



Case report

Metastasis of a gastric adenocarcinoma to the mandible

Soussan Irani^{a,*}, Mohammad Moshref^b, Ali Lotfi^b

^a*Faculty of Dentistry, Department of Oral and Maxillofacial Pathology, Hamadan University of Medical Sciences, P.O. Box 65176, Hamadan, Iran*

^b*Faculty of Dentistry, Department of Oral and Maxillofacial Pathology, Shahid Beheshti University of Medical Sciences, Velenjak, P.O. Box 14359, Tehran, Iran*

Received 5 April 2004; accepted 18 May 2004

KEYWORDS

Metastasis;
Gastric
adenocarcinoma;
Mandible

Summary Metastatic tumors of the oral cavity are rare, representing about 1% of oral tumors. Here we report the case of a 51-year old woman presenting with a swelling in the oral cavity and had a history of a surgically treated gastric adenocarcinoma. In oral examination, a non-tender bulging mass was detected in the left side of the body of the mandible. The OPG film revealed a radiolucent lytic lesion in the posterior area of the mandible. The tumor showed irregularly shaped small and large cystically dilated glands underneath the overlying oral epithelium. The mandibular lesion was diagnosed as metastatic gastric adenocarcinoma.

© 2004 Elsevier Ltd. All rights reserved.

Introduction

Metastatic tumors of the oral cavity are rare, representing about 1% of oral tumors. They affect the jaws much more frequently than soft tissues.^{1,2} Furthermore, a tumor of the oral cavity may be the first evidence of the dissemination of another (previously unknown) tumor from its primary site.¹ The most common site for bone metastases in the head and neck region is the mandibular bone, comprising more than 70% of all malignant metastatic tumors in the oral cavity.³ Jaw metastases occur more frequently in females⁴ and there is a

strong predilection for middle-aged and older adults.⁵

Case report

A 51-year old woman was referred to the Department of Oral and Maxillofacial Surgery at Taleghani Medical Center, Tehran, IRAN with the chief complaint of a swelling of the left mandible.

About two months earlier, the patient had visited her dentist with some loose teeth and demanded extraction but the dentist refused extraction because of suspicions of malignancy and referred the patient to this center for further investigations before any manipulative intervention.

* Corresponding author. Tel.: +98-811-422-3032; fax: +98-811-422-3033.

E-mail address: susan_irani@yahoo.com (S. Irani).

The patient's past medical history included a major surgical operation about 10 months before due to gastric adenocarcinoma involving both fundus of the stomach and distal esophagus. The post-operative pathology report revealed a deeply infiltrating gastric adenocarcinoma with invasion to the esophagus extending down to the serous and perivisceral adipose tissue. Extensive metastasis to perigastric and periesophageal lymph nodes were also confirmed but proximal and distal margins of resection were reported free.

In examination, the external oral cavity walls were asymmetric and a non-tender bulging mass in the body of the mandible was prominent on the left side. An immobile, non-tender submandibular lymph node was detected on the same side. Inside the oral cavity, an exophytic, smooth surfaced non-tender lesion measuring about 3×3 cm was noted. The remainder of the physical exam was not remarkable for systemic signs of metastatic involvement such as cachexia, hepatosplenomegaly, ascites etc.

An OPG film revealed a radiolucent lytic lesion around posterior left mandibular area and around the expected second premolar and first and second molars in all of which rarefaction was apparent (Fig. 1). A Tc-99 bone scan of head and neck region showed a radiolucent area along with increased absorption in mandible on the same side as mentioned above. Total body scan looking for distant metastasis revealed no significant findings (Fig. 2). Laboratory evaluations including complete blood count (CBC), liver function tests (LFT), and serum chemistry profiles were all normal. Chest X-Ray was negative for any signs of metastasis.

The patient underwent incisional biopsy from the soft exophytic mass protruding out of the mandibular molar socket that was exfoliated two



Figure 1 Orthopantomogram showing an ill-defined multi-locular radiolucency in the left mandibular region that contains the second premolar tooth floating in the area.

months before, and the tissue sample was sent for histopathologic investigations.

The specimen delivered to pathology lab was an irregular piece of creamy white tissue with elastic consistency measuring about 1.5×1.0×0.8 cm. Cut sections showed a homogenous creamy surface with two cystic areas each measuring 0.3 cm in diameter. Microscopic examination of sections prepared by H&E staining method showed a neoplasm composed of irregularly shaped small and large cystically dilated glands (Fig. 3). These cystic glands were lined by neoplastic epithelial cells with hyperchromic nuclei, infiltrating the lamina propria and osseous tissue, which was covered by stratified squamous epithelium of the oral cavity in some areas.

Our patient was directed to take the necessary therapeutic steps and initially a surgical excision was scheduled for her, but she refused to comply with the procedures and refrained from receiving further therapeutic help. She is now reported to have developed tibial metastatic lesions one year after her last follow up session in our center.

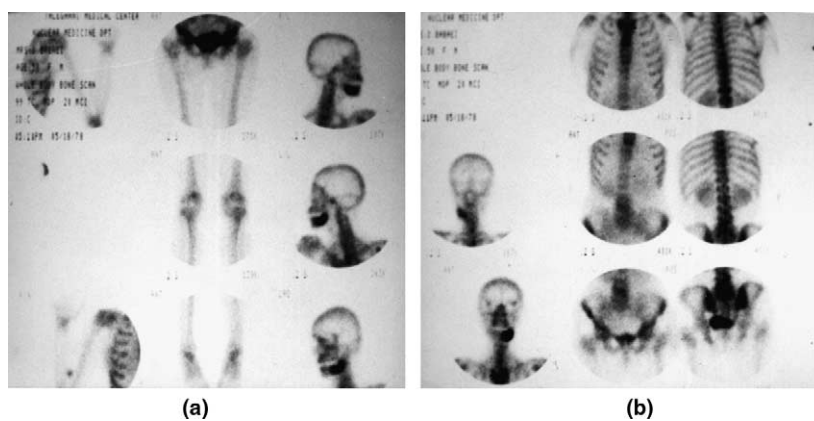


Figure 2 (a) Total body scans (Tc 99) reveal no significant findings indicating metastasis except for the left mandibular region. (b) Total body scans (Tc 99) continued.

