

Case Report

Idiopathic Masseter Muscle Hypertrophy with Coexistent Hypertrophy of All Other Muscles of Mastication

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ABSTRACT

Background: Idiopathic Masseter muscle hypertrophy is primarily a clinical diagnosis which may rarely have associations with temporal is muscle hypertrophy and/or medial pterygoid muscle hypertrophy.

Case characteristics and outcome: We describe an unusual case of coexistent unilateral hypertrophy all the muscles of mastication altogether i.e., masseter, temporal is, medial pterygoid as well as the lateral pterygoid muscle; maximum right left discordancy in the masseter muscle only.

Message: This case highlights the utility of MR imaging in complete diagnosis in any clinical diagnosis of idiopathic masseter muscle hypertrophy, which is very important in management and prognosis.

Key words: Facial asymmetry, hypertrophy, masseter muscle.

INTRODUCTION

Idiopathic masseter muscle hypertrophy (IMMH), first described by Legg in 1880, is benign and persistent, unilateral or bilateral enlargement of masseter muscle/s, usually seen in late adolescence or early adulthood, affecting both male and females, although having a slight male predisposition. It is rarely seen in older age groups as the swelling may spontaneously regress over the years due to inability to fully activate the masseter muscles. Patients usually approach due to cosmetic concerns, especially if the condition is unilateral and there is asymmetry of lower face. Some patients may also complain of pain, headache, muscle strain, trismus and intermittent masticatory claudication. Although, the exact etiology of IMMH is not clear, some authors associate it with defective teeth,

preference to any one side chewing, habit of chewing gum, temporomandibular joint disorders, congenital and functional hypertrophies and emotional disorders (stress and nervousness). [1-6]

Isolated reports of IMMH with temporal is muscle and/or medial pterygoid muscle hypertrophy do exist in the published literature. However to the best of our knowledge, this is the first description of a coexistent unilateral hypertrophy all the muscles of mastication altogether i.e., masseter, temporal is, medial pterygoid as well as lateral pterygoid muscle.

CASE REPORT

An eighteen year old girl presented with concerns of unilateral painless progressively increasing swelling of right face noticed over last four years (Figure 1 a, b, c). She had no complaints of paresthesia,

dysphagia, increased or decreased salivary flow. There was no history of any preceding trauma, temporomandibular joint pain/clicking, trismus, bruxism, habit of unilateral chewing or unusual chewing

habits (chewing gum, tobacco, betel nut, etc.). There was no family history of similar deformity. However, a history of emotional stress and anxiety was present.



Figure 1a, b, c: Diffuse unilateral swelling in the lower one third of right face

