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Metastasis of mucinous adenocarcinoma of colon to the mandible: A case report

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ABSTRACT

Metastatic disease to the oral cavity is rare, representing only 1-8% of oral malignancies, and involvement of the mandibular ramus is even less prevalent. This report is a unique case of metastatic adenocarcinoma of the colorectal to the mandible. Clinical presentation can be quite variable, and most often a primary malignancy is already known. Jawbone metastasis are a sign of disseminated malignant neoplasms, with poor prognosis and usually an indication for palliative therapy. The requirement for arrival at an appropriate and prompt diagnosis is crucial for determining the most appropriate treatment regimens and improved outcomes. The oral metastatic lesion may be the first indication of an undiscovered distant primary tumor, making timely evaluation and treatment critical from an oncologic perspective. Here we report a known case of mucinous adenocarcinoma of colon who was referred due to a mandibular lesion.

Keywords: Mandible; Mucinous adenocarcinoma; Metastasis.

Introduction

More than 90% of colorectal carcinomas are adenocarcinomas [1]. Mucinous adenocarcinoma (MAC) is the second most common pathological type of colon carcinomas [2]. MAC is quite a rare disease. It has a subtle beginning and the symptoms are quietly invisible at the early stage. The disease usually presents as acute appendicitis [3]. Mucinous colorectal adenocarcinoma is mostly located in the proximal colon [4]. Hemopoietic spread can result with an oral metastasis. Oral metastasis are mostly a result of the disseminated malignant disease with poor prognosis [5]. Only 1-8% of oral malignancies constitutes oral cavity metastasis and mostly, maxilla and mandible are intervolved. Metastasis to the mandible are more common than metastasis to the upper jaw [6]. They mostly originate from primary tumors of the lungs, kidney, breast, prostate and colon [7]. Oral metastases from the primary colorectal adenocarcinoma are very uncommon [8]. We describe a case of adenocarcinoma of

the colon with metastasis to the mandible. A 37-year-old female with history of rectal cancer, radiotherapy and adnexal metastatic lesion, now is referred with mandibular lytic radiolucent lesion and paresthesia.

Case Report

A 37-year-old female presented to Oral and Maxillofacial Surgery Department of Tehran University of Medical Sciences (TUMS) with chief complaint of unilateral paresthesia of lower lip in the right side. Intraoral examination revealed a painless swelling of the posterior right site of the lower jaw. Superficially mucosa was intact and no ulceration was observed. In extra oral examination, there were no significant changes and the regional lymph nodes were not palpable. The patient felt pain and numbness with abnormal sensation in the area of right lower lip. In past medical history evaluation, the patient reported history of rectal cancer with metastasis to uterus. She had a surgery of the rectal cancer and received radiotherapy and chemotherapy about 3 years ago. In radiographic evaluation, a radiolucent lesion was seen in right mandibular ramus extending to second premolar tooth. The lesion demonstrated ill-defined borders (Figure1).

Radiographic differential diagnosis were metastatic tumor of MAC, primary intraosseous carcinoma and primary carcinoma with odontogenic origin. An incisional biopsy was performed. Macroscopic examination revealed of several encapsulated fragments of irregular soft to gelatinous brown creamy tissue. Microscopic examinations showed fragments of tumoral tissue composed of various sized lobules of large epithelioid cells with intracytoplasmic mucin and eccentric small hyperchromatic nuclei demonstrating pleomorphism. Extensive amount of extracellular mucin was also evident. Vascular invasion was also seen (Figure 2). The diagnosis of metastatic mucinous adenocarcinoma was confirmed according to the patient history. The patient undergone to oncologist consultation to receive the suitable chemotherapy regime. Unfortunately, the patient died after several months after receiving chemotherapy treatment because of complications of the medications.

