting for approximately 1% of all malignant oral lesions. The purpose of our study is to record and analyze the data of the patients who revealed metastasis to the oral cavity.

Material and Methods: The records of the patients diagnosed with oral metastases who were admitted to Oral and Maxillofacial Surgery Departments from 1996 to 2018 were reviewed and analyzed for demographic data and outcomes.

Results: Over a period of 22 years (from 1996 to 2018), 22 patients were admitted to the Oral and Maxillofacial Surgery Departments of General Hospital G. Papanikolaou and Theageneion Anticancer Hospital with oral metastasic tumors from a distant primary site.

Conclusions: Metastasis to the oral cavity is a very rare finding but it exists so we have to be aware of it and have in mind the possibility of this condition.

Keywords: Metastatic tumors; Oral cavity; Primary site

***Correspondence to Author:**
Dr. Konstantinos Paraskevopoulos
Department of Oral and Maxillofacial Surgery, General Hospital G. Papanikolaou, Eksoxi, 57010, Thessaloniki, Greece, tel: +302313307275, fax: +302313307074

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Introduction

Metastases to the head and neck region from a distant site are not frequent. Especially metastatic tumors to the oral cavity are observed extremely rarely, accounting for approximately 1% of all malignant oral lesions [1]. When metastases occur, they affect the jawbones, especially the mandible, more frequently than the oral soft tissues (2:1) [2]. The most common site for metastatic lesions is the body of the mandible usually in premolar and molar regions because of the presence of hematopoietic tissues [3]. The primary sites that present oral metastases are lung, kidney, liver and prostate for men, and for women breast, female genital organs (FGO), kidney and colo-rectum [4]. Especially breast, lung, kidney and colon are responsible for almost 70% of all oral metastatic cases [2]. Usually the primary tumor has been known, although in one-third of the cases metastasis is the first clinical observation [5]. In this article we present a retrospective review of patients with oral metastases during the last twenty years.

Materials and Methods

The records of the patients diagnosed with oral metastases who were admitted to Oral and Maxillofacial Surgery Departments of General Hospital G. Papanikolaou and Theageneion Anticancer Hospital from 1996 to 2018 were reviewed and analyzed for demographic data and outcomes. This study followed the Declaration of Helsinki of 1975, as revised in 2000 on medical protocol and ethics and was approved by the Medical Council of General Hospital G. Papanikolaou and Theageneion Anticancer Hospital.

Results

Over a period of 22 years (from 1996 to 2018), 22 patients were admitted to the Oral and Maxillofacial Surgery Departments of General Hospital G. Papanikolaou and Theageneion Anticancer Hospital with oral metastasic tumors from a distant primary site (Table 1).

Table 1. Patients with metastatic tumors to the oral cavity

	Gender	Age	Primary lesion	Oral metastasis	Histology	Time to oral metastasis
1	Male	61	Stomach	Upper lip	Poorly-differentiated adenocarcinoma	2 months
2	Female	55	Endometrium	Tonsil	Poorly-differentiated adenocarcinoma	36 months
3	Male	72	Unknown	Mandible	Poorly-differentiated carcinoma	_
4	Female	54	Colon	Mandible	Moderately-differentiated adenocarcinoma	16 months
5	Male	72	Lung	Tongue	Squamous cell carcinoma	10 months
6	Female	52	Breast	Buccal mucosa with tooth involvement	Ductal carcinoma	1 month
7	Female	55	Colon	Mandible	Moderately-differentiated adenocarcinoma	Metastasis was diagnosed first
8	Female	91	Unknown	Maxillary gingivae	Poorly-differentiated adenocarcinoma	_
9	Female	54	Breast	Mandibular gingivae	Mucinous adenocarcinoma	4 months
10	Female	59	Lung	Mandibular gingivae	Adenocarcinoma	12 months
11	Male	63	Lung	Mandibular gingivae	Poorly-differentiated adenocarcinoma	11 months

12	Female	75	Liver	Mandibular gingivae	Hepatocellular carcinoma	11 months
13	Male	75	Lung	Mandible	Lung adenocarcinoma	14 months
14	Male	72	Kidney	Mandible	Clear cell carcinoma	Metastasis was diagnosed first
15	Male	55	Colon	Mandibular gingivae	Adenocarcinoma	48 months
16	Female	86	Colon	Mandible	Poorly-differentiated adenocarcinoma	24 months
17	Female	68	Breast	Mandible	Invasive lobular carcinoma	12 months
18	Male	71	Stomach	Mandibular gingivae	Adenocarcinoma	24 months
19	Male	69	Lung	Mandibular gingivae	High-grade neuroendocrine carcinoma with elements of both small and large cell lung carcinoma	1 month
20	Male	71	Pancreas	Mandibular gingivae	Moderately-differentiated adenocarcinoma	Metastasis was diagnosed first
21	Male	63	Lung	Mandible	Adenocarcinoma	12 months
22	Male	50	Lung	Maxillary gingivae	Adenocarcinoma	84 months