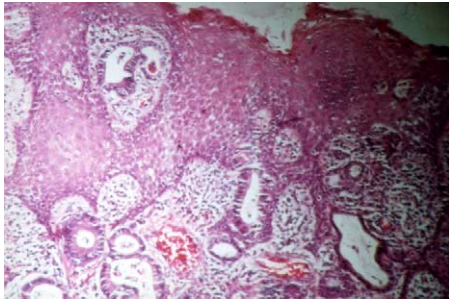


Figure 3 Photomicrograph of oral mucosa showing the invasion of lamina propria by metastatic gastric adenocarcinoma (H&E staining—original magnification $\times 100$).

Discussion

Our patient had a metastatic tumor in her mandible. Thickening, pain and anesthesia over the mandibular and buccal region constitute the most common clinical symptoms of this problem.⁶ However, in the present case, the most important clinical signs was the swelling of the left side of the mandible and mobility of the teeth.

More than 70% of all malignant metastatic tumors of the oral cavity involve the body of the mandible and molar areas because this region contains a deposit of hematopoietic tissue, and the mode of spread is almost always hematogenous.⁷

Bone metastases have common roentgenographic features, which allow them to be classified as osteoblastic (bone-forming)—metastatic prostate tumors being a good example—and osteolytic (bone-destroying) usually the result of metastatic breast cancers.⁸

The most common sites for the jaw metastases in women are breast (42%), adrenals (8.5%), genital organs (7.5%), and thyroid (6%). Meanwhile, the most frequent sites of primary tumors in men are lungs (22.3%), prostate (12%), kidney (10.3%), bone (9.2%), and adrenals (9.2%).^{4,9}

The mechanism by which tumors can spread to the oral cavity is poorly understood. One possible route for blood-borne metastases to the head and neck area is the Batson's plexus: a valveless vertebral venous plexus that might allow for the retrograde spread of tumor cells by passing infiltration through the lungs.⁵

According to Hashimoto et al.¹⁰ the frequency of metastasis in relation to the histological classification was comparatively high in undifferentiated carcinoma (29%), and adenocarcinoma (20%) but rather low in squamous cell carcinoma.

In the view of clinical and radiological findings in this patient the following lesions should be con-

sidered in differential diagnosis: because of history of gastric adenocarcinoma, metastatic gastric adenocarcinoma is the most probable cause lesion. Metastases of breast adenocarcinoma are also another possibility. Other primary tumors like osteosarcoma, chondrosarcoma, minor salivary glands tumors, peripheral squamous cell carcinoma and finally chronic osteomyelitis should also be considered.^{11,12}

Metastatic carcinoma of the jaws initially requires further work-up to identify the primary malignant site and estimate the stage and grade of metastatic involvement. In our case, such work-up had already been accomplished and the primary site and the degree of involvement have been elucidated. A single focus, as is the case with our patient, maybe treated by surgical excision or chemo-radiotherapy. Generalized skeletal metastases are usually an ominous event and are treated palliatively. The prognosis for patient with metastatic carcinoma of the jaws is grave, with a dismal 10% five year survival and more than two thirds of the patient dead within a year.¹³

References

- Piattelli A, Fioroni M. Gingival metastasis from a prostate adenocarcinoma: report of a case. *J Periodontol* 1999; 70(4):441–4.
- Piattelli A, Fioroni M. Gingival metastasis from a medullary thyroid carcinoma: case report. *J Periodontol* 2000;7: 112–6.
- Aniceto GS, Penin AG. Tumors metastatic to the mandible: analysis of nine cases and review of literature. *J Oral Maxillofac Surg* 1990;48:246–51.
- Cawson, Roderic A, Lucas' S. Pathology of tumors of the oral tissues. 5th ed. USA: Churchill Livingstone; 1998. p. 425–7.
- Neville BW. Oral & maxillofacial pathology. 2nd ed. USA: W.B. Saunders; 2002. p. 582–3.
- Glaser C, Lang S. Clinical manifestations and diagnostic approach to metastatic cancer of the mandible. *Int J Oral Maxillofac Surg* 1997;26:365–8.
- Moorman WC, Shafer WF. Metastatic carcinoma of the mandible. *J Oral Surg* 1954;12:205.
- Catone GA, Henny FA. Metastatic gastric adenocarcinoma of the mandible. *J Oral Surg* 1969;27:36.
- Hirshberg A, Leibovich P, Buchner A. Metastatic tumors to the jaw bone: analysis of 390 cases. *J Oral Pathol Med* 1994;23:337–41.
- Hashimoto N, Kurihara KH, Ohba S, Sakaii HY, Oshida S. Pathological characteristics of metastatic carcinoma in the human. *J Oral Pathol* 1987;16:362–7.
- Wood NK. Differential diagnosis of oral and maxillofacial lesions. 5th ed. Philadelphia: Mosby; 1997. p. 358–78.
- Langlais RP, Langland DE. Diagnostic imaging of the jaws. 1st ed. Philadelphia: Williams & Wilkins; 1995. p. 407–8.
- Regezi JA, Sciubba JJ. Oral pathology: clinical pathologic correlations. 5th ed. Philadelphia: W.B. Saunders; 2003. p. 413–5.