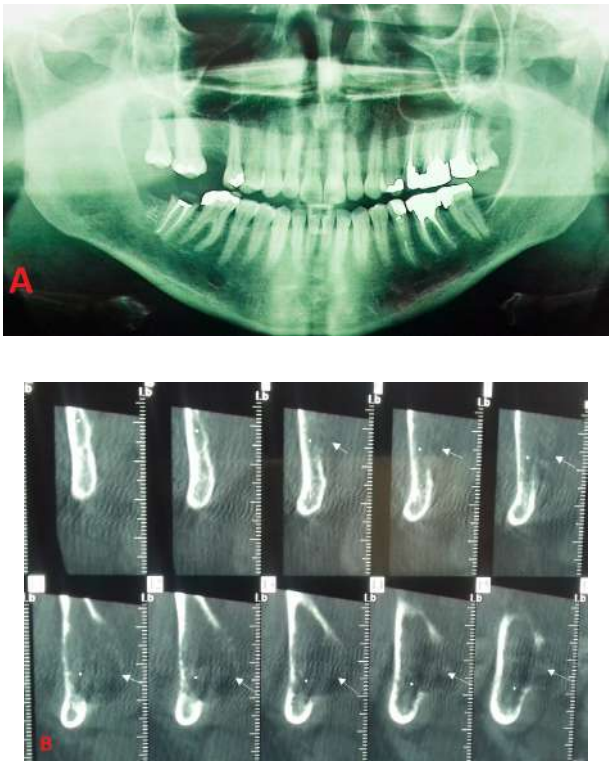
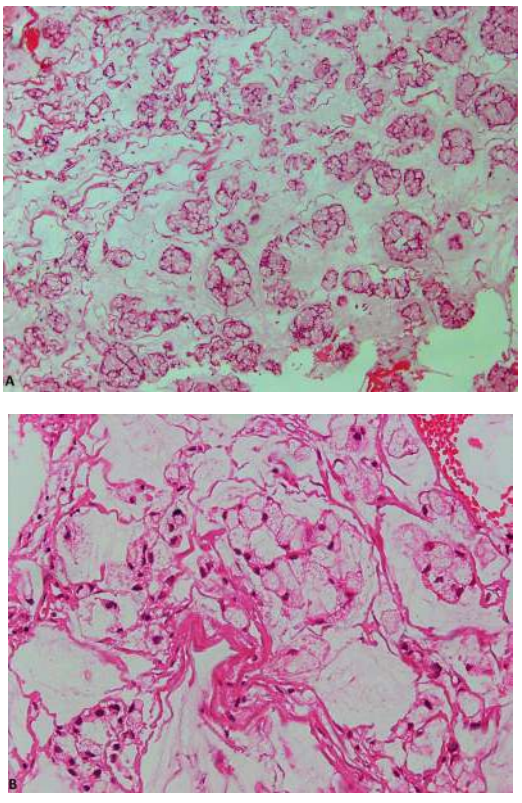


Figure 1. Radiographic view of the lesion. A) Panoramic radiography of the patient reveals a lytic radiolucent lesion area of ramus extending to right second mandibular tooth. B) CBCT of the patient shows expansile lesion with ragged borders which perforated the lingual cortex of mandible.



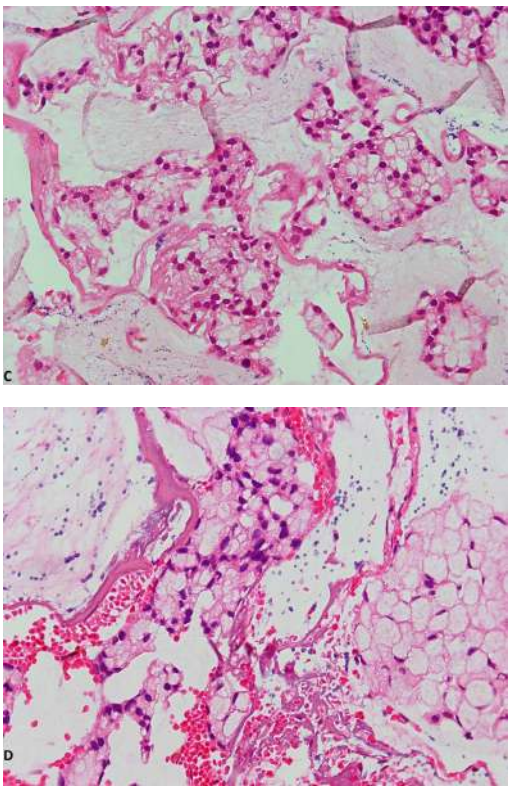


Figure 2. Histopathologic features. A) Nests and lobules of mucinous cells in myxoid stroma. B) Large mucinous cells with abundant foamy cytoplasm and eccentric nuclei. C) Gland-like structures in tumoral cells. D) Sheets of mucinous cells in hemorrhagic background. Note extensive cell debris in stroma.

Discussion

Metastatic tumors to the mandibular bone are rare and it is a challenging diagnosis for clinicians. They are often indicative of an unrecognized distant primary tumor mainly from the lungs, followed by the prostate, gastrointestinal tract, colon, thyroid gland, breast, skin, and finally liver [9]. It is mostly known that circulatory system is the reason for metastatic tumors in the mandible area, because the mandible lacks a lymphatic system [10]. The mandible is more commonly affected than the maxilla, with the area of the premolars and molars being the most prevalent sites [11]. Almost 1% of malignant neoplasms of the oral cavity are metastases, and most (64%) are found in the fifth-to-seventh decade of life [7]. In general, elderly men and women are equally affected and the posterior mandible is more frequently involved. For men, the most common origins of the primary carcinoma are the lung, prostate, and adrenal glands, whereas for women, breast, adrenal glands, colon and rectum, genital tract, and thyroid constitute the majority. It is interesting that metastases are more common in the mandible than the maxilla because the vascular supply of the mandible depends on a single arterial branch whereas the maxilla is supplied by several branches. It mostly present in soft tissue than bone. Gingiva and alveolar mucosa have been described as the most common oral sites [12]. Clinically these lesions are mimicking reactive lesions such as pyogenic granuloma of gingiva and cannot be distinguished by clinical features in some cases [13]. Diagnosis of these lesions is challenging because there is no pathognomonic radiographic appearance for mandibular metastases, although a lytic radiolucency is common.

