

# MANAGEMENT OF PAROTID SIALOCELE USING BOTULINUM TOXIN TYPE A – A NOVEL CONSERVATIVE APPROACH

Ahuja SA,<sup>1</sup> Natarajan S,<sup>2</sup> Galinde J,<sup>3</sup> Asnani U<sup>4</sup>

1. Post Graduate Student, Department of Oral & Maxillofacial Surgery, MGM Dental College & Hospital, Navi Mumbai, Maharashtra.
2. Professor & Head, Department of Oral & Maxillofacial Surgery, MGM Dental College & Hospital, Navi Mumbai, Maharashtra.
3. Professor, Department of Oral & Maxillofacial Surgery, MGM Dental College & Hospital, Navi Mumbai, Maharashtra.
4. Professor, Department of Oral & Maxillofacial Surgery, MGM Dental College & Hospital, Navi Mumbai, Maharashtra.

## Abstract

A sialocele results due to subcutaneous accumulation of saliva, which may occur due to trauma or infection leading to extravasation of saliva because of disruption of the parotid duct or parenchyma. We report a case where a 30-year-old male who was operated for management of myxoma of mandible who after resection developed a parotid sialocele. Fine needle aspiration of the swelling was performed but was not successful in management thereafter Botulinum toxin type A was given and the sialocele disappeared after two doses of Botox thereby ascertaining its effectiveness in management of persistent sialocele.

**Keywords:** Botox, Conservative management, Parotid Sialocele.

## Introduction

Sialocele is regarded as collection of saliva in the subcutaneous plane involving the glandular or periglandular tissues surrounding the duct of the gland or parenchyma without proper drainage.<sup>1</sup> Extravasation of saliva may occur due to trauma or infection to the parotid gland parenchyma, laceration of the parotid duct or ductal stenosis with subsequent dilatation. If sialocele treatment is not performed promptly it can generate an external fistula, facial scars and secondary infections.<sup>2-4</sup>

Parotid sialocele may arise following various surgical procedures such as temporomandibular joint surgery, parotidectomy, mastoid surgeries, mandibular osteotomies and facial space infection drainage and in several cases the duct and/or the gland are iatrogenically damaged.<sup>5-7</sup> Patient typically gives history of a recent facial trauma or surgery, days or weeks before the onset of the swelling.<sup>1</sup>

Sialocele clinically presents as an asymptomatic well-defined swelling over the parotid region. On palpation, the lesion is non-tender, soft, fluctuant and mobile unless secondary infected.<sup>5,7</sup> Diagnosis can be made by fine needle aspiration cytology, sialography, contrast CT and MRI. The various treatment options recommended include repeated aspirations and compression dressings, antisialogogues, parasympathetic denervation (tympanic neurectomy), percutaneous sclerotherapy, sialography, sialendoscopy, and injection of hypertonic saline into the gland.<sup>8,9</sup>

In this paper we report a case of a parotid sialocele in a patient managed with a conservative approach using Botulinum toxin type A.

## Case report

A 30-year-old man reported to our institute with a chief complaint of painless swelling over the left side of the face since 4 weeks. The patient was apparently alright 1 year back when he started experiencing a diffuse swelling over left side of mandibular region which was not painful and gradually increasing in size. He was diagnosed with myxoma with left side of mandible 10 months earlier, for which he underwent surgery 1 month back. One week after surgery the patient observed swelling in the left cheek region which was asymptomatic and gradually increased in

size. There was no significant medical and family history. On examination, there was a 2×3 cm diffuse non-tender swelling in the left infra-auricular region which was fluctuant. [Figure 1A & 1B]



*Figure 1: A well defined 2×3 cm, non-tender swelling in the left infra-auricular region which is fluctuant. The skin over the swelling appears normal with no secondary changes but there is a scar suggestive of incision placed during the previous surgery*

The skin over the swelling was normal with no secondary changes but there was a scar which showed the incision placed during the previous surgery; no associated lymphadenopathy was detected. Intraorally, the mucosa was normal with no evidence of any infection. A diagnosis of sialocele was made following ultrasonography and aspirate analysis for salivary amylase. As a primary and conventional modality of treatment, aspiration and pressure compression dressings were used but the swelling reappeared after 2 weeks. Hence, the usage of botulinum toxin was considered. A total of 50 units of botulinum toxin A was diluted in 5 mL of normal saline and reconstituted. Two doses of botulinum toxin type A of 20 units each one week apart were administered percutaneously in the left parotid region around the sialocele. Follow-up was done every alternate day. On the third follow-up visit, volume had decreased significantly from 20cc [Figure 2A] to 2cc [Figure 2B & 2C] which was the volume of aspirate prior to botox therapy.



Figure 2: A] 20cc of serous fluid aspirated prior to botulinum toxin type A therapy. B] Third follow-up visit demonstrating subsequent decrease in salivary leakage and swelling. C] 2cc of serous fluid aspirated before second dose of botulinum toxin type A.

After two weeks both salivary leakage and swelling had completely resolved with no clinically evident side-effects [Figure 3A & 3B], thereby ascertaining effectiveness of Botulinum toxin type A in management sialocele.



