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Case Report

Masseter hypertrophy: The muscle swing of the oral cavity

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ABSTRACT

Masseter muscle hypertrophy can be defined as a rare, asymptomatic, atypical amplification of the masseter muscle, moreover in a unilateral or bilateral pattern which is manifested in the form of an intensified muscle mass. The treatment of the hypertrophy may or may not be of importance and just removal/correction of the etiological trigger factor responsible for it. Appropriate diagnosis and management of the disease process should be the part of the teaching curriculum and should be taught as the basic part of the diagnosis. Herein, we are reporting a case report of a patient who was diagnosed with masseter muscle hypertrophy.

1. Introduction

Aesthetics form a major part of an individual's personality which requires attention at some point of life irrespective of gender. The importance of aesthetics is recognized most probably in young adolescent stage in comparison to the other age groups. Increased functional demands are deemed to manifest as physiological form changes against the pathologic form of changes which form the part of uncontrolled growth which may or may not be instigated by the body demands. The rapid pathological proliferative changes may or may not be a part of the functional demands and can be confusing for the diagnostician. Masseter muscle hypertrophy can be defined as a rare, asymptomatic, atypical amplification of the masseter muscle, moreover in a unilateral or bilateral pattern which is manifested in the form of an intensified muscle mass.[1] It has no specific gender predilection, but is characteristically found to affect teenagers as well as young individuals.[1,2]

An increase in the number of cells is termed as hypertrophy and helps the body to compensate for the increased functional demands of the individual, which may or may not progress to cancer. Hence, it is important to diagnose and treat such changes at a very early stage to prevent any progression of the disease process. As the etiology for the idiopathic disease process remains unknown till date with the known etiologies including but not limited to malocclusion, bruxism, clenching, temporomandibular joint (TMJ) disorders, emotional disorders like stress or nervousness.[1–4] In the year 1880, Legg put forward the first case of concurrent idiopathic MMH case in a 10-year-old girl, however the etiologic agent still remains absconding.[1,2]

The changes on the face remain a constant remainder of the hypertrophic changes and remain a constant thought process unless resolved. In most of the cases, removal of the trigger factors in the early stage may regress the thickened muscle to its normal form but at the later stages it may

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require any other interventions. Herein, we are reporting a case report of a patient who was diagnosed with masseter muscle hypertrophy.

2. Case Report

Patient reported with a chief complaint of swelling in the left side of the face since 17 years without any pain in that area. On further eliciting history, patient revealed that the swelling persisted from 17 years which did not require much attention initially, however it has gradually increased to the current size and has affected the esthetic appearance and now requires attention for the same. It is not associated with any pain or any other disturbances in day-to-day activities; however it is unpleasant and wants correction of the same. Further, no other significant medical history was elicited by the patient.

On extra-oral examination, we observed a diffuse swelling on the left side of the face extending superior-inferiorly from below zygomatic arch to the angle of the mandible obliquely and antero-posteriorly 3 cm's away from the corner of the mouth to 3 cm's in front of the tragus. On palpation, it was found to be soft to firm in consistency and it is non-tender. A provisional diagnosis of left parotid abscess was rendered, with a differential diagnosis of masseter hypertrophy or space infection.

As a part of investigations, we suggested the patient for ultrasonography of the left side of the face, which revealed no left parotid and submandibular gland enlargement or along the neck in the thyroid gland but showed left masseter muscle hypertrophy. A diagnosis of masseter hypertrophy was rendered.

3. Discussion

Pain and swelling are the most common reasons for a patient to report to the physician; however they may occur in amalgamation with each other or may occur single-handedly with the absistence of the other. It is important to restore the function as well as the esthetics in order to reinstate the patient to their normal lifestyle. Masseter is a dense tri-layered quadrilateral shaped muscle with the primary function of mastication by elevation of the mandible during biting. Mastication requires heavy strength of the hard bony structures reinforced with the muscles without which their action provides insufficient strength.[1] Masseter muscle hypertrophy can lead to impairment of the normal functional activities and be the cause for trismus, protrusion, as well as bruxism which requires immediate attention.[1,2] The patient most commonly seeks the help of the physician when associated with pain followed by any esthetic visible changes, especially amongst the females.

