

## Metastatic hepatocellular carcinoma on the mandible: A case report

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### ABSTRACT

Hepatocellular carcinoma is one of the most common cancer worldwide, primarily affecting those in regions with a high prevalence of viral hepatitis. However, the metastasis of hepatocellular carcinoma to the oral cavity is a rare phenomenon. This report presents a case of metastatic hepatocellular carcinoma in the left mandibular angle and ramus region of a 62-year-old man. Panoramic radiograph revealed an ill-defined radiolucent lesion extending from the retained root of the mandibular left second molar into the ascending ramus. The lesion had irregular and ill-defined margins. (*Korean J Oral Maxillofac Radiol* 2005; 35 : 215-9)

**KEY WORDS :** Metastatic Carcinoma, Hepatocellular, Mandible

Metastatic tumor to the jaws is an infrequent but not rare phenomenon. Although hepatocellular carcinoma is the most common primary hepatic tumor, in no more than 1% of cases is there oral involvement.<sup>1,2</sup> Only 1% to 4% of oral malignancies are metastatic carcinomas from a distant primary site. An interesting feature of these lesions is that metastatic lesions in the jaws usually arise from sites that are anatomically inferior to the clavicle.<sup>3,4</sup> Most frequently the tumor is a type of carcinoma, the most common primary sites being the breast, kidney, lung, colon and rectum, prostate, thyroid, stomach, testes, bladder, ovary, and cervix.<sup>5,6</sup> Metastatic carcinoma must be differentiated from the more common locally invading squamous carcinoma.

Hepatocellular carcinoma with extrahepatic metastasis has been reported in approximately 50% of cases, with the lung, diaphragm, or skeleton usually involved.<sup>3,7,8</sup> When metastatic tumor involves the oral cavity, the most frequent site is the posterior angle of the mandible.<sup>3,6</sup> Frequency of metastasis to the angle of the mandible is thought to be due to the abundance of hematopoietic tissue, which may enable tumor emboli to implant and proliferate.<sup>6</sup>

In this report we describe a case of metastatic hepatocellular carcinoma in the mandible. And also we compare with previously reported cases of hepatocellular carcinoma metastatic to the jaws.

### Case report

A 62-year-old man was referred to the Chosun University Dental Hospital in June 2004 for evaluation of a painful swelling in the left posterior mandibular ridge. It had first been noticed about 2 weeks ago. The patient complained of numbness of the lower left lip and chin. The medical history included diabetes and hypertension. In addition, this patient had a history of 5 times liver embolization because of liver cancer.

The patient had a firm, painful extraoral swelling with tenderness in the area of the angle of the mandible. Intraorally the patient had a gingival swelling distal to the mandibular left first molar. Other clinical signs, that is fever, chillness, pus discharge, and swallowing difficulty were not seen.

On the panoramic radiograph (Fig. 1), a diffuse 2.3 × 4.7 cm radiolucent lesion was seen at the left angle of the mandible, and swelling of the soft tissue overlaying the lesion was seen. The lesion extended from the retained root of the mandibular left second molar into the ascending ramus. An occlusal cross-sectional radiograph (Fig. 2) revealed destruction of the lingual bony cortex of the mandible. Computed tomography showed an involvement of the left mandible and left ascending ramus (Fig. 3). The perforation of the lingual and buccal cortex of the left mandible body, and the lingual cortex of the left ascending ramus were shown. On the contrast-enhanced axial CT, heterogenous enhanced soft tissue mass on the inner and outer aspect of the left mandible were shown (Fig. 4). Also, CT revealed bone destruction of left mandibular body and cortical breakdown. Bone scan assessment showed pro-

