

Discovery of a Poly-metastatic Pulmonary Adenocarcinoma Following the Diagnosis of a Bone Lesion in the Mandible: A Case Report

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Abstract Introduction: Metastases of the oral cavity are rare and concern only a tiny part of the neoplasias of the oral cavity. The detection of an atypical lesion should always alert the clinician to the possibility of primary or secondary cancerous involvement. Observation: The case presented here describes a patient presenting to the consultation for pain in the temporomandibular joint. A panoramic X-ray revealed an atypical osteolytic lesion located at the level of the left articular condyle. Additional investigations confirmed the existence of a lytic lesion indicating a metastasis or a primary sarcomatosis type. Complementary examinations made it possible to establish the diagnosis of a poly-metastatic pulmonary adenocarcinoma and to begin the management of the patient who was unaware of her condition. Conclusion: The discovery of an atypical bone lesion should alert the clinician and requires the performance of additional examinations to establish a diagnosis that can condition the survival of a patient.

Keywords: metastasis, mandibular condyle, pulmonary adenocarcinoma

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1. Introduction

Metastases in the oral cavity are rare, as they represent only 1% of all cancers of the oral cavity [1]. In cases involving the masticatory apparatus, bones are more often affected than soft tissues. Metastases are particularly found in the posterior regions of the mandible, at the level of the ascending ramus and at the level of the condyle [2]. Involvement of the maxilla is even rarer. The main cancers that are likely to metastasize to the oral cavity in women are breast cancer, uterine cancer, ovarian cancer, thyroid cancer, and kidney cancer [3]. In men, bone metastases mainly originate from the lungs, prostate, kidneys, and colon [3]. The primary sites are often carcinomas, particularly adenocarcinomas, which metastasize to the bones via the Batson plexus [5]. The presence of metastases indicates the progression and aggressive nature of the tumor, and will impact the therapeutic management of the patient. The diagnosis and

treatment of metastasis in the oral cavity is a challenge for the clinician. Early detection of metastasis by the clinician is crucial to improve the patient's quality of life and to increase their chances of survival, especially when the oncological context is not yet known. The purpose of this clinical case is to raise awareness among practitioners about the detection of atypical signs during a routine examination that could mask a cancer.

2. Observation

A 64-year-old caucasian female patient was referred to the maxillofacial surgery department of the Hospital Center of Montreal University for pain in the left temporomandibular joint. The patient's medical history revealed dyslipidemia and an anxiety disorder. The patient is currently taking Pravastatin (10mg) and Citalopram (20mg) as treatment. As for lifestyle habits, the patient reports not consuming alcohol. Corrected: The patient reports smoking 7 cigarettes per day for 40 years

(14 pack-years). The patient also reports regularly consuming cannabis for recreational purposes. She is retired and does not experience significant stress in her daily life.

2.1. Medical History

The patient reported discomfort in her jaw. She reported hearing a single intense but non-painful popping sound in her left temporomandibular joint. The patient had a slight limitation in mouth opening (39mm) but a very disabling feeling of malocclusion. The patient also reported a fall several months before her consultation, which did not cause any pain.

2.2. Clinical Examination

On extra-oral examination, there were no general signs (no fever, no asthenia) or cervical lymphadenopathy. The patient had gained slight weight since quitting smoking. The patient reported spontaneous pain in the left temporomandibular joint (VAS 3/10). Palpation of the

joint did not induce an increase in pain, including palpation of the retrodiscal space.

The patient had a discreet swelling in the area of the mandibular condyle. No joint clicking or popping was observed during the examination. The intra-oral examination was unremarkable and within normal limits.

There were no lesions on the oral mucosa, and no active carious lesions were observed. The clinical examination and periodontal probing indicate that the patient had periodontal disease stage 2 grade B. In the mouth, there were 6 single-unit crowns, including two implant-supported crowns.

2.3. Diagnostic Test

An orthopantomogram (Figure 1) and a computed tomography scan (Figure 2a. and Figure 2b.) were performed to visualize the temporomandibular joint. The interpretation of the orthopantomogram (Figure 1) allows to identify a slight asymmetry of the condyles with an oval-shaped radiolucent area circumscribed at the level of the condylar head on the left side.



