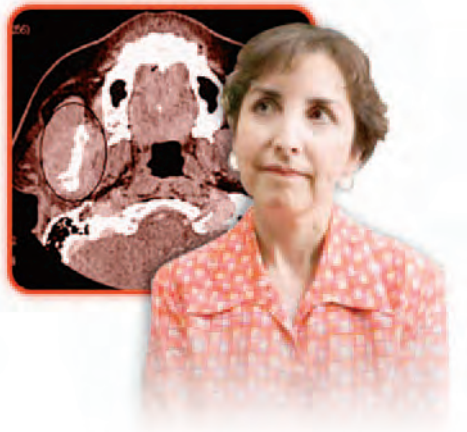


Breast Adenocarcinoma Mimicking Temporomandibular Disorders: A Case Report

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Abstract

Aim: The aim of this report is to present a case of a metastatic lesion in the mandible originating from a breast adenocarcinoma that was initially diagnosed as temporomandibular disorder (TMD). The role of the dental practitioner in the diagnostic phases is also discussed.

Background: It is not uncommon to see a patient who complains of what seems to be a TMD but who in reality suffers from a systematic disease, dental infection, or neoplasia. Although metastases to the head and neck are uncommon, it should always be considered among the differential diagnoses of lesions.

Report: A 42-year-old female presented with pain and swelling in the right temporomandibular joint (TMJ) previously diagnosed as TMD. Further clinical, radiological, and histological examinations coupled with a history of adenocarcinoma of the breast lead to a final diagnosis of a metastatic lesion in the right TMJ region.

Summary: In most patients who present with an oral metastasis the distant primary tumor has already been diagnosed and treated. Occasionally the discovery of an oral metastasis leads to the detection of an occult primary malignancy elsewhere in the body. Thus the dentist should be able to perform an adequate diagnosis and play an important role in the diagnostic phase of care that can lead to a useful palliation and an enhanced quality of the patient's life.

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Clinical Significance: In order to avoid the pitfalls so common in evaluating patients with TMJ pain, the clinician must perform a complete and critical review of the medical history along with a comprehensive examination. The challenge is to know and evaluate the differential diagnosis. Failure to do so can result in a misdiagnosis which may lead to unnecessary care, long-term therapy without clinical resolution, or potentially death.

Keywords: Adenocarcinoma, temporomandibular joint disorders, TMJ, temporomandibular disorder, TMD, metastasis, diagnostic imaging

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Introduction

Metastases to the oral region are relatively uncommon comprising only 1%-3% of all malignant oral neoplasms.¹ Almost all types of malignancy can metastasize to the mouth, however, some primary tumors are found more often than others.² Several authors report breast adenocarcinoma is the most common malignancy that metastasizes to the oral cavity, and it is more frequent for a disseminated tumor to involve the mandible rather than the maxilla, with the molar area being the most frequent involved site.^{3,4} In fact, breast cancer seems to have a particular proclivity for metastasizing to the mandible, as it does so three times as frequently as do other malignant tumors.⁴

When present, metastatic lesions provide a diagnostic challenge and the establishment of an exact diagnosis is often difficult because of the atypical clinical and radiographic appearances that can mimic common inflammatory-infectious and posttraumatic conditions of the mouth and jaws.⁵ Although this may occur infrequently, it is important that it should be recognized by clinicians.

This report presents a case of a patient with a metastatic tumor of the mandible diagnosed with a panoramic radiograph that originated from a breast adenocarcinoma. The role of the dental practitioner in the diagnostic phases is also discussed.

Case Report

A 42-year-old female presented to the Faculty of Dentistry at Fortaleza University (Unifor) in Fortaleza, Ceará, Brazil for what appeared

clinically to be temporomandibular disorder (TMD). She reported swelling and pain over the right temporomandibular joint (TMJ).

She was previously diagnosed by another clinician as having TMD and received a conventional occlusal splint but it had not eliminated nor diminished the TMJ pain. After months of use, the patient was referred to the Unifor clinic to treat the TMD.

Diagnosis

Swelling and crepitation was observed over the right TMJ region during a clinical examination. Initially the origin of the pain was investigated to establish a diagnosis. A mandibular deprogramming appliance (JIG) was used to limit loading on the joint and allow the muscles of mastication to relax. However, the patient reported an increase in the intensity of pain which cast doubt on the validity of the previous TMD diagnosis.