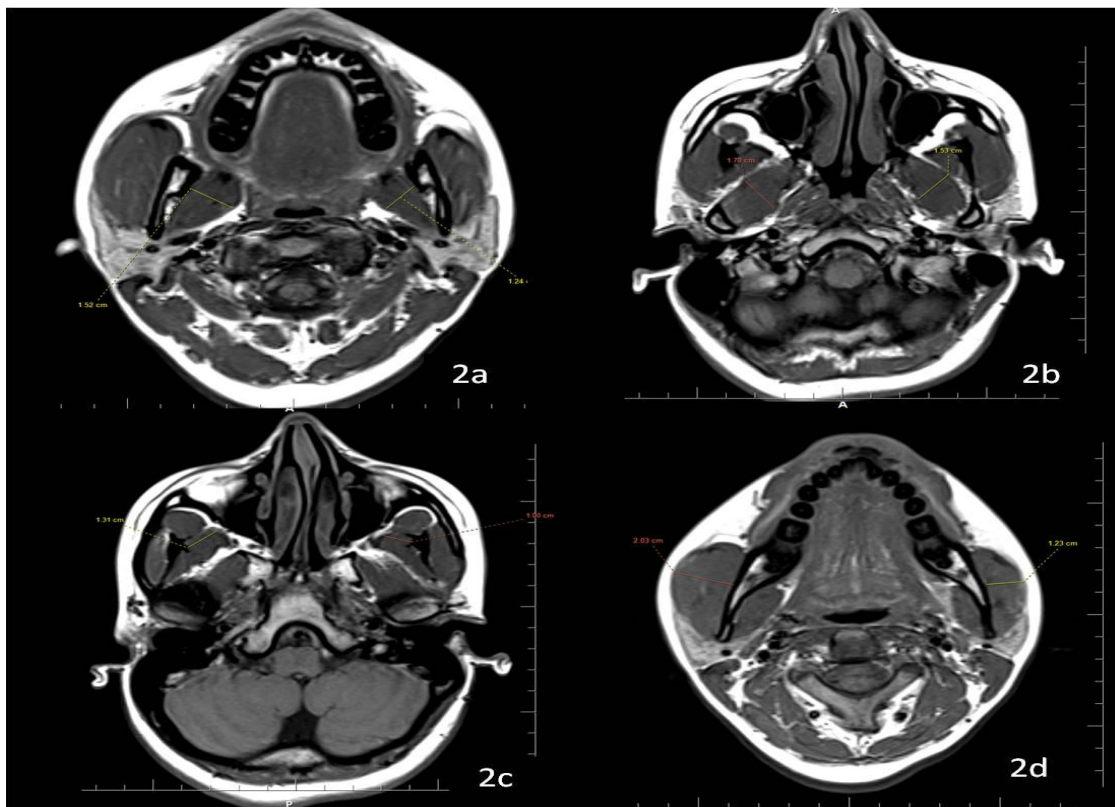


Figure 2a, b, c and d: Axial non-contrast T1 weighted MR Images showing hypertrophy of medial pterygoid (a), lateral pterygoid (b) and temporalis muscles (c) on the right side along with right side masseter muscle (d) hypertrophy

On examination in unclenched state, a diffuse non-tender swelling was present over right lower third of the face. Swelling became firm and more prominent as a localized longitudinal bulge on clenching the teeth. It was non-reducible and non-

fluctuant. Overlying skin was freely mobile and sensory examination was normal. There was no thrill or bruit. Jaw movements were also normal. Intra-oral and dental examination was normal. High frequency ultrasound (11 Hz) was done in unclenched

state which showed increased bulk of muscles in the right buccomasseteric region when compared to the left side. No other focal lesion was seen. Based on the clinical and sonography findings, a diagnosis of benign idiopathic right masseter hypertrophy was made.

MR imaging was performed using a 1.5 Tesla scanner (Magnetom Siemens, Erlangen, Germany). Coronal, axial and sagittal T1W and T2W images were obtained which showed bilateral well developed muscles of mastication showing normal homogenous signal intensity without any focal lesion. However, there was considerable asymmetry between all right and left muscles of mastication, right sided muscles being thicker than the left ones, most notable for the masseter muscle. Right masseter muscle was 20.3 mm in thickness vs. 12.3 mm thickness of left side masseter, i.e., a right-left absolute difference of 8.0 mm and a right-left discordancy of 65%. Temporalis muscle was 13.1 mm on right side vs. 10.0 mm size of left temporalis muscle. Right medial pterygoid muscle was also hypertrophied when compared to the left side (15.2 mm vs. 12.4 mm). Similarly, the right lateral pterygoid muscle was also hypertrophied in contrast to the left side (17.0 mm vs. 15.3 mm) (Figure 2 a, b, c, d). In this case, MRI contributed additional diagnosis of right temporalis, medial pterygoid and lateral pterygoid muscles hypertrophy with idiopathic right masseter muscle hypertrophy, which would have been otherwise missed based on clinical and ultrasonographic evaluation alone. Cortex of the zygomatic arch was notably thickened on the right side which could be explained by periosteal irritation and new bone deposition in response to increased forces exerted by the hypertrophied muscle bundles.

Patient was counseled and started on low dose benzodiazepines (alprazolam) to relieve her anxiety. She was told about the options of local botulinum toxin injection therapy and surgery but she refused for both. Further follow up details of the patient

are not available.

DISCUSSION

Diagnosis of IMM is primarily based on history and clinical examination which can help in differentiating from parotid and dental pathologies. Imaging like CT scan and MRI are helpful only for exclusion of other benign and malignant muscle lesions. Important differential diagnoses which need to be considered are parotid gland swellings, odontogenic swellings, lipoma, vascular tumors, unilateral compensatory hypertrophy (due to hypoplasia of opposite side muscle), and masseter muscle tumor and masseter muscle intrinsic myopathy. [1,2,5,6]

Management of IMM is multifaceted including correction of dental malocclusion if any, correction of parafunctional habits, reassurance, tranquilizer or muscle relaxant, psychiatric care and local injection of very small doses of botulinum toxin A. Unless desired for cosmetic reasons, there is little justification for any operative procedure. Excision of excessive muscle fibres from the inner one third of the masseter vertical muscle fibres may be done through an intra- or extra-oral approach. Resection osteoplasty may also be performed in selective cases with bony hyperplasia. [1,2,4-6]

Most often masseter muscle alone is involved but cases of temporalis muscle hypertrophy with IMM have been described in published literature. [2,7-10] Few rare reports of IMM with medial pterygoid muscle hypertrophy also do exist. [5,6] To the best of our knowledge, there is no description of any similar case (in the published literature) of idiopathic masseter muscle hypertrophy like the present case that had simultaneous ipsilateral hypertrophy of all other masticatory muscles also (temporalis, medial pterygoid as well as lateral pterygoid muscles). As far as possible, MR imaging should be done in all clinical diagnoses of idiopathic masseter muscle hypertrophy to know the associated involvement of other muscles of

mastication, which may be helpful in better planning of treatment and prognostication.

Authors' contributions

All the three authors were involved in the patient care. All of them together reviewed the literature and drafted the manuscript. It has been read and approved by all four authors. All requirements for authorship have been met and each author believes that the manuscript represents an honest work.

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