Clinical symptoms are usually general, mimicking odontogenic infections [14]. About half of reported cases of metastatic lesions involving the mandible present with symptoms similar to TMJ disorders. Differential diagnosis should include the possibility of a metastatic lesion. Symptoms mostly include pain, paresthesia, malocclusion, pathologic fracture, swelling and trismus. However, in many cases the lesion may be asymptomatic [15]. Carcinomas that commonly metastasize to the oral cavity include breast, prostate, kidney, lung, thyroid, and gastrointestinal malignancies [16]. We present the case of a mucinous adenocarcinoma of the mandible in a 37-year-old patient with a history mucinous adenocarcinoma at colon 3 years ago.

A detailed history of the present illness, medical history, review of systems, and adequate laboratory studies and tissue biopsy are required for precise diagnosis. Our patient's medical history included a history of colon MAC with metastasis to the uterus, without history of smoking or alcohol consumption. Microscopic examinations show fragments of tumoral tissue composed of various sized lobules of large epithelioid cells with intracytoplasmic mucin and eccentric small hyperchromatic nuclei demonstrating pleomorphism. Extensive amount of extracellular mucin was also evident. Metastatic lesions should always be included in the differential diagnosis to prevent delay in diagnosis and treatment. Typical treatment modalities include palliative radiotherapy and chemotherapy should be considered for the patient [17]. Some other mandibular lytic malignances must be ruled out in the differential diagnosis of MAC. For example, cystadenocarcinoma unlike MAC, they are lined by epithelium with or without papillary proliferation [18]. The microscopic features described herein did not show any cystic space surrounded by epithelium. Another differential diagnosis-intraosseous mucin-rich mucoepidermoid carcinoma—has lakes and pools of mucin, but a lower amount of floating epithelium, with epi-

dermoid and intermediate cells, which were absent in our patient [19]. As excessive mucin production with floating cancer nests is not pathognomonic of MAC, it has been suggested that any tumor suspected of being a MAC should be extensively sampled to exclude any non-mucinous component found in other carcinomas [20]. Vascular invasion is also seen in oviduct wall and no intact ovarian tissue identified. These features were all present in our reported case. This differential diagnosis in the case of MAC is associated with mandible, which also mimics the mucinous adenocarcinoma of the gastrointestinal tract and colon carcinoma on histopathology [21].

The goals of treatment are pain relief and the prevention of secondary infections, pathologic fracture, hemorrhage, and malnutrition. Early diagnosis can be critical for a suitable treatment. There is some reports considering accurate and early diagnosis of metastatic lesions of oral cavity is the most noticeable point to increase patient's survival [22]. It is highly essential to cut-down or lower the growth of tumor for an effective treatment. There are several ways to eliminate and reduce the speed growth of tumor. Bloc resection by surgical methods is recommended in most of the cases, but radiation therapy is best reserved for high-grade lesions [23]. However, several investigators in this series treated their patients with irradiation after surgical ablation. Locoregional relapse after high-dose radiotherapy for head and neck cancer remains a therapeutic challenge where cure can be achieved if surgery and/or re-irradiation are part of the therapeutic approach [24]. Reconstruction of the mandible after a bloc mandible resection remains a challenge for surgeons and patients. The primary goal in the treatment of malignant neoplasms is to achieve excision of the tumor in its entirety with appropriate negative margins [25]. Bloc resection of the right body of the mandible, leaving the posterior border, followed by adjuvant chemotherapy is another therapy. The patient might require additional cycles of chemotherapy, so it could be repaired with a custom prosthesis requiring a minimal operation. This allowed for continuation of chemotherapy with minimal disruption [26]. If none of these treatments work out, drug therapy can be started under supervision of surgeon [27].

Conclusion

In conclusion, metastasis MAC can involve the jawbone. The definitive diagnosis of a primary MAC requires accurate clinical and histopathological investigation to rule out other malignances. Although early diagnosis is critical for patient, but unfortunately overall survival is not very good in most cases. The role of radiotherapy remains uncertain, but it seems to be a reasonable option as adjuvant treatment for optimizing local control after metastasis resection.

Conflict of Interest

There is no conflict of interest to declare.

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