



Masticator Space Tumor Mimicking Temporomandibular Disorder Presenting Facial Swelling and Trismus: A Case Report

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Temporomandibular disorders (TMD), involving the masticator system of temporomandibular joint (TMJ) and masticator muscle, can be characterized with the cardinal signs and symptoms of jaw pain, noises and limitation of mandibular range of motion. However, TMD requires differential diagnosis due to its heterogeneous characteristics with various causes despite the similar clinical profiles. Oral cancer involving TMJ and the masticator system, although infrequent, can be one of these causes and should be considered one of the most life-threatening disease mimicking TMDs. This report introduces a case of masticator space tumor originally diagnosed as TMD in a 73-year-old Korean female with previous history of brain tumor. The clinical signs and symptoms closely mimic that of TMD which may have disrupted differential diagnosis. We discuss here key points for suspecting TMDs of secondary origin, namely, that of cancer and the implications it has on dental clinicians.

Key Words: Facial pain; Masticator space; Neoplasms; Temporomandibular joint disorders

INTRODUCTION

Temporomandibular disorders (TMDs), involving the masticatory system of temporomandibular joint (TMJ) and masticatory muscle, can be characterized with the cardinal signs and symptoms of jaw pain, noises and limitation of mandibular range of motion [1]. Most patients with TMD usually respond well to conservative treatments such as medication, physical therapy and occlusal appliances. However, several conditions including myofascial pain and osteoarthritis of TMJ sometimes show rather limited or even refractory responses to these routine treatments [2]. These suggest that TMD, a heterogeneous disorder with various causes despite the similar clinical characteristics, requires differential diagnosis.

Oral cancer involving TMJ and the masticator system, although infrequent, can be one of these causes and should be considered one of the most life-threatening disease

mimicking TMDs. However, diagnosis of oral cancer in the TMJ and masticator system can be difficult due to the symptoms mimicking common TMD, including masticator muscle pain, arthralgia and/or mouth opening limitation unless patients show additional ominous signs of swelling, ulceration or lymph node involvement [3].

There are several cases of oral cancer which mimic TMD. Sari-Rieger et al. [4] presented a case first diagnosed with TMD due to the patient's joint sounds and masticator muscle pain but later was diagnosed with adenoid cystic carcinoma. Freudlsperger et al. [5] reported a case with persistent pain in the TMJ area, misleading the clinician to diagnose the patient with TMD and later, with prostatic carcinoma metastasis. These malignant lesions are hard to detect, given their clinical similarity with TMD. In addition, these are usually painless in early stages, leading to devastating consequences [3].

We report here the case of a Korean woman with a

masticator space tumor confirmed by magnetic resonance imaging (MRI), who presented with unilateral facial pain and swelling, mouth opening limitation and unilateral open bite despite conservative TMD treatments. We discuss clinical features and implications of this rare clinical entity.

CASE REPORT

A 73-year-old female patient was referred to the Department of Oral Medicine, Dankook University Dental Hospital with a chief complaint of swelling on her left jaws, combined with pain that takes place usually on the nighttime. The patient reported the pain started approximately one month ago and that the symptoms gradually worsened over time. She explained the pain as electric shock like and that the ear pain, her main source of pain, triggered the pains in other areas. She previously visited the Department

of Otorhinolaryngology with a chief complaint of ear pain. She was told to take medication and that surgery was unnecessary. She later visited another otorhinolaryngology clinic and was recommended to be evaluated at a dental clinic. The dental clinician diagnosed her with TMD and referred her to the Department of Oral Medicine.

Her medical history revealed that she had undergone brain tumor surgery three years ago and that she was taking related medications such as antihypertensive drugs and antiepileptic drugs. The hospital in which she underwent the brain surgery told her that her brain condition was good and there were no signs of metastasis.

Upon clinical examination, she showed a large swelling in her left preauricular region. She showed mouth opening limitation, in which active range of motion was 31 mm and passive range of motion was 31 mm also. Her mandibular midline was deviated to the right by 5 mm. She also showed no contact in her left molar regions. No significant joint sounds were present upon digital palpation. Panoramic and transcranial view showed that her left mandibular condyle was deviated from its original position (Fig. 1, 2). MRI of the craniofacial region was further performed due to suspicion of malignant lesion in the left orofacial structure. On her second visit, she complained that her symptoms worsened since the first visit, which was 9 days ago. Axial



Fig. 1. Panoramic view of the patient showing the left condyle deviation from its original position.

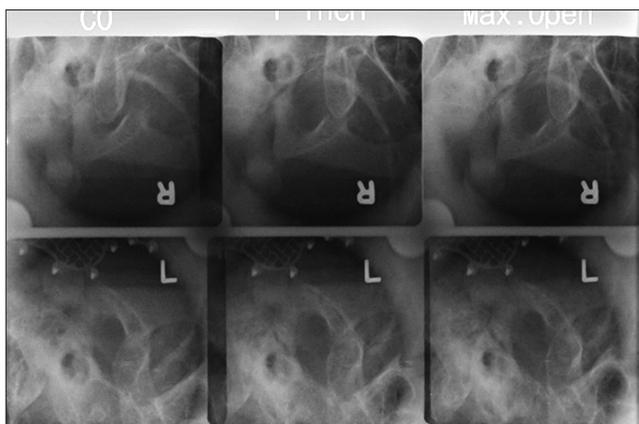


Fig. 2. Transcranial view of the patient also showing left condyle deviation from its original position, which is consistent with the finding in Fig. 1.

