



# Prostatic adenocarcinoma with initial metastatic spread to the mandible

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## ABSTRACT

Prostate cancer is one of the commonest types of malignancy in males. Although prostate cancer has a propensity to metastasize to the bone, metastasis to the mandible is rare. Because of their uncommon incidence, the diagnosis of mandibular metastasis, especially those originating from the prostate, may represent a challenge both for urologists and dentists. Here we present a case of prostatic adenocarcinoma with initial metastatic spread to the mandible.

**Keywords:** Mandible; metastasis; prostate cancer.

## Introduction

Prostate cancer is the second most frequently diagnosed cancer in man and 70 to 80% of men with metastatic prostate cancer have involvement of the bone.<sup>[1-6]</sup> Although any skeletal site can be affected by prostate cancer metastasis, most metastatic lesions involve the ribs, thoracic and lumbar vertebrae, and ilium of the pelvis. However, the mandible is rarely affected by prostate cancer metastasis. Here we report a case of prostatic adenocarcinoma with initial metastatic spread to the mandible.

## Case presentation

A 65-year-old male was admitted to our hospital with complaints of lower urinary tract symptoms. His laboratory findings revealed elevated serum prostate-specific antigen (PSA) levels (321 ng/mL) and the rectal examination revealed palpable nodule. Histopathological analysis of transrectal prostate biopsy confirmed prostate adenocarcinoma with a Gleason score 4+5=9. Bone scintigraphy and magnetic resonance imaging (MRI) did not show any pathology. The patient was diagnosed with locally advanced prostate cancer without any metastasis (cT2cN0M0). His treatment was planned as a combination of radiation therapy with maximum androgen blockade. One year after the initiation of treatment nadir serum PSA level (0.66 ng/mL) was achieved. During the treatment period when

his PSA level was elevated to 19.5 ng/mL despite hormonal manipulations such as antiandrogen withdrawal, bone scintigraphy was repeated and an increased uptake of the radiocontrast agent in the right mandibular region was observed (Figure 1). His physical examination also confirmed right mandibular bulging and swelling (Figure 2). The patient was admitted to Ege University Faculty of Dentistry with complaints of severe dental pain and right mandibular swelling. Regarding his past medical history, his dentist performed a biopsy procedure of the mandibular lesion, which did not respond to the medical treatment. Histopathological examination of the incisional biopsy of the mandible revealed adenocarcinoma with a Gleason score 3 + 4 = 7 (Figure 3). Chest computed tomography and abdominal MRI, performed after the biopsy, did not reveal any pathology or metastasis. After diagnosing mandibular metastasis, his treatment modality evolved to a combination of luteinizing hormone-releasing analog and bisphosphonates to prevent skeletal related events. Six months later, docetaxel-based chemotherapy was initiated because of disease progression to the castration resistant level. In addition to the mandibular metastasis, metastatic lesions in the thoracic 10<sup>th</sup> vertebrae and 10<sup>th</sup> rib were also observed on bone scintigraphy, which was repeated 1 year after the first one. The patient's current PSA level is 4.63 ng/mL, after receiving eight courses of docetaxel chemotherapy repeated at 3-week intervals.

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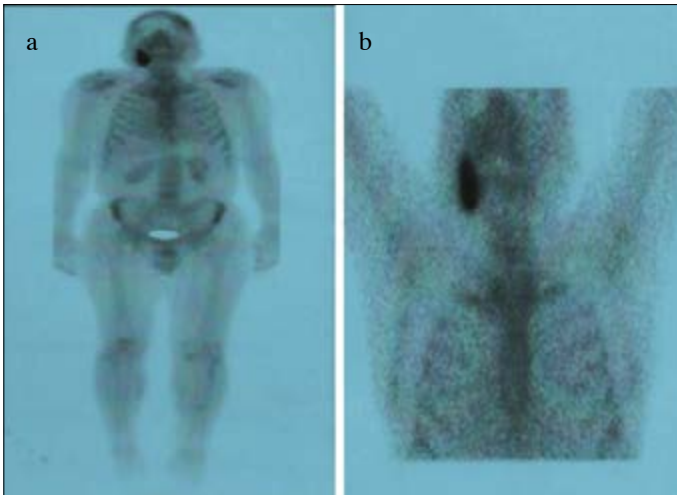


