

# Sialocele: A rare sequelae of transparotid approach in subcondylar fracture management

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## ABSTRACT

Iatrogenic injury and/or damage to the parotid salivary gland during transparotid approach for open reduction and internal fixation of mandibular condyle fracture is a rare event. Accumulation of saliva in the gland leads to formation of a sialocele. Huge sialocele often seeks drain through the most dependent area through an extraoral wound, whereas in the absence of extraoral fistula, saliva can be redirected intraorally using a stent. A case of management of sialocele caused by damage to glandular elements during a transparotid approach for a subcondylar fracture reduction is reported. The various conservative methods and surgical management for this condition are discussed.

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**Key words:** Open reduction, parotid fistula, transmasseteric approach

## INTRODUCTION

Management of fractures in the region of mandibular condyle is controversial and to reach a consensus about the best approach is difficult. Various open approaches for internal fixation have been summarized by Ellis and Dean.<sup>[1]</sup> The transparotid approach ensures that the plates can be well adapted and the screws placed at 90° to the bony surface.<sup>[2]</sup> In transmasseteric anterior parotid approach, the dissection plane through the masseter muscle instead of the parotid gland reduces the risk of Frey syndrome, sialocele, and salivary fistulas.<sup>[3]</sup> Iatrogenic causes of parotid fistula (PF) include mandibular osteotomy, use of external pin fixation, and as a complication of facial fracture treatment.

Sialocele is a collection of saliva beneath the skin and subcutaneous tissue associated with injury to glandular

parenchyma or ductal system. In glandular fistula, discharge is less and tends to heal spontaneously with conservative treatment, whereas ductal fistulas continuously discharge saliva, and spontaneous healing is very rare. Clinical features include salivary extravasations into the tissues causing swelling over or adjacent to parotid gland (sialocele), expanding neck mass, and cutaneous fistula formation.<sup>[4]</sup> Successful treatment depends on early recognition and appropriate early intervention. Following transparotid approach closure includes formal closure of the masseter and the parotid fascia thereby reduces the swelling and the possibility of a sialocele.<sup>[5]</sup>

In this paper, we discuss various methods of treating sialocele and a case report of treating a postoperative sialocele with a stent placed intraorally.

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## CASE REPORT

A 37-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of pain, difficulty in closing the mouth, and swelling on the left side of the face following a road traffic accident. Direct open reduction and internal fixation via transparotid approach of the left condyle were performed [Figure 1]. Ten days later, the patient presented with a swelling on the left side of the face. On extraoral examination, there were no clinical signs of infection or drainage in the surgical wound and no local rise in temperature was noted. On intraoral examination, salivary secretion through the stenson's duct was relatively reduced on the left side. Neurological examination revealed that no motor loss due to severance of any branch of facial nerve in the affected side. Aspiration was done on dependable swelling which gained a 6 ml of clear, watery, and odorless fluid aspirate, giving an impression of saliva [Figure 2]. A laboratory test confirmed the presence of salivary amylase in the aspirate.

In this case, trauma in the parotid glandular substance leads to the formation of sialocele by the accumulation of extravasated saliva into the glandular parenchyma. Pressure dressing and antibiotics were given to prevent infection. Postoperatively, repeated aspiration along with compressive dressing was performed but did not result in healing. Hence, decided to place an intraoral drain under local anesthesia.

After standard aseptic preparation, intraorally, a 1 cm long incision was placed on external oblique ridge behind the third molar. A small curved artery forceps were inserted through the superficial fascia of masseter reaching the sialocele. Approximately 5 cm long, slender, sterile, punched plastic tube of diameter 5 mm (intravenous cannula) [Figure 3] was positioned with one end in the glandular substance and the other end in the mouth with the help of the forceps. The tube was secured along the vestibule by suturing it to the mucosal surface of the cheek, ensuring complete convenience to the patient [Figure 4]. After placing such a drain, there was no pooling of saliva in the glandular substance. This would have allowed healing of the gland and subsequent formation of structures necessary for drainage through the main Stensen's duct. The patient's recovery was uncomplicated, and follow-up was done for 5 months.

