

## Case Report

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# Colon adenocarcinoma metastasis to the mandible: A case report

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### Abstract

**Introduction:** Metastasis is the main leading cause of death among patients with colon cancer. Metastatic colon cancers in the oral cavity are uncommon, and the number of related clinical studies are limited in the literature.

**Case report:** We present the case of a 45-year-old woman with mandibular tumefaction. A mandibular bone biopsy was carried out and revealed colon cancer metastasis. The mandibular mass lesion was treated with palliative radiotherapy.

**Conclusion:** Colorectal cancer with oral cavity metastasis is relatively rare and frequently associated with advanced and recurrent cancer. The most common therapeutic approach is palliative care.

**Keywords:** Colon cancer; Mandible; Metastasis; Radiotherapy.

### Introduction

Colorectal cancer is the most frequent gastrointestinal cancer and the second most common malignancy in adults. The liver, followed by the lung, is the most prevalent location for metastatic colorectal cancers [1,2].

The oral region is not a common place for metastasis and accounts for about 1% of all malignant oral cavity tumors [3].

### Case report

A 45-year-old woman came to our clinic with painful swelling of the right parotid area. The symptoms first appeared about 4 weeks ago. The patient was a known case of ascending colon can-

cer that had been treated with a right hemicolectomy a year before. A month after surgery, she developed liver metastases and was undergoing chemotherapy. Her family history was irrelevant. Physical examination showed a slightly asymmetric face on the right side associated with a firm and tender mass-like lesion with normal overlying skin. Intraoral examination depicted no obvious lesion or ulcer. Benign neoplasms and primary or metastatic tumors of the oral cavity were included in the differential diagnosis after clinical examination and consideration of the patient's medical history.

A panoramic radiograph showed a radiolucency in the right mandibular ramus with an ill-defined margin (Figure 1).

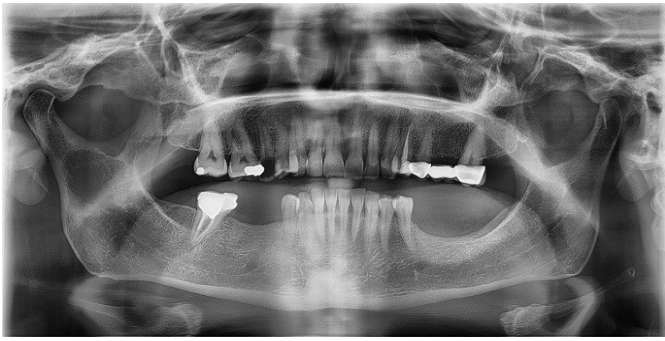
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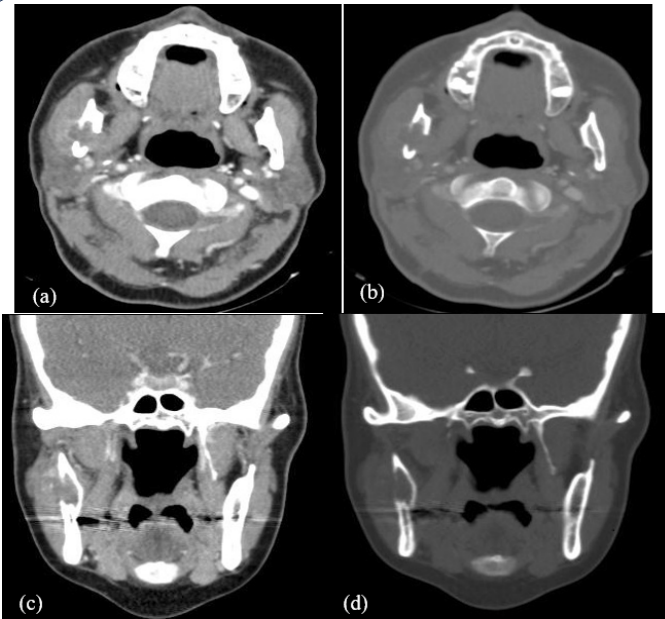
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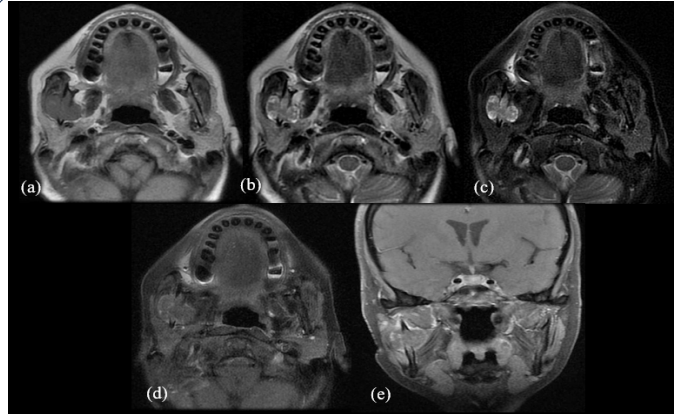
**Figure 1:** Panoramic radiograph showed a radiolucency with ill-defined margin in the right mandible ramus.