No gender difference was observed as 12 (54.5%) patients were males and 10 (45.5%) females; age ranged from 50 to 91 years. In 8 patients metastasis involved the mandibular bone, but we did not find cases with metastatic lesion of the maxillary bone. Oral soft tissues were involved in 14 (63.6%) patients, with 8 (36.4%) of them presenting with lesions of the mandibular gingivae. In 5 (22.7%) cases, concurrent with literature (23%) [4], metastasis was detected before the primary lesion, and in two of these cases (9.1%) no- primary site of cancer was found. It appeared that lung was the commonest primary site for men (6 cases, 27.3% overall, 50% of the male cohort) and breast and colon were found to be the commonest for women (3 cases each, 13.6% overall, 30% of the female cohort). Mandible and oral soft tissues were affected almost the same in males and females.

Discussion

Metastatic tumors in the oral and maxillofacial region are usually adenocarcinomas (70%) and are mostly originated from breast (30.4%), kidney (15.6%) and lungs (14.8%) [6]. According to the literature, the most common primary tumors that metastasize to the jaw are the lung, kidney, liver and prostate in men and the breast, female genital organs (FGO), kidney and colo-rectum in women [4,7].

Oral cavity is not a common site for metastatic tumors, so they comprise approximately 1% of all malignant oral lesions [1,2]. They affect jawbones more frequently than oral mucosa and the ratio is 2:1 [2,8]. When the metastatic tumor involves the jawbones, it is usually located in the mandible but when it involves oral soft tissues, the maxillary gingivae is more often affected than the mandibular [9]. Two-thirds of oral metastasis cases occur in the context of widespread disease and one-third of the cases represents the first clinical manifestation of an unknown primary [10].

The pathogenesis of the metastasis to the oral cavity is poorly understood. Possible routes of metastasis are arterial, venous and lymphatic circulations [11]. Since jawbones do not have much of active bone marrow, it seems that remnants of hematopoietic marrow that can be found in jaws, may attract metastatic tumor cells [12]. According to the literature, there is a significant association between gingival metastasis and the presence of periodontitis [13]. This association

suggests involvement of inflammation in the distribution of metastatic deposits to the gingival through the release of cytokines such as IL-1 and TNF-α, which are known to facilitate metastatic progression [14]. Several theories exist to explain head and neck metastasis without lung involvement. Batson proposed a route of dissemination that avoids pulmonary vascular filtration. Batson's valveless vertebral venous plexus extends from the skull to the sacrum. Through this pathway tumor emboli could bypass the pulmonary venous system with minimal resistance resulting in metastasis to the oral cavity without any obvious lung lesions [15,16]. Another passage for bypassing lung filtration is through the thoracic lymphatic duct [17,18].

In our study 14 patients had metastasis to soft tissues and only 8 suffered from jaw metastasis. These numbers are not in accordance with the literature as it is mentioned that metastatic tumors affect the jawbones, especially the mandible, more frequently than the oral soft tissues in a ratio 2:1 [2,8]. All the metastatic tumors of the jaws were observed in the mandible (8) and none of them was located in maxilla. This finding goes along with the literature but as it concerns the location in oral soft tissues, we found more cases located in gingival of the mandible (8 out of 14) in contrast with what already has been published. As it is mentioned, breast, lung, kidney and colon are responsible for almost 70% of all oral metastatic cases [2], and in our study, lung was the commonest primary site for men and breast and colon for women. In 5 cases, metastasis was detected before the primary lesion, and in two of these cases we were- not able to find a primary site of cancer. According to the literature, in one third of the patients with metastatic tumors of the oral cavity, metastasis is diagnosed before the primary lesion [5]. All these findings show the importance of the specialty of Maxillofacial Surgery because a primary lesion could be detected after the diagnosis of a metastatic tumor of the oral cavity.

Conclusions

Metastasis to the oral cavity is a very rare finding but as specialists, we have to be aware of it and have in mind the possibility of this condition. Our study was in accordance with the literature except the incidence of metastatic tumors in oral soft tissues. As it is mentioned, in one-third of the cases oral metastasis is the first clinical manifestation and this observation highlights the role of maxillofacial surgeons in treatment of oncological patients.

