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Botulium Toxin a Non Invasive Treatment Modality for Masseter Hypertrophy - A Case Report

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Abstract

Masseter hypertrophy is a rare condition of idiopathic cause and can be accompanied by pain and is often erroneously described to disorder of the adjacent parotid gland masseter hypertrophy can be due to many reasons such as emotional stress, chronic bruxism, masseter hyper function, micro trauma many treatment modalities can be used such as surgery, radiofrequency coagulation and botulium toxin injection BTX is the non invasive method of IMH. The main aim of the clinical report is to see the effect of BTX on masseter hypertrophy.

Keywords: BTX-Botox, IMH-idiopathic masseter hypertrophy, OPG-orthopantanogram

Introduction

Masseter hypertrophy is one of the rare condition it is usually aysmtomatic enlargement which may be unilateral or bilateral enlargement of the masseter muscle[1] .It is mostly idiopathic with unknown cause. The masseter hypertrophy may be attributed to hyperactivity and parafunction which may be due to the stressful events in life and ultimately leading to bruxism or clenching .the incidence of masseter hypertrophy is seen in second and third decade of life with no gender predilection.

Masseter is muscle of mastication originating from the inferior border of zygomatic arch and inserting onto the superficial surface of the ramus of the mandible, superior to the superior to the *insertion* of the superficial part of the muscle[2]. With this position, the muscle can be easily palpated from the oral cavity along the cheek. Patient rarely come with pain complaint but with cosmetic reasons (facial asymmetry). Masseter hypertrophy alters the facial lines interfering with the cosmetic function. Maximum thickness of the masseter muscle is seen along the inferior portion of the mandibular ramus, where the facial contour normally tapers. With masseter hypertrophy the facial profile takes on a characteristic rectangular configuration.

Hypertrophied masseter alters facial lines thus has a negative impact on the cosmetic aspect. Some of the reasons responsible for the masseter hypertrophy are overuse of masseter muscle, Bruxism , Anabolic steroids ,Hyperactivity of masseter muscle

Traditional treatment of masseter hypertrophy i.e Surgical intervention have various complications such as haemotoma ,facial paralysis ,infection ,reduced mouth opening and sequelae from general anesthesia[3] .the recent

and most non invasive treatment is botulium toxin injection . 1st botulium toxin injection for treatment of IMH was given by smith, more and wood in 1994[4-5].Botulium toxin act on the acetylcholine receptors thus inhibiting the acetylcholine release to the neuromuscular junction resulting in muscle relaxtion .reduced muscle activity leads to reduce muscle tone and volume of the affected muscle causing selective paralysis and subsequently atrophy of the muscle[6-7] . This paper reports a bilateral masseter hypertrophy case for which botulium toxin approach was considered.

Case report

A 18 year old male patient reported to the department of Prosthodontic crown and bridge and implantology ,Himachal dental college and hospital complaining of increase in the width of the jaw line giving a rectangular shape since 3 years .there was no history of trauma ,systemic diseases. Extraoral examination showed sign of bilateral hypertrophy . OPG showed the sign of bilateral masseter hypertrophy and no sign of underlying pathology was seen as shown in Figure 1. Palpation indicated that the swelling tissue was normal in tone and non-tender. When the patient was asked to clench, the swelling became more prominent and firm as shown in figure 2 and 4.

Figure 1: OPG

Figure 2- Pre-Operative Frontal View

Figure 3- Post- 0perative Frontal View

Figure 4- Pre-Operative Lateral View

Figure 5- Post-Operative Lateral view

Injection procedure

Before the procedure the nature and the established use of botulinum toxin A as well as its potential side effects were explained and signed inform consent was obtained from each patient. Botulinum toxin A (BOTOX) was supplied a freeze-dried powder of 50 units and was reconstituted with 2 ml of sterile saline solution, giving a concentration of 50 units ml. percutaneous intramuscular injection of the botulinum toxin A was performed to the hypertrophic muscle bilaterally using 2 ml syringe with 25 G needle. 50 units botulinum toxin A was injected each side, equally into three points at the centre of the lower third of the masseter muscle which were located 1 cm from each other. No post operative complication was seen in the patient .Patient was recalled for follow up after one week. Patient was satisfied with the new facial profile as shown in figure and 5.

Discussion

Masseter muscle hypertrophy is benign enlargement of the masseter muscle due to multifactorial factors such as overuse of the masseter mucle, Stress, Bruxsim, microtrauma[6-9].its diagnosis is based upon the clinical and radiographic examination. The most salient feature of a masseteric hypertrophy is that it is a slow growing asymptomatic swelling in mandibular angle region which is non-tender, non-pulsatile, soft-fibrous growth with normal overlying skin and swelling becomes prominent on clenching the teeth.IMH is misdiagnosed in most of the cases because of lack of familiarity which ultimately lead to unnecessary biopsies and explorative surgeries. **Burcu Et Al In 2010[10]** performed the same procedure on two patients which walked in with the chief complaint of facial asymmetry and was given BTX and got positive results .**Ham .W Et Al (2009)[11]** used the method of radiofrequency coagulation the approach is effective but more invasive than BTX injections .patients experienced discomfort and swelling for more than 3 weeks. The cosmetic effect of botulium toxin is much safer and non invasive. Follow-up checks showed no facial nerve complication, infection, or blood clot formation**. Fedorowicz et al (2013)[12]** conducted a systematic review to assess the efficacy of botulium toxin for masseter hypertrophy .the BTX was highly effective in management of the IMH but more future research is required for the long term effect and use of BTX as treatment modality.

Conclusion

Based on the outcomes of the present case, it can be concluded that BTX can be viable treatment option for this case. However, this approach is considered highly technique sensitive and requires proper execution. Careful selection of cases, proper treatment plan and follow up are the keys to success in this case keeping in mind the reversible effect of BTX.

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