The most commonly observed changes by a clinician includes the alteration in the facial lines, asymmetry of the face, as well as the distinctive changes in the angle of the mandible.[1] Furthermore, the typical rectangular or square-shaped facial pattern can be attributed to increased masseter muscle thickness which lies alongside the inferior portion of the mandibular ramus.[1–5] In our case, we found that there was a swelling on the left side which showed the rectangular shape with squareness of the face unilaterally which disrupted the symmetry of the face. The patient gives a history of swelling for a long period of time but however he did not seek treatment for it initially. It is most probably the aesthetic changes that were made prominent by friends/relatives for which the patient opted for treatment after such a long period of time.

The restoration of such changes remain the key factors in deciding the success of the treatment as well as the prognostic outcome of the disease and the treatment. Masseter Hypertrophy is mostly asymptomatic amplification of one or both the masseter muscles (mostly bilateral) with the etio-pathogenesis being a hidden ploy whereas the known attributable factors being bruxism, malocclusion, clenching as well as temporomandibular joint disorders but not completely evident yet till date.[6,7]

The masseter muscle is essential for adequate mastication and is located lateral to the mandibular ramus and helps on providing the face a proper shape along with its function. Hence, any change is clearly evident on the face of the individual and remains the most common concern of the individual.[8] Diagnosis of masseter hypertrophy can be done by from a brief history followed by clinical examination which includes muscle palpation with the investigations most commonly being panoramic radiography.[9] Muscle palpation includes palpation of the masseter muscle with fingers when the patient clenches his/her teeth for muscle prominence during contraction. When the muscle is in relaxed position (slightly open mouth position) there is extra-oral palpation by means of both the hands while pinpointing the intramuscular location of the hypertrophy is done. Upon relaxation, the jaw angle may reveal irregularities that on the X-ray image may appear to be a bone increase.[9]

Differential diagnosis must consist of muscle tumors, salivary gland disorders, and intrinsic masseter myopathy. In some cases, patients may report signs and symptoms of well-localized pain.[8,10] We performed ultrasonography of the area to investigate and draw the conclusion or reach a definitive diagnosis as it is a soft tissue and ultrasonography is non-invasive, easily available and interpretable with economically monetary benefits making it the diagnostic armamentarium of choice. Ultrasonography of the left side of the face revealed no left parotid and submandibular gland enlargement or along the neck in the thyroid gland but showed left masseter muscle hypertrophy. A diagnosis of masseter hypertrophy was rendered.

Radiological investigations includes orthopantomogram, anteroposterior view of the face, CT scans, magnetic

resonance imaging (MRI). Literature search showed that CT and MRI scans produce first-rate images for diagnosis of masseter muscle conditions as per Seltzer and Wang et al.[11,12]

The treatment of masseter muscle hypertrophy can be accomplished by either.

3.1. Non-surgical

1. Non-pharmaceutical
2. Pharmaceutical

3.2. Surgical

The non-pharmaceutical techniques employed are basic psychological counseling, mouth guards, physical therapy, dental restorations and occlusal adjustments to correct premature contacts.[11,13,14] The pharmaceutical agents used to treat masseter muscle hypertrophy include muscle relaxants, anxiolytic drugs as well as analgesics for symptomatic treatment.[11] Conservative therapy strategy is injecting small doses of botulinum toxin type A (BTA) intramuscularly as the botulinum toxin type A neurotoxin considerably shrinks the size of any muscle by nervous muscle paralysis.[6–10,12,14,15]

4. Conclusion

Masseter muscle hypertrophy is a non-symptomatic, non-infectious enlargement which would require intervention only for esthetic purpose and not for functional purpose. The lack of pain is the most common cause of the ignorance of the hypertrophic disease process. Hence, the treatment of the hypertrophy may or may not be of importance and just removal/correction of the etiological trigger factor responsible for it. Appropriate diagnosis and management of the disease process should be the part of the teaching curriculum and should be taught as the basic part of the diagnosis.

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6. Conflict of Interest

None.

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