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The authors report no conflicts of interest related to this study.

References

[1] Clausen F, Poulsen H. Metastatic carcinoma to the jaws. Actu Pathol Microbiol Immunol Scand 1963;57:361-3;

[2] Hirshberg A, Shnaiderman-Shapiro A, Kaplan I, Berger R. Metastatic tumours to the oral cavity-pathogenesis and analysis of 673 cases. Oral Oncol. 2008; 44:743–52. doi: 10.1016/ j. oralon -cology.2007.09.012

[3] Derakhshan S, Rahrotaban S, Mahdavi N, Mirjalili F. Metastatic renal cell carcinoma presenting as maxillary lesion: Report of two rare cases. J Oral Maxillofac Pathol. 2018;22:39-43. doi: 10. 4103/jomfp.JOMFP_186_17.

[4] Selvi F, Faquin WC, Michaelson MD, August M. Three synchronous atypical metastases of clear cell renal carcinoma to the maxillary gingiva, scalp and the distal phalanx of the fifth digit: A Case report. J Oral Maxillofac Surg. 2016; 74:1286.1–9. doi: 10.1016/j.joms. 2016.01. 054.

[5] Maestre-Rodríguez O, González-García R, Mateo-Arias J, Moreno-García C, Serrano-Gil H, Villanueva-Alcojol L, et al. Metastasis of renal clear-cell carcinoma to the oral mucosa, an atypical location. Med Oral Patol Oral Cir Bucal. 2009; 14:601–4.

[6] Umashankar D, Srinath N, Bavle RM, Bhandari A. Anterior maxillary metastasis of gastric adenocarcinoma: A rare case. J Oral Maxillofac Pathol. 2013; 17:467–70. doi: 10.4103/0973-029X. 125223.

[7] Zhang L, Yang H, Zhang X. Metastatic renal cell carcinoma to the jaws: Report of cases. World J Surg Oncol. 2014; 12:204. doi: 10.1186/1477-7819-12-204.

[8] Van der Waal RI, Buter J, Van der Waal I. Oral metastases: report of 24 cases. Br J Oral Maxillofac Surg. 2003; 41:3-6.

[9] Wu Z, Tang J, Li Y, Lu H, Xu J, Lv D. Successful management of rare gingival metastasis from gastric adenocarcinoma: a case report and

literature review. World J Surg Oncol. 2017 1;15(1):141. doi: 10.1186/s12957-017-1215-3.

[10] Owosho AA, Xu B, Kadempour A, Yom SK, Randazzo J, Ghossein RA et al. Metastatic solid tumors to the jaw and oral soft tissue: A retrospective clinical analysis of 44 patients from a single institution. J Craniomaxillofac Surg. 2016;44(8): 1047-53. doi: 10.1016/j.jcms.2016.05.013.

[11] Will TA, Agarwal N, Petruzzelli GJ. Oral cavity metastasis of renal cell carcinoma: a case report. J Med Case Rep. 2008 29; 2:313. doi: 10.1186/1752-1947-2-313.

[12] Valastyan S, Weinberg RA. Tumor metastasis: molecular insights and evolving paradigms. Cell. 2011 14;147(2):275-92. doi: 10.1016/j.cell. 2011.09.024.

[13] Sculley DV, Langley-Evans SC. Salivary antioxidants and periodontal disease status. Proc Nutr Soc. 2002; 61:137–43.

[14] Allon I, Pessing A, Kaplan I, Allon DM, Hirshberg A.: Metastatic tumors the gingiva and the presence of teeth as a contributing factor: a literature analysis. J Periodontol 2014; 85:132–9. doi: 10.1902/jop.2013.130118.

[15] Boles R, Cerny J. Head and neck metastases from renal carcinomas. Mich Med 1971, 90:616-8.

[16] Kalaitsidou IG, Astreidis IT, Kontos KI, Lazaridou MN, Bourlidou ET, Gerasimidou DK et al. Metastatic Tumours to the Oral Cavity: Report of Three Cases. J Oral Maxillofac Res. 2015 Dec 31;6(4): e5. doi: 10.5037/jomr.2015.6405.

[17] Hirshberg A, Berger R, Allon I, Kaplan I. Metastatic tumours to the jaws and mouth. Head Neck Pathol. 2014 Dec;8(4):463-74. doi: 10.1007/s12105-014-0591-z.

[18] Neville B, Damm D, Allen C, Bouquot J. Oral & Maxillofacial Pathology. Philadelphia- Pennsylvania: W.B. Saunders Company; 2002 pp. 489-90.