Figure 1. Panoramic radiography (Legend: (1) Left mandibular condyle with atypical radiolucency. (2) Right mandibular condyle without atypia apart from an osteophyte (3))



Figure 2a. CT Scan (Legend: (1) Lytic lesion involving the ascending ramus and the left mandibular condyle 2. Right mandibular condyle without particularity with medulla within normal limits)



Figure 2b. CT Scan (Legend: (1) Lytic lesion involving the left mandibular condyle with a "wet sugar-like" appearance (2) Right mandibular condyle without particularity with medulla within normal limits)

Given the highly atypical appearance of the lesion, a tomography examination was requested. The computed tomography scan (Figure 2a. and Figure 2b.) showed a permeative lytic lesion that extends from the mandibular condyle to the ascending ramus over a length of nearly 23mm.

The examination directs our diagnostic hypotheses towards a metastatic involvement or a primary sarcomatous lesion. A thoracic computed tomography with intravenous contrast was requested to search for a primary cancer. A bronchogenic neoplasm with invasion of the descending thoracic aorta as well as a highly suspicious liver mass for metastasis were identified.

3. Discussion

Metastases in the oral cavity are rare, but when present, they are in 25% of cases, the first clinical manifestation of metastatic disease [5]. Metastases mostly originate from primary cancer of the lungs, breasts, and prostate [3,5]. Involvement of the mandibular condyle in the context of lung adenocarcinoma is exceptional. However, our patient presented to the clinic with temporomandibular joint disorder, with slight limitation of mouth opening, a feeling of malocclusion, and a small cutaneous swelling over the left joint. The patient's complaints were consistent with temporomandibular joint arthrosis. It is important to keep in mind that damage to the mandibular condyles can lead to temporomandibular disorders that present with similar symptoms. Temporomandibular joint disorders can occur in the context of myalgia, as well as in cases of inflammatory, degenerative or tumorous involvement of the mandibular condyles [6]. The diagnosis of temporomandibular disorders is clinical and paraclinical, including the use of panoramic radiography to assess the integrity of the condyles.

Bone metastases located in the mandibular condyles appear as radiolucent and poorly defined lesions [7], sometimes very discreet on panoramic radiographs. Loss of condylar integrity should alert the clinician.

Condylar metastases following pulmonary involvement are exceptional, and we find only about twenty cases in the literature [8].

On the other hand, temporomandibular disorders are common, and their prevalence is increasing [9].

Their management is multidisciplinary depending on the muscular, articular, or mixed etiology of the disorder. It is important for the clinician to identify signs of condylar alteration. Non-malignant oral and maxillofacial pathologies can also be difficult to diagnose, especially when their symptoms overlap with those of other conditions. Therefore, thorough examination and appropriate diagnostic imaging are crucial to distinguish between benign and malignant lesions. It is important to consider metastatic lesions as a potential cause when dealing with unusual presentations of temporomandibular disorders. In cases where a malignancy is suspected, further investigation, such as imaging and biopsy, is necessary to establish a diagnosis and plan an appropriate treatment. Adenocarcinoma of the lung is the most common non-small cell lung cancer [10]. This type of cancer typically metastasizes to the brain, adrenal glands, and liver [11]. Bone and mandibular involvement is rare. Identification of the mandibular lesion led to further examination and a diagnosis of adenocarcinoma with bone and liver metastases. The patient therefore has stage IV disease, and the treatment will be palliative, consisting of radiotherapy to the mandibular condyle and a combination of chemotherapy. Depending on the expression of the PD-L1 protein, immunotherapy with pembrolizumab may be considered.

It is important to keep in mind that diagnosing condylar lesions is challenging for clinicians because their non-pathognomonic appearance can be mistakenly confused with osteoarthritis or a benign cystic lesion. The presence of a mandibular metastasis indicates significant tumor activity and progression, thus, even if the panoramic radiograph analysis has identified the presence of pulmonary adenocarcinoma, the presence of distant metastases generally implies palliative treatment. The

oral-surgeon must keep in mind that these lesions may mimic a temporomandibular disorder but may correspond to the first sign of an undiagnosed systemic disease.

4. Conclusion

The diagnosis of a metastasis located in the stomatognathic system in the absence of a known oncological context is a real challenge for the clinician. The discovery of an atypical lesion should lead the practitioner to prescribe complementary examinations to identify the origin of the lesion. Special attention should be paid to osteolytic lesions of the maxillae that may hide a polymetastatic cancer.

Conflict of Interest

The authors declare no conflict of interest.

Informed Consent

Informed consent was obtained prior to the publication of the case report. The authors made every effort to ensure patient anonymity.

Ethical Approval

Ethical approval was not required.

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