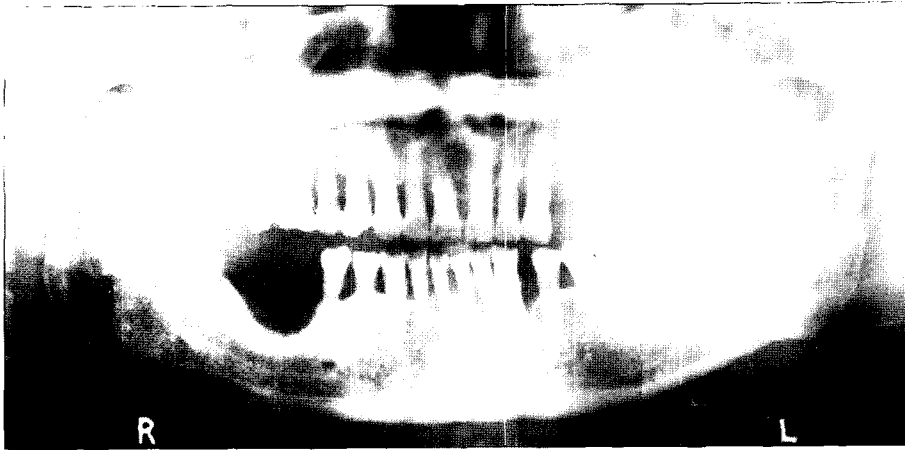
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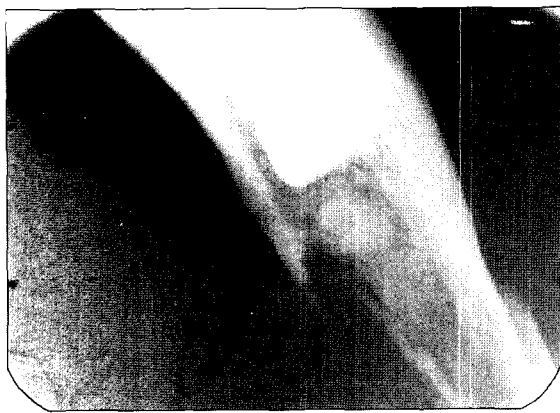
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**Fig. 1.** Panoramic radiograph shows a diffuse radiolucent lesion distal to the root rest of the mandibular left second molar and ranging superiorly up ascending ramus.



**Fig. 2.** Occlusal cross-sectional radiograph shows the destruction of the lingual bony cortex of the left mandible.

able bony metastasis to the left mandible, iliac wing and sacro-iliac (SI) joint (Fig. 5).

An incisional biopsy of the gingival mass was obtained, and the histopathologic features were consistent with solid sheets of neoplastic cells (Fig. 6). Neoplastic cells with eosinophilic cytoplasm arranged in a solid pattern with sinusoid spaces. (Fig. 7).

## Discussion

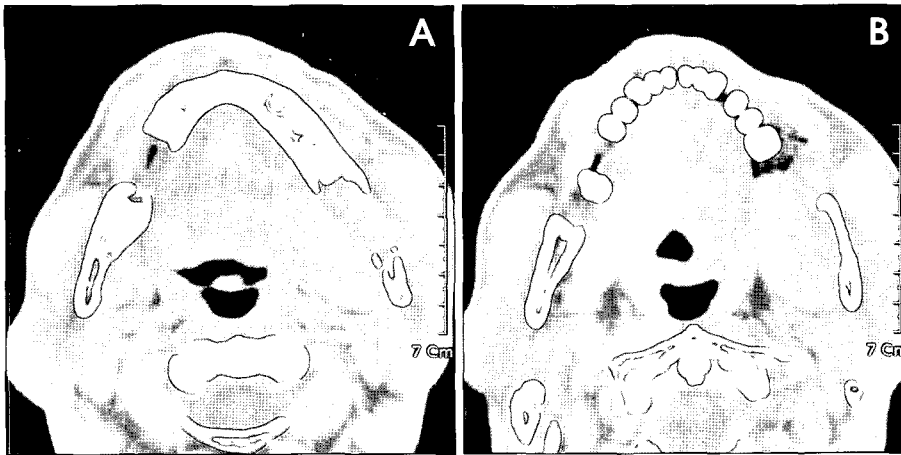
Hepatocellular carcinoma (HCC), or hepatocarcinoma, is one of the most common cancer worldwide, primarily affecting those in regions with a high prevalence of viral hepatitis.<sup>10,11</sup> In many countries, the frequency of this cancer is reported to be increasing; the incidence range from <10 cases per 100,000 population in North America and western Europe to 50-150 cases per 100,000 population in parts of Africa and Asia where HCC is responsible for a large proportion of

cancer deaths. However, a rise in the incidence of and mortality from HCC, most likely reflection the increased prevalence of hepatitis C virus (HCV) infection, has recently been observed in most industrialized countries.<sup>12-15</sup>