Figure 3: Complete resolution of swelling & stoppage of the salivary leak following two doses of botulinum toxin type A of 20 units each one week apart

**Discussion**

Parotid sialocele is an iatrogenic unconventional complication arising after surgery in and around the parotid gland. It may be caused due to unintentional injury to the main duct, accessory duct, parenchyma of the gland and stricture of the duct. This further leads to extravasation and accumulation of saliva into subcutaneous glandular or periglandular tissue, leading to significant swelling, infection in the cheek, and abnormal salivary secretion. The diagnosis can be made with the aid of investigative methods such as biochemistry analysis of the aspirate for salivary amylase, Doppler ultrasonography, contrast CT and MRI.<sup>10</sup>

Conservative approaches include repetition of aspiration, multiple aspirations and compression dressings; late primary repair or reconstruction of the duct; creation of a controlled internal fistula; superficial or total parotidectomy; parasympathetic denervation (sectioning of the auriculotemporal nerve); antisialogogues; radiation therapy and ductal ligation. Continued usage of

anticholinergic medication can cause memory problems, urinary retention, and even paralytic ileus.<sup>11,12</sup>

A therapeutic use for botulinum toxin type-A was first studied in primates by Scott et al in 1973.<sup>13</sup> Currently botox is extensively used for cosmetic procedures for the treatment of facial wrinkles, but has also found effectiveness in management of numerous conditions in maxillofacial region such as temporomandibular joint disorders, sialorrhea, headache and neuropathic facial pain, muscle movement disorders, and facial nerve palsy could be treated with this drug.<sup>14</sup> The principle therapeutic effect is based on the inhibitory action of the toxin at the cholinergic receptors of the salivary gland cells, leading to significant reduction in saliva production without direct toxicity to the acinar cells.<sup>15</sup> Botulinum toxin has been shown to have therapeutic effects in patients with sialorrhea. Injection of botulinum toxin into salivary glands is a safe and clinically useful method to treat patients suffering from parotid fistula. Several authors have discussed the clinically effective dose of botulinum injection, but there is no consensus regarding dose or method.<sup>14,15</sup> Our patient in this case is free of any adverse effect related to the use of this drug. However, temporary muscle weakness after therapy has been reported in the literature.<sup>15</sup>

**Conclusion**

So, to conclude, percutaneous injection of botulinum toxin type A, is an effective conservative treatment approach for effective management of parotid sialocele, that should be considered before performing an invasive surgical procedure.

**References**

1. Bater MC. An unusual case of preauricular swelling: a giant parotid sialocele. *Int J Oral Maxillofac Surg* 1998;27(2):125-6.
2. Akinbami BO. Traumatic diseases of parotid gland and sequelae. Review of literature and case reports. *Niger J Clin Pract* 2009;12(2):212-5.
3. Barron R, Margulis A, Icekson M, Zeltser R, Eldad A, Nahlieli O. Iatrogenic parotid sialocele following rhytidectomy: diagnosis and treatment. *Plast Reconstr Surg* 2001;108(6):1782-4.
4. Canosa A, Cohen MA. Post-traumatic parotid sialocele: report of two cases. *J Oral Maxillofac Surg* 1999;57(6):742-5.
5. Langdon JD. Complications of parotid gland surgery. *J Maxillofac Surg* 1984;12(5):225-9.
6. Dierks EJ, Granite EL. Parotid sialocele and fistula after mandibular osteotomy. *J Oral Surg* 1977;35(4):299-300.
7. Demetriades D, Rabinowitz B. Management of parotid sialoceles: a simple surgical technique. *Br J Surg* 1987;74(4):309.
8. Chow TL, Kwok SP. Use of botulinum toxin type A in a case of persistent parotid sialocele. *Hong Kong Med J* 2003;9:293-4.

9. Chhabra N, Chhabra S, Kapila SA. Use of hypertonic saline in the management of parotid fistulae and sialocele: A report of 2 cases. *J Maxillofac Oral Surg* 2009;8:64–67.
10. de Araujo MR, Centurion BS, de Albuquerque DF, Marchesano LH, Damante JH. Management of a parotid sialocele in a young patient: case report and literature review. *J Appl Oral Sci* 2010;18(4):432–6.
11. Lapid O, Kreiger Y, Sagi A. Transdermal scopolamine use for post-rhytidectomy sialocele. *Aesthetic Plast Surg* 2004;28(1):24-8.
12. Parekh D, Glezerson G, Stewart M, Esser J, Lawson HH. Post-traumatic parotid fistulae and sialoceles. A prospective study of conservative management in 51 cases. *Ann Surg* 1989;209(1):105-11.
13. Scott AB, Rosenbaum A, Collins CC. Pharmacologic weakening of extraocular muscles. *Invest Ophthalmol* 1973;12(12):924–927.
14. Majid OW. Clinical use of botulinum toxins in oral and maxillofacial surgery. *Int J Oral Maxillofac Surg* 2010;39(3):197-207.
15. Shaari CM, Wu BL, Biller HF, Chuang SK, Sanders I. Botulinum toxin decreases the salivation from canine submandibular glands. *Otolaryngol Head Neck Surg* 1998;118(4):452–457.

**Corresponding Author**

**Dr. Suraj Arjun Ahuja**

Post Graduate Student,  
Department of Oral & Maxillofacial Surgery,  
MGM Dental College & Hospital,  
Junction of NH 4 & Sion-Panvel Expressway,  
Sector 1, Kamothe, Navi Mumbai,  
Maharashtra, INDIA – 410209  
Email Id: - drahujasuraj@gmail.com