A panoramic radiograph was taken and an area of radiolucency with a hazy osteolytic-like outline was noted (Figure 1). Since such lesions may represent metastatic disease, the patient's past medical history was reviewed. The review revealed a history of a mastectomy followed by radiotherapy for the treatment of breast adenocarcinoma four years earlier.

Computed tomographic (CT) imaging was ordered to better understand the nature and the extent of the lesion. The CT scan demonstrated an osteolytic lesion with osseous erosion and a spiculated periosteal reaction that extended from

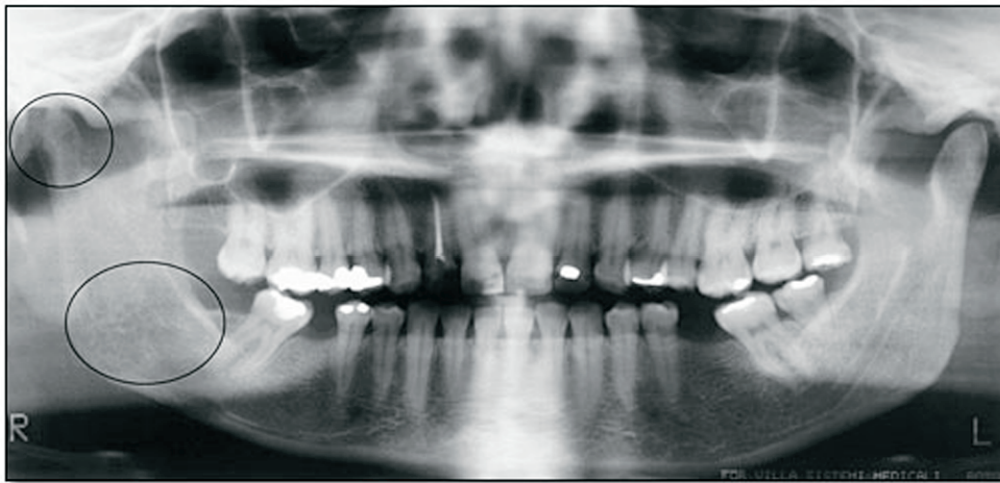


Figure 1. Panoramic radiograph showing the osteolytic appearance in the right mandibular ramus in comparison with the left side.

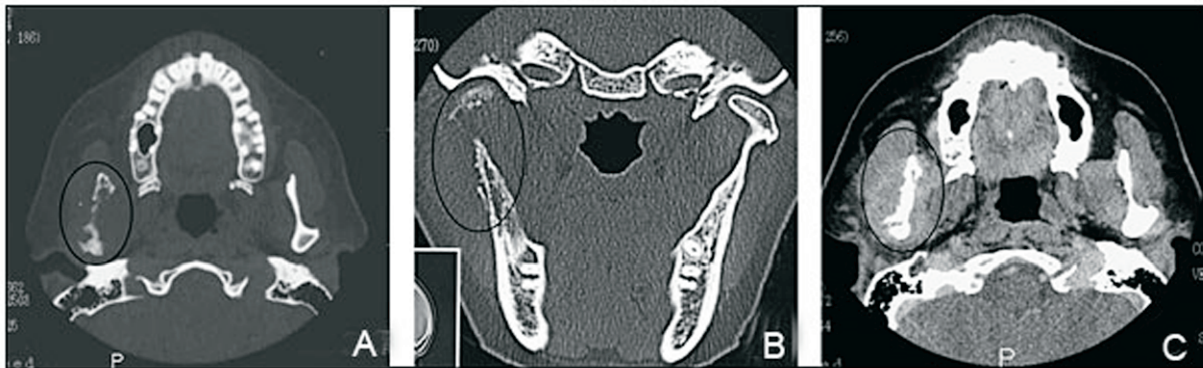


Figure 2. **A.** CT axial view shows the lesion which is destroying the medullary and cortical portions of the right ramus of the mandible. **B.** CT coronal view showing the destruction anterior to the right mandibular condyle. **C.** CT axial view demonstrates a mass involving the right ramus of the mandible extending buccally and lingually to the adjacent soft tissues that involves the masseter and lateral pterygoid muscles.

the vertical ramus to the condyle on the right side. There was also evidence of a soft tissue extension with involvement of the masseter and lateral pterygoid muscles. These findings indicated a strong possibility of a metastatic lesion (Figure 2).