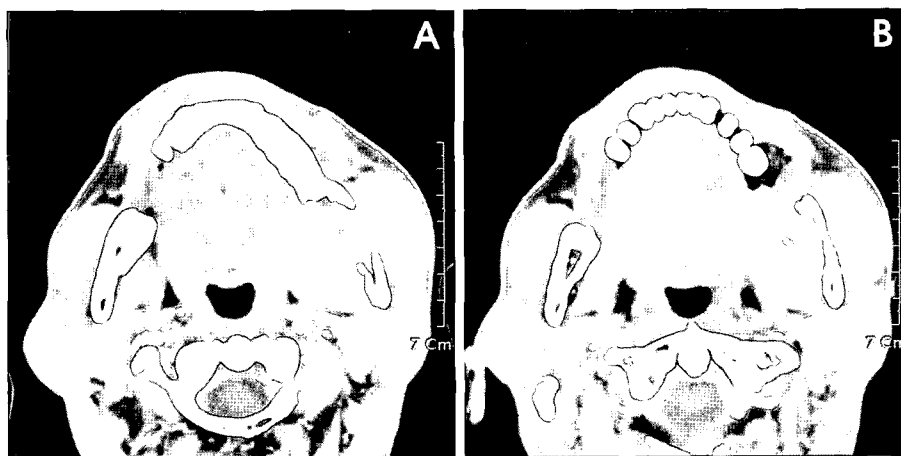
Most carriers of HBV are asymptomatic, but viral DNA eventually becomes incorporated into the host genome of infected hepatocytes, which leads to malignant transformation.<sup>16</sup> In the subtropical region, ingestion of food contaminated with fungal aflatoxins is also believed to contribute to hepatocellular carcinoma. In the low prevalence area, North America and Europe, the underlying cause seems to be alcoholic, postnecrotic, and hemochromatic cirrhosis.<sup>16-19</sup>

In 1998 Chin, et al.<sup>20</sup> reviewed reported metastatic hepatocellular carcinomas to the oral cavity since its first description by Dick et al.<sup>21</sup> in 1957. They found that most patients are male (male-female ratio, 46 : 4), that 90% of patients are more than 50 years of age (range, 15 to 88 years), and that most cases involve the mandible (40 mandible only, 8 maxilla only, 1 mandible and maxilla, 1 tonsil). Patients with metastasis to the oral cavity are often symptomatic with swelling, paresthesia, or excessive tissue growth.<sup>22-25</sup> With current diagnostic technology, we are more capable of detecting malignant lesions. However, at times, the aberrant malignant lesion may not be detectable until clinical signs such as swelling, paresthesia, mobile teeth, and tissue necrosis are evident.

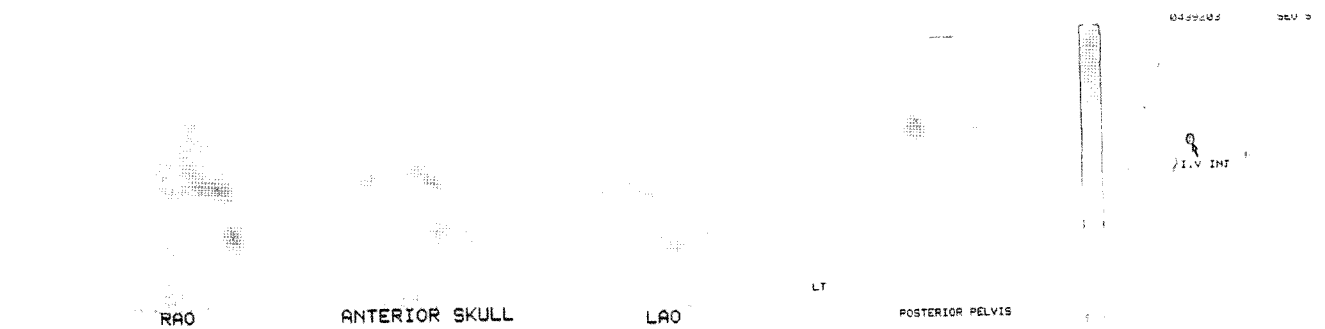
Oral HCC may spread through both hematogenous and lymphatic paths, and the occurrence of metastasis is not associated with any specific form of treatment.<sup>18,25,26</sup> However, HCC metastasis to the oral cavity has been described on one occasion as occurring after liver transplantation performed for the treatment of HCC.<sup>27</sup> It has been suggested that immunosuppression may have a role in the development of metastatic disease.



**Fig. 3.** Axial computed tomography image of the mandible shows left ascending ramus and left mandible lesions in area of posterior region.



