Bilateral Masseter and Internal Pterygoid Muscle Hypertrophy: A Diagnostic Challenge

Gurdeep Kaur1, Sanjay Parmar2, Rajendra Sharma2, Jeevraj Dhaka2, Rakesh Kumar2, Sweta Banka2

Abstract
Objective: To describe an unusual case of bilateral masseter and pterygoid muscle hypertrophy.

Clinical Presentation and Intervention: A 23-year-old male patient presented with a bilateral, painless swelling of 1 year duration at the parotid areas without improvement after using antibiotics/systemic corticosteroids/non steroidal anti-inflammatory agents. His medical history was not significant. The initial differential diagnosis included salivary gland/jaw bone/masseter pathology, but the MRI revealed only an increase in the size of the masseter and pterygoid muscles. The patient was informed of the benign nature of the swelling and was advised to discontinue the use of non steroidal anti-inflammatory agents.

Conclusion: The bilateral hypertrophy of masseter muscles should be considered in differential diagnosis in cases of unilateral or bilateral swelling of the parotid or lateral mandible area.

Introduction
Masseter muscle hypertrophy including the pterygoid muscles, also referred as idiopathic or benign masseter hypertrophy is a rare entity of head and neck pathology, and was first described in 1880 in a 10-year-old girl.1 Although few cases have been documented since then, it has been stated that this disorder is more common than generally recognized. Masseter muscle hypertrophy affects both males and females after puberty2 and is more frequently found in Asians3. Anatomically, the masseter muscle is a thick quadratus muscle composed by two layers. It arises from the inferior and deep surface of the zygomatic arch and most part inserts into the inferior lateral aspect of the mandibular ramus.

In this report, simultaneous painless bilateral masseter accompanied by pterygoid muscle hypertrophy is described and the literature is reviewed.

Case Report
A 23-year-old male patient was referred for painless swelling of 1 year duration at the parotid and posterior cheek areas bilaterally. There was no history of xerostomia, xerophthalmia or other accompanying general symptoms such as fever and no abnormal laboratory tests. His medical history included anxiety and frequent mouth clenching. He had taken multiple agents for it including, anti-inflammatory agents, antibiotics and systemic corticosteroids without improvement of the swelling.

Clinical examination of the face showed bilateral swelling located at the parotid-posterior buccal area. The swelling was firm in palpation, which became more prominent when the patient clenched the jaws. The opening and closing of the jaws were normal. Skin and oral mucosa of the relevant areas were normal. There was no habit of chewing gum. The initial differential diagnosis included salivary gland, jaw bone or masseter muscle pathology. The MRI revealed increase in size of masseter muscles bilaterally and hypertrophy of internal pterygoid muscle was also seen, bilaterally. In contrast, the parotid glands, jaws and other head and neck anatomical sites were normal. The patient was informed of the benign nature of the condition and was advised to discontinue the use of NSAIDs and prescribed anxiolytics.

Discussion
Masseter muscle hypertrophy is an asymptomatic, benign enlargement of one or both masseter muscles. It is a relatively rare condition, with around 130 cases reported in the literature since the first described. It is most commonly seen in late adolescence and early adulthood. There are several theories about the etiology of masseter muscle hypertrophy, but it still remains unclear. Several authors claim that emotional stress results in chronic forceful clenching of the jaws and bruxism, which can cause hypertrophy of these muscles.4
The main pathologies to be considered in differential diagnosis are neoplasm of the parotid glands and mandible as well as lipoma, bone tumors of the middle face, vascular tumors, benign or malignant muscle tumors, inflammatory processes, these were excluded by MRI imaging in our case. The combination of imaging, physical examination and an analytical medical record can help in the differential diagnosis. Neurologic tests and electromyograms of the masseter muscles have been reported to be of lesser diagnostic utility.

The typical management of bilateral Masseter muscle hypertrophy includes patient information regarding the benign character of this condition and dental occlusion improvement, if necessary. Other nonsurgical methods may include psychological support, tranquilizers or muscle relaxants; these were not necessary for our patient after the confirmation of the diagnosis. Surgical treatment was first proposed by Gurney and although this procedure has many risks. The possible complications of this procedure include damaging the facial or mandibular nerve, injury of the massteric artery and consequent bleeding, mandible fracture when rotation instruments are used, infection and trismus after the surgery. Hence, to obviate these surgical complications, botulinum toxin type A has been considered as a preferable, noninvasive, cost-effective and safer therapeutic option. Botulinum toxin type A is a complex bacterial protein which blocks the neuromuscular transmission through attachment to the presynaptic nerve membrane, providing functional denervation of the muscle and its subsequent atrophy. However, the outcome is temporary because of possible relapse of hyperplasia. Tissue coagulation using radiofrequency energy, a minimally invasive method, is an alternative therapeutic option. Its long-term efficacy is under further investigation.

Conclusion
This case showed that this benign condition should be included in the differential diagnosis of diffuse swellings at the parotid area and the mandibles in order to avoid unnecessary diagnostic procedures as well as needless drug administration.

References