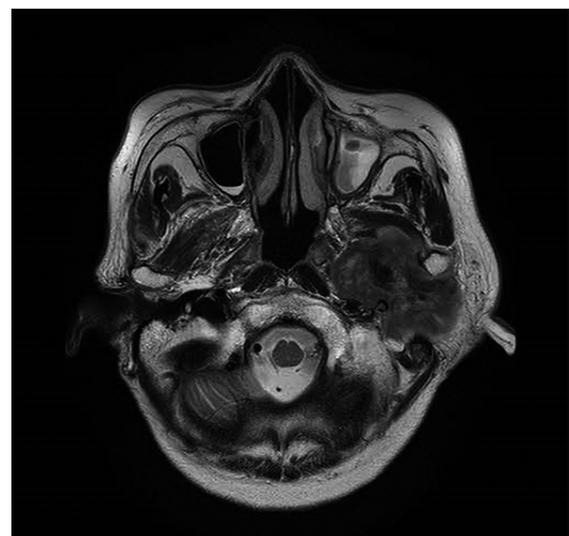


Fig. 3. Axial T2-weighted magnetic resonance imaging show extensive tumor infiltration in the left masticator space causing bowing of the left lateral pterygoid muscle and extending to the left parotid gland.

T2-weighted MRI revealed a lesion in the left masticator space involving the medial and lateral pterygoid muscle causing the left condyle translation forward, and extending to the left parotid gland (Fig. 3). With a tentative diagnosis of masticatory space tumor, she was immediately referred to the Department of Oral and Maxillofacial Surgery for surgical resection and tumor biopsy but her guardians insisted her to be taken into another hospital. Therefore, no further follow-up records could be obtained.

DISCUSSION

Trismus is defined as a condition in which one cannot fully open their mouth due to tonic contraction of the related muscles. However, it is often used as a synonym for limited jaw movement originating from extraoral causes [6]. There are many causes that can induce trismus, such as acute and chronic trauma, neuromuscular disorders such as Parkinsonism, reactive diseases such as acute masticator space infection or chronic diseases like TMJ ankylosis, oral submucosal fibrosis and post radiotherapy. Of the many causes, cancer invading the masticator system is one of the lethal causes of trismus [6].

The masticator space is a complex anatomic area posterior and superior to the oral cavity and below the temporal bone [7]. This space contains medial and lateral pterygoid muscles, masseter muscle, ascending ramus of mandible, pterygoid plates, temporalis muscle, and few neurovascular bundles arranged in a multidimensional anatomy [7]. Tumors in this area affect the masticator muscle itself, which can lead to symptoms like trismus and thus the patient does not respond to routine treatments. Also, since tumors in this area are hard to completely resect [7], early differential diagnosis is essential for patient's survival.

In this case, the patient's symptoms include mouth opening limitation, spontaneous pain in the left ear and left jaw and acute malocclusion. These symptoms indeed mimic a primary TMD. However, considering significant swelling in the left face along with her previous medical history of brain tumor, secondary TMD related to oral cancer is highly suspicious. Furthermore, open bite in the left side accompanied by ipsilateral swelling is hardly a sign to suspect a primary TMD. Certain conditions, such as subluxation or

muscle spasm are known to induce unilateral open bite. However, in this case, subluxation was excluded due to the patient's chronic open bite state with mouth opening limitation.

There was little possibility of diagnosis of muscle spasm, known as a tonic contraction myalgia, when considering the medical history and refractory responses to repetitive conservative treatments.

According to the study of Kruse et al. [8], swelling, pain and trismus in the orofacial region are signs to suspect orofacial cancer. Moreover, cancer invasion to the parotid gland can result in severe swelling and preauricular region pain [9]. In the present case, anteriorly displaced condyle with open bite in the left side, trismus and preauricular pain with swelling as well as a medical history of brain tumor highly suggest a red flag for regional malignancy. Urgent MRI taking was conducted, thereby confirming the existence of masticatory space tumor involving the parotid gland.

Unfortunately, further diagnostic information including the result of biopsy and additional imaging could not be obtained from the patient. Although it is still unclear what the exact diagnosis is, whether the lesion is regional or metastatic, the implications of this case for the clinicians are significant. First, even if the patient presents common symptoms and signs of TMD such as pain and/or joint sound and/or mouth opening limitation, clinicians should suspect oral cancer in the differential diagnosis of TMD when the patient shows additional but ominous signs of swelling, acute onset of malocclusion, spontaneous or night time pain [5,10]. Second, if there are refractory responses to repetitive conservative treatments, the diagnosis should be revisited and secondary TMD should be considered. Third, careful medical history taking cannot be overemphasized considering that history of systemic cancer elevates the risk of cancer in the orofacial region [8]. Lastly, it is well known that history taking and clinical examination have the valuable but limited roles in the diagnosis of TMD pain. Therefore, diagnostic imaging confirmation is essential. Among the various modalities of imaging, MRI is a useful tool to find the origin of pain, particularly assessing soft tissue changes, in the orofacial region [11]. This case suggests that appropriate modality of imaging should be performed

in the suspected lesion for diagnosis.

In conclusion, there are many pathological conditions which can mimic TMD. When treating patients who are initially thought to have TMD, careful history taking, thorough physical examination and the use of appropriate image modality are necessary to avoid misdiagnosis. Dentists should refer patients who may be presenting different clinical profiles from those of common TMD to the medical doctors with a good understanding of the symptoms and signs of masticator space tumor.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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