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## Solid malignant metastases in the jaw bones

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### Abstract

Metastatic tumours to the jaw bones are rare, and usually develop during the final stages of cancer. Some, such as those of lung, breast, and kidney, are more likely to metastasise to the jaw. We have therefore analysed the clinical and epidemiological characteristics of patients with metastatic tumours. We retrieved the notes of 4 478 patients with metastatic tumours to the jawbones who were treated in the Clinical Hospital Centre Dubrava in Zagreb, Croatia, during the 15 years 2002–17 and made a retrospective analysis of patients' age, sex, site of primary tumour, site and clinical presentation of the metastases, time interval since diagnosis of the primary tumour and oral metastases, and time interval from diagnosis of oral metastases to death. Of the 10 who were diagnosed with metastases to the jaw, there were four male and six female patients (mean age 57 (range 51–84) years) and the most common primary tumours were kidney (n=5), lung (n=2), breast (n=1), colon (n=1) and unknown (n=1). The mandible was more often affected (n=7) than the maxilla (n=3), and the most common histological type was adenocarcinoma (n=6). The primary tumour in most of the patients (n=7) was diagnosed before the oral metastatic lesion. A metastasis in the jaw was the first sign of metastatic tumour in three patients, and in one case the metastasis and the primary tumour were diagnosed at the same time. Most of the patients had some oral problems. The time intervals from diagnosis of an oral metastasis to death varied from one month - five years. Because of the rarity of the presentation, the diagnosis of an oral metastatic lesion remains challenging, so metastases in the jaw should be suspected in every patient with such cancers and lesions in the jaw.

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**Keywords:** solid cancers; jaw bones; metastases; epidemiologic characteristics

### Introduction

We know that the common primary cancers such as breast, lung, kidney, bone, and colon are the ones that metastasise to the mouth.<sup>1</sup> Such metastases are rare, and make up about 1% of all oral malignant disease. Hirshberg et al<sup>2</sup> reported that most oral metastases were diagnosed in patients in their fifth

to seventh decades, and stated that the primary site differed between the sexes. For women it was the breast, followed by the adrenal gland, colon or rectum, female genital organs, and thyroid; and for men it was the lung, followed by the prostate, kidney, bones, and adrenal gland. The most common site of metastatic lesions is the molar area in the mandible. These metastases are a sign of widespread disease and have an overall survival of seven months. Most affected patients have swelling, pain, bleeding, paraesthesia, and loosening of the teeth.<sup>3</sup> Because of their rarity and atypical clinical and radiographic appearances, metastatic lesions are a diagnostic challenge.<sup>4</sup> Osteolytic destruction might be more common

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on radiographs than osteogenic or cyst-like changes.<sup>5</sup> In metastatic tumours, the primary site can often be identified by the histopathological features, and it is of utmost importance to search for the primary cancer, if it is not known. In roughly one third of the patients with metastases to the jaw the site of the primary tumour is unknown, so data about the most common cancers that metastase to the jaw bones are valuable.<sup>6</sup>

Jaw metastases usually have a poor prognosis, and treatment is based mainly on the site of origin and the degree of metastatic spread.<sup>7</sup> Management involves resection, sometimes combined with radiotherapy or chemotherapy. In patients whose medical condition is good and whose primary tumour has been successfully treated, aggressive treatment is recommended. However, if the primary tumour is recurrent with widespread metastases, the lesion should be managed conservatively. The main goal of palliative treatment is to reduce pain and the size of the tumour, and prevent loss of function.<sup>8</sup>

## Patients and methods

The Ethics Committee of the Clinical Hospital Centre Dubrava gave consent for this study. We retrieved the casenotes of 4 478 patients treated at one hospital (Department of Pathology, Clinical Hospital Centre Dubrava, Zagreb, Croatia) during the 15 years 2002-17, and retrospectively analysed the patients' age and sex, site of the primary tumour and oral metastases, clinical presentation of the oral metastases, the time that elapsed from the diagnosis of the primary tumour to that of the oral metastases, and the time that elapsed from the diagnosis of the oral metastases until death.

## Results

There were four male and six female patients (mean (range) age 57 (51-84) years). The diagnosis of a metastatic lesion was the first indication of disease in three cases and in one case the metastasis and the primary tumour were diagnosed at the same time. Management protocols were based on the medical condition of the patient at the time of diagnosis of the metastases. Details of all 10 cases are given in Table 1.

## Discussion

Hirshberg et al<sup>9</sup> stated that in a quarter of their cases oral metastases were the first sign of metastatic spread, and in nearly a quarter they were the first indication of an undiscovered malignant growth at a distant site. This was the case in three patients in our study. The same authors also stated that the primary site differs according to the oral site: in men the lung was the most common primary site to affect

Table 1  
Clinical and epidemiological characteristics of patients with metastatic tumours of the jaw bones.

Case No.	Age (years)	Sex (M/F)	Primary tumour	Site of oral metastases	Clinical presentation	Treatment	Time from diagnosis of primary tumour to oral metastasis (months)	Time from diagnosis of oral metastasis to death (months)
1	65	M	Clear cell renal cell carcinoma	Maxilla	Mobility of tooth (27) and bleeding	Palliative	26	7
2	58	M	Clear cell renal cell carcinoma	Maxilla	Local exophytic lesion	Chemotherapy	37	9
3	64	F	Renal adenocarcinoma	Mandible	Local exophytic lesion	Palliative	1	5
4	61	M	Renal adenocarcinoma	Maxilla	Local exophytic lesion	Resection and irradiation	36	5 years
5	68	F	Renal adenocarcinoma	Mandible	Osteolytic lesion on MSCT	Radiation and chemotherapy	26 years	4 years
6	54	M	Adenocarcinoma of lung	Mandible	Osteolytic lesion on MSCT	Palliative	2	1
7	51	F	Small cell lung cancer	Mandible	Swelling and pain, left periauricular region	Chemotherapy	Jaw metastasis first detected	6
8	75	F	Invasive tubular breast cancer	Mandible	Local exophytic lesion	Chemotherapy	Jaw metastasis first detected	14
9	84	F	Adenocarcinoma of colon	Mandible	Ulcerous tumour	Chemotherapy	Jaw metastasis first detected	20
10	71	F	Adenocarcinoma: unknown site	Mandible	Osteolytic lesion on MSCT	Chemotherapy	Diagnosed at same time	7

MSCT = multislice computed tomography.

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