Contrast enhanced CT scan of the head and neck revealed a substantial osteolytic mass with bone damage in the right mandible ramus, which involved the mandibular foramen (Figure 2). There was no lymphadenopathy.



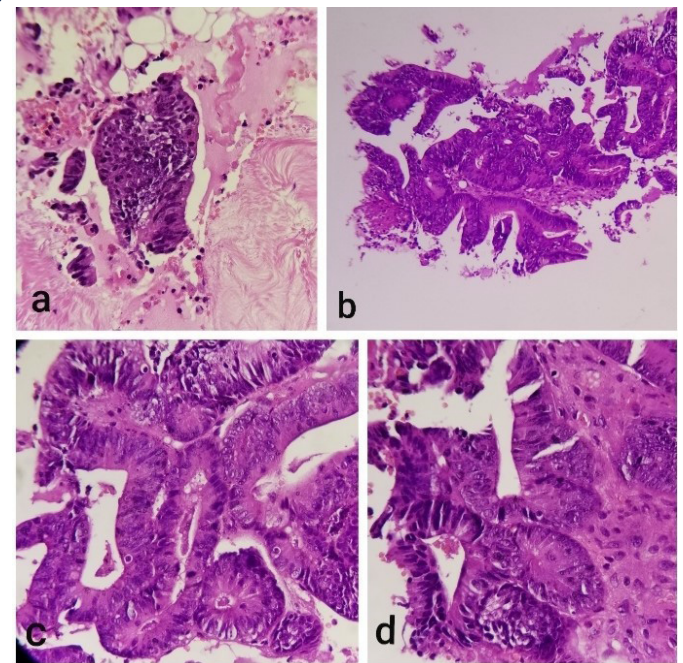
**Figure 2: (a-d)** Axial and coronal contrast enhanced CT scans show an osteolytic and destructive hypoenhancing dumbbell shaped mass lesion along with the right mandible ramus affecting the mandibular canal.

Magnetic resonance imaging (MRI) showed a homogeneous low intensity on T1-weighted images and heterogeneous high intensity on T2-weighted and STIR images destructive soft tissue mass lesion infiltrating the mandible ramus (Figure 3). No obvious enhancement is depicted in postcontrast CT and MRI images inferring hypovascular mass.



**Figure 3:** MRI showing a dumbbell shaped heterogenous intensity mass expanding the mandible ramus. (a) The lesion shows low signal intensity on a T1-weighted image. (b,c) The lesion shows heterogeneous high signal intensity on T2-weighted and STIR images. (d,e) The lesion shows faint enhancement on a T1 fat suppression axial and coronal postcontrast images.

The right mandible ramus lesion was considered to be malignant based on the clinical and radiological results. The probable diagnosis included a metastatic lesion or a primary intraosseous tumor. A core needle biopsy was conducted, and the histopathology revealed metastatic colon adenocarcinoma (Figure 4).



**Figure 4:** Microscopic findings. Moderately differentiated adenocarcinoma was observed. (a) Tumoral clusters among fat and connective tissue. (b) irregular and tortuous neoplastic glands. (c,d) High magnification show nuclear pleomorphism and stratification.