Figure 1 a, b. Bone scintigraphy images (a and b): Increased uptake of the radiocontrast agent in the right mandibular region



Figure 2 a, b. Photograph of the patient with right mandibular bulging and swelling

## Discussion

Here we presented a case of prostatic adenocarcinoma with metastatic spread to the mandible. Although any skeletal site can be affected by prostate cancer, metastasis to the mandible, especially as an initial metastatic site, is not a common event.

When the metastasis is located in the mandible, the primary tumor is more likely to develop osseous metastases in other parts of the body.<sup>[7,8]</sup> However, as observed in our case, it is also possible that the mandible is the first metastatic region of differ-

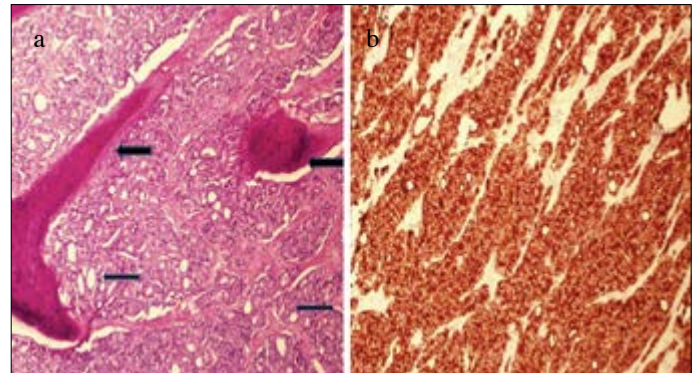


Figure 3 a, b. Small, irregular aciner configuration and an infiltrative growth pattern of tumor cells (thin arrow) between the bone trabecula (thick arrow) (H&E  $\times 100$ ) (a). Diffuse membranous immunoreactivity with prostate-specific acid phosphatase (PSAP) (H&E  $\times 200$ ) (b)

ent types of malignancies.<sup>[9]</sup> The four most common tumor sites that metastasize to the mandible in man are the lung, prostate, kidney, and liver, in descending order of frequency.<sup>[10]</sup>

Metastasis to oral tissues are extremely rare and comprise about only 1% of all oral malignancies, whereas 61% of this type of malignancies involve the mandible.<sup>[11,12]</sup> The presence of hematopoietic areas in the mandible can explain why the mandible is the most frequent site of metastasis among the oral tissues.<sup>[7]</sup> In a study reviewing 390 oral cancers, Piattelli et al.<sup>[13]</sup> stated that 22 cases (5.6%) were metastatic tumors to the jaw, prostate being the primary site of these tumors.

The clinical presentation of metastatic oral disease can vary from local swelling or pain to paraesthesia.<sup>[14]</sup> The diagnosis of metastatic tumor of the mandible could also be challenging for dentists because the pathology can mimic the signs and symptoms of temporomandibular joint disorders.<sup>[15,16]</sup> Any pathology, including infection, trauma, and previous dental disorders, may lead to an increased uptake of the radiocontrast agent in the mandibular region during bone scintigraphy; therefore, it is important to differentiate between bone metastasis and other pathologies in a patient with a history of prostate cancer. In the present case, although the patient's histopathological examination of prostate biopsy indicated prostate cancer, biopsy was performed of the mandibular lesion, which had not responded to medical treatment.

In conclusion, prostatic adenocarcinoma with initial metastatic spread to the mandible is a rare event. Diagnosis of metastatic tumor localized in the mandible could be challenging for urologist and dentists and it should be considered in cases with atypical symptoms, especially in patients with a history of malignant disease.

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