**Fig. 4.** Contrast-enhanced axial computed tomography image shows large sized soft tissue mass on the inner and outer aspect of the left mandible.

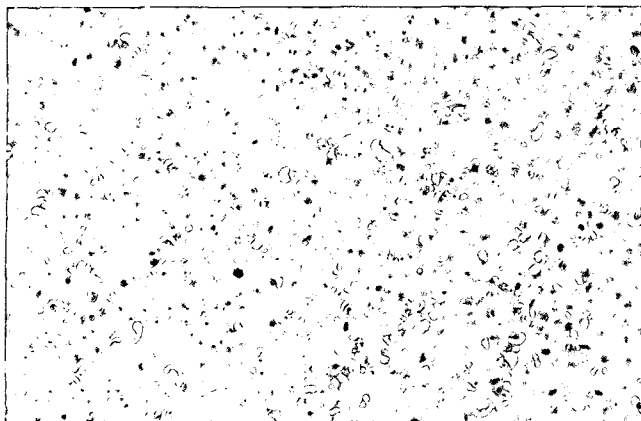


**Fig. 5.** Bone scan assessment showed probable bony metastasis to the left mandible, iliac wing and sacro-iliac(SI) joint.

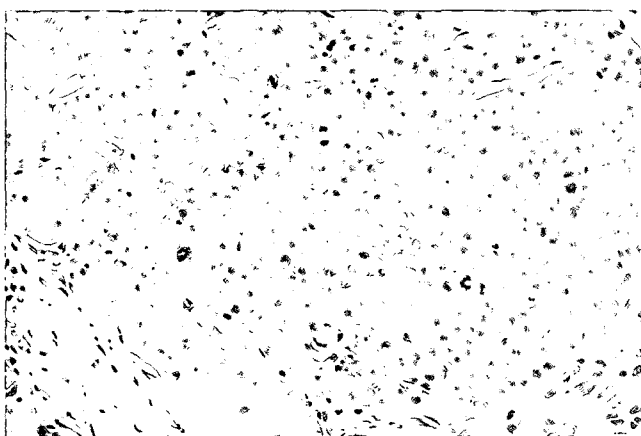
Clinical manifestations like swelling and mental nerve hypoesthesia appear both in our patient and other cases.<sup>20,25,28</sup> Odontalgia is more unusual, but the presence of the retained root of the mandibular left second molar and a radiolucent image in relation with this, made us suspect of a synchronic odontogenic infection with the metastatic lesion.

Radiographs of documented HCC metastasis to the jaw, or

to the gingiva with intraosseous extension typically present a destructive, radiolucent appearance (osteolytic) with ill-defined borders and no sclerotic reaction, having an appearance like that expected in a malignant lesion.<sup>18,29</sup> Panoramic radiograph and another images in our patient showed this features (Fig. 1), but also another images more radiolucent similar to periapical infectious pathology.



**Fig. 6.** Photomicrograph showing solid sheets of neoplastic cells (H & E stain, ×200).



**Fig. 7.** Neoplastic cells with eosinophilic cytoplasm arranged in a solid pattern with sinusoid spaces (H & E stain, ×200).

Histological diagnosis is easy when the hepatic tumor has been previously diagnosed as in our patient, but in most cases metastasis occurs before. Immaturity and anaplasia of the metastatic cells difficultate the diagnosis, and immunohistochemical markers, such as alpha-fetoprotein may be needed to confirm it.<sup>28</sup> In our patient immunohistochemical analysis was negative, as it is described in other studies.<sup>20</sup>

Unfortunately, the prognosis for patients with oral metastatic HCC is very poor, with palliative treatment often indicated to improve local function.<sup>29</sup> Kanazawa and Sato<sup>30</sup> reported a mean survival rate of 21 weeks (range, 2 weeks to 2 years) after diagnosis of metastatic disease to the oral region. Surgical excision may be performed for functional or cosmetic purposes; however, because of the widespread nature of the tumor, often only palliative treatment is performed.<sup>20</sup>

In conclusion, oral metastatic HCC should be included in

the differential diagnosis of rapidly growing oral lesions, particularly in patients with a history of chronic hepatitis B. The variability of the radiological features of metastatic HCC and its resemblance to periapical lesions and radicular cysts, as well as other odontogenic cysts and normotensive tumors, emphasize that metastatic HCC should be considered in the differential diagnosis of radiolucent lesions in the jaws.

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