An incisional biopsy was taken to confirm the diagnosis. The histopathology report indicated the connective tissue stroma infiltrated by invasive cancer cells leading to the conclusion of a metastasis of adenocarcinoma of the breast.

The patient was admitted to the hospital for appropriate treatment. An additional workup included scintigraphy with Tc99m-MDP that was done to rule out further metastasis. This revealed

an increase in uptake in the right mandibular ramus and condyle but showing no other evidence of disease (Figure 3). The patient was treated with chemotherapy consisting of Zometa 4 mg monthly and Aromasin 25 mg daily along with radiotherapy to the mandible.

Imaging control performed with magnetic resonance imaging (MRI) revealed a heterogeneous intermediate signal intensity on T1W1 corresponding to the vertical ramus, coronoid, and condylar process with an extension of the lesion to the greater and lesser wings of the right sphenoid bone. At the one year follow-up, the MRI showed a reduction of the lesion when compared to the previous exam (Figure 4).

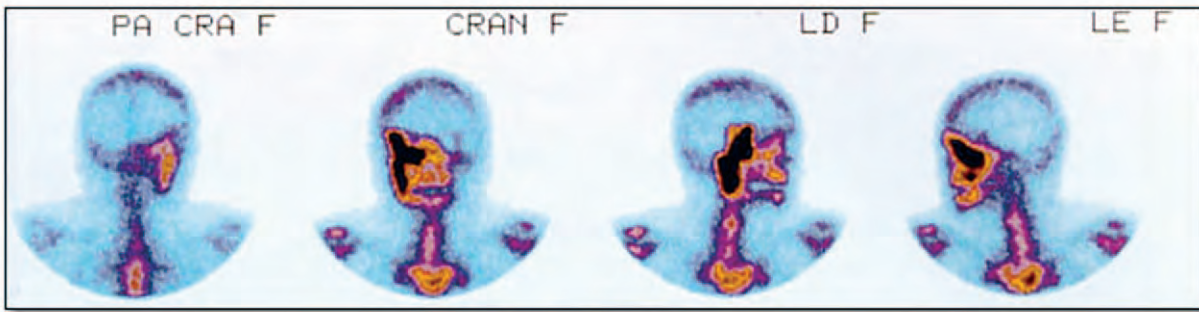


Figure 3. Scintigraphy demonstrates an increased uptake in the right ramus and condylar region and in the adjacent region of the temporal and sphenoid bone due to the metastatic lesion.

