Bulging of the Masseter Muscle Following Botulinum Neurotoxin Type A Injection - A Case Report

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INTRODUCTION

Botulinum toxin type A (BoNT-A) is widely used in both cosmetic and therapeutic settings for its ability to induce temporary chemodenervation of striated muscles. It acts by cleaving SNARE proteins, thereby inhibiting acetylcholine release at the neuromuscular junction and causing reversible muscle paralysis. Clinically, BoNT-A is plays an important role in managing facial paralysis as it improves synkinesis, hypertonicity and symmetry. Although the masseter muscle is not innervated by the facial nerve, abnormal regeneration after facial nerve injury can cause synkinesis or masseteric overactivity. Targeted BoNT-A injections reduce these symptoms and restore balance but may cause adverse effects such as swelling, hematoma, pain, sunken cheeks, or paradoxical bulging of the muscle. We hereby report a case of right-sided facial palsy with rare masseteric bulging after BoNT-A injection.

Figure 1: Clinical manifestation of masseteric muscle bulging following injection of BoNT-A

CASE PRESENTATION

We report the case of a 48-year-old woman with idiopathic right-sided facial palsy persisting for over 25 years. She presented with disturbing synkinesis, facial and masseteric hypertonicity as well as asymmetry. Targeted BoNT-A injections were planned, and 2 units of Bocouture® were administered into the right masseter muscle. One week later, the patient developed a visible anterior bulging of the right masseter, more pronounced during clenching. Ultrasound confirmed paradoxical bulging of the superficial masseter muscle. As the condition was mild and without functional impairment, a conservative watch-and-wait approach was chosen. At three-month follow-up, the bulging had completely resolved, and the patient was symptom free.

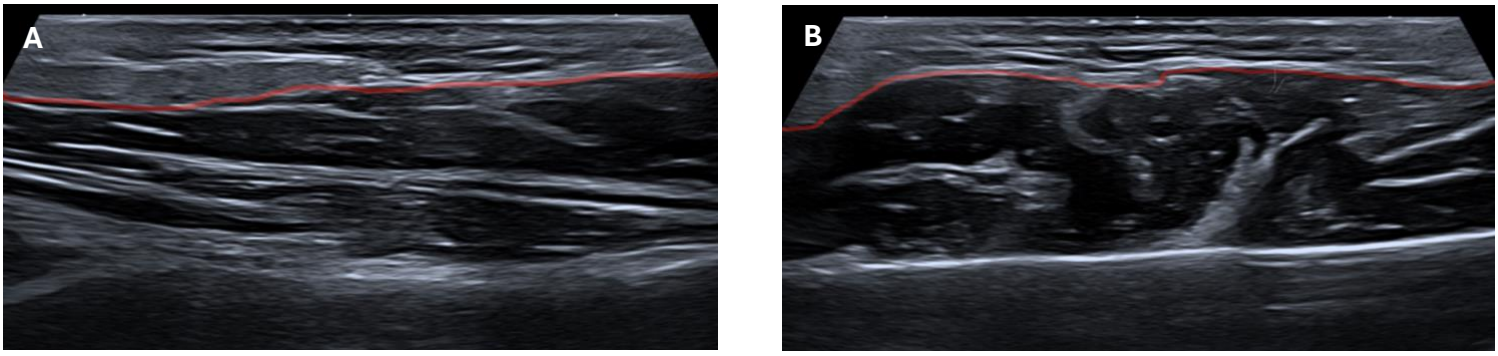

Figure 2: Ultrasound examination of the masseter muscle without **(A)** and with **(B)** clenching, revealing a bulging of the superficial portion, exacerbated upon clenching.

DISCUSSION

Paradoxical bulging of the masseter after BoNT-A is uncommon but has been described in recent reports. The complication is attributed to intramuscular tendons, especially the deep inferior tendon, which can hinder diffusion of the toxin and leave superficial fibers unaffected, resulting in focal protrusion during contraction. Single-point injections are particularly prone to this problem, whereas multi-site or layered techniques targeting both superficial and deep compartments reduce the risk. Ultrasound guidance may further improve accuracy by visualizing internal tendon structures. In most cases the bulging resolves spontaneously as the toxin diffuses or its effect diminishes, so conservative management is often sufficient. If persistent, targeted re-injection into the bulging portion can restore balance. Overall, awareness of the masseter's internal anatomy, precise technique, and structured follow-up are key to prevention and treatment.