In our case, treatment was initiated with local palliative radiotherapy and she is currently receiving follow-up care from our clinical team.

## Discussion

Colorectal cancer is prevalent, estimated for 15% of recently diagnosed all cancers, with increased incidence and mortality in developing countries.

Colorectal cancer with metastasis is associated with poor prognosis and increased risk of tolerance to anticancer treatment [1,4].

Oral cavity metastases often represent a poor prognosis with a mean survival time of about six to seven months after diagnosis [5,6].

Breast cancer with jawbones metastasis is the most common known primary cancer, while the most common metastatic cancer to the oral soft tissues is the lung [7].

Colorectal carcinoma with oral region metastasis is rare in the literature however jaw bones are the most common primary site for metastasis [8,9].

As a result, it is hypothesized that a reduced immune system response may lead to a higher frequency of oral cavity metastases from colon cancer [10].

The mandible is the most usually affected jawbone for metastatic lesions, and among the oral cavity soft tissues, the attached gingiva, followed by the tongue, is the most frequently regions for metastases sites in the oral cavity [11].

The most common symptoms of jawbones infiltrated by metastatic tumors are pain followed by paresthesia and swelling [8, 10].

Metastatic tumors are categorized as osteolytic, osteoblastic, or mixed osseous lesions. Almost bone metastasis induced by colorectal cancer is osteolytic type [8,12]. It is noteworthy that in approximately 5% of the cases with jawbones metastases, radiographs are normal [8].

Imaging manifestations of metastatic colon carcinoma in the mandible on MRI and CT are less well identified. Erosion and destruction of the mandible by metastatic lesions on CT scans have been reported in a few published literature [13,14].

The differential diagnoses are primary bone or odontogenic malignancy, osteomyelitis, infected odontogenic cysts, and advanced periodontal bone loss [15].

To the best of our knowledge, only a few recent publications have detailed the MRI findings of metastatic colon cancer in the jaw [7].

A further study reported metastatic thyroid cancer in the mandible as a heterogeneous intensity mass with heterogeneous enhancement on post-contrast images on MRI [16].

In our case, the mandibular tumor on the CT scan was an osteolytic hypo enhancing soft tissue mass lesion with cortical bone destruction suggestive of an aggressive lesion. On MRI, the lesion was andumbell-shaped mass with T2 heterogeneous signal intensity causing the expansion of mandible ramus and destruction of the cortex. The overlying mucosa, on the other hand, was

normal. Metastasis to the mandible was suspected based on the imaging results and the patient's history of colon cancer. Nevertheless, primary intraosseous carcinoma was in our differential diagnosis that is typically unrecognizable from other malignant or benign tumors. Therefore histological evaluation was necessary for confirmation of diagnosis.

Tissue biopsy and immunohistochemical examination are necessary for confirmation of metastatic cancer and the subsequent beginning of treatment [17].

The most common mandibular bone metastatic lesions histologically are adenocarcinoma in 70% of cases and rarely followed by renal clear cell carcinoma and pulmonary squamous cell carcinoma.

Immunophenotypically, the Colorectal carcinoma cells show strong positive immunoreactivity for CK20 and negative for CK7 marker [5,18].

Aggressive therapy should be considered in cases of low volume metastases, patient's clinical condition, and responsive colorectal cancer to systemic therapy. In Hirshberg's study, surgical resection of a solitary metastasis in the oral cavity was associated with an improved prognosis [10]. Also conservative and palliative management of metastatic jaw lesions including pain management, radiotherapy, chemotherapy, or local surgical excision should be done in cases of widespread metastases [5,18]. We also used palliative treatment in our case since she already had liver metastasis when the mandibular metastasis was identified. The goal of palliative therapy is the reduction of the symptoms of pain and discomfort and to improve normal function and overall quality of life.

## Conclusion

Colorectal cancer with oral cavity metastasis is very rare and predicts a poor prognosis. The mandible is the most common location of metastases to the oral cavity and unfortunately often found with advanced recurrent cancer with extensive metastatic lesions intractable to aggressive definitive therapy.

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