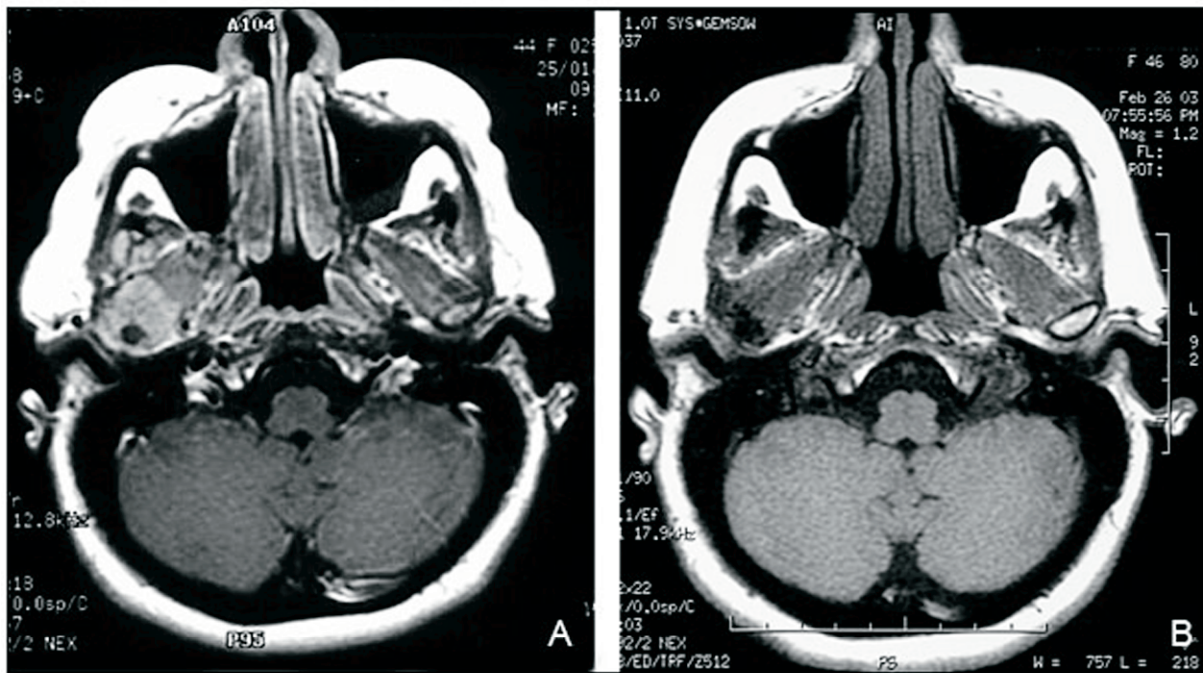


Figure 4. A. A MRI T1 W revealed an intermediate signal intensity in the vertical ramus, coronoid, and condylar processes with an expansile lesion in the sphenoid bone and the lateral orbital contour. **B.** MRI revealing a stationary lesion.

Discussion

A metastatic tumor involving the condyle is extremely rare. These lesions may produce signs and symptoms such as swelling and pain which are difficult to distinguish from those of more common diseases like TMD.⁶

TMD has received much attention in recent years. While this has raised awareness of the condition, it has also resulted in treatment of patients with pain in the TMJ region for a presumed TMD by non-specialized medical and dental clinicians without an adequate evaluation. The clinician who begins the examination with a presumptive

diagnosis of TMD often looks only for the signs and symptoms confirming this presumption resulting sometimes in a faulty diagnosis. When diagnosing patients presenting TMD symptoms, a clinician must consider the possibility of unusual causes including neoplastic disorders, infections, and inflammation.⁷ This is particularly true when the patient has a history of metastases or primary malignant diseases.⁶

Metastases to the jaws of primary tumors elsewhere in the body account for only 1% of all malignant tumors of the oral cavity.² Nevertheless,

the appearance of non-specific symptoms such as toothache, loosening of teeth, swelling, and pain can signal the onset of neoplastic disease in some patients.⁸ Pain of uncertain origin in the jaws should alert clinicians to the potential of metastatic disease in patients with a history of cancer.⁹ This is the basis of support for radiologic imaging following a careful review of the patient's medical history and detailed clinical examination to aid in a differential TMD diagnosis.

In this report an osteolytic area with an ill defined outline on the right molar region was noted in the panoramic radiograph. This condition may resemble periodontal disease or other benign and malignant conditions affecting the jaws, making the correct radiographic diagnosis difficult. However, because these osteolytic areas on the radiograph were considered along with the previous medical history of adenocarcinoma of the breast that occurred four years previously, metastasis to the jaws had to be included in the differential diagnosis.

Despite the advances in imaging methods used to delineate tumor infiltration it is important to point out the presence of the metastatic lesion, in this case was first detected using panoramic radiography, which is the most used diagnostic

tool in dentistry. Considering the findings in this case it is imperative for dental professionals to understand various diagnostic possibilities and to perform a thorough examination to look for signs that may reveal the presence of metastatic lesions in a patient presumed to be suffering from TMD.

Summary

In most patients who present with an oral metastasis the distant primary tumor has already been diagnosed and in most cases treated. Sometimes, however, the discovery of an oral metastasis leads to the detection of an occult primary malignancy elsewhere in the body.² In this context, the dentist should be able to perform an adequate diagnosis and, therefore, play an important role in the diagnostic phase that can lead to a useful palliation and an enhanced quality of the patient's life.

Clinical Significance

In order to avoid the pitfalls so common in evaluating patients with TMJ pain, the clinician must perform a complete and critical review of the medical history along with a comprehensive examination. The challenge is to know and evaluate the differential diagnosis. Failure to do so can result in a misdiagnosis which may lead to unnecessary care, long-term therapy without clinical resolution, or a potentially death.

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