## DISCUSSION

Injury to the parotid duct may be difficult to diagnose. If not recognized earlier, saliva extravasates into the tissues leading to sialocele, a nonepithelialized fluid-filled cavity through continuous salivary secretion without proper



Figure 1: Orthopantomogram showing reduction of condylar fracture



Figure 2: Aspirate showing clear fluid



Figure 3: Intravenous cannula

drainage. Clinical features are swelling over or adjacent to parotid gland, expanding neck mass and cutaneous fistula formation. In glandular fistula, discharge is less and tends to heal spontaneously with conservative management. An injury to the parotid gland is classified into three regions by Van Sickels<sup>[6]</sup> (1). posterior to the masseter or intraglandular (site A), (2). overlying the masseter (site B), and (3). anterior to the masseter (site C). Parekh *et al.*<sup>[7]</sup> modified the treatment of PF and sialocele as follows [Figure 5].



Figure 4: Intra oral drain in position

The conservative management is based on the regular aspiration of the content and compression dressing, leading to atrophy of the gland. The rise in ductal pressure leads to the compression of capillaries and veins, resulting in decrease in secretion and atrophy of gland. However, there is no adequate proof supporting it.<sup>[7]</sup> Anticholinergic agents are used to suppress glandular function during healing which will close the fistula or resolve a sialocele spontaneously. Most commonly used drug is propantheline bromide (Pro-Banthine) which inhibits the action of acetylcholine at the postganglionic nerve endings of the parasympathetic nervous system, and the adult dose is 15 mg PO qid half an hour before meal. These agents have many undesired side effects such as xerostomia, constipation, photophobia, tachycardia, and urinary retention.<sup>[7,8]</sup> Five milliliters of 3% warm hypertonic saline (60°C) was injected into the parotid gland through fistulous opening followed by pressure dressing repeated for 3 days causing fibrosis of gland parenchyma and spontaneous closure of fistula with no complications.<sup>[9]</sup> Radiation therapy induces fibrosis and atrophy of the gland. Approximately 1800 rads for more than 6 weeks are required for refractory salivary fistulas.<sup>[10]</sup> Fibrin glue has also been used recently; however, it is said that fibrin glue is rendered inactive by saliva leading to recurrence of fistula.<sup>[11]</sup> Recently, good results have been obtained with local injection of botulinum toxin, which prevent the release of acetylcholine at the neuromuscular junction of striated muscles and thus produce chemical denervation and paralysis of the muscles. Cologne protocol contains 25 mu of botulinum toxin/0.1 ml, injected 0.1–0.2 ml intraglandular at 4–5 points under sonographic control. This chemical denervation is effective both for striated muscle and eccrine glands.<sup>[12,13]</sup>

Various surgical management in treating PF and sialocele is been advocated by various authors from simple surgical excision of fistulous tract followed by pressure

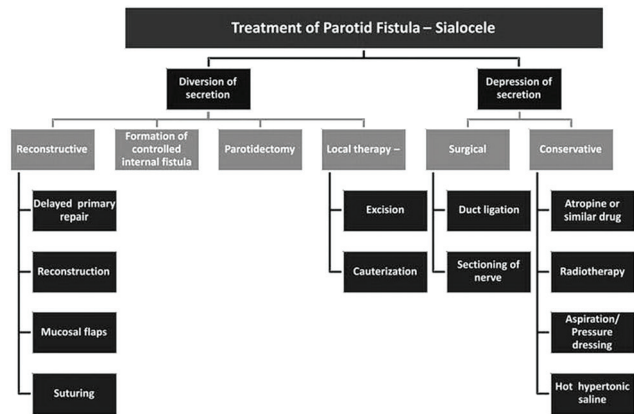


Figure 5: Treatment options for parotid fistula and sialocele<sup>[14]</sup>

dressing of the wound. Placing an internal drain created a better connection between oral cavity and parotid substance that helped to resolve the situation. After placing such a drain, there would be no pooling of saliva in the glandular substance. This would allow healing of the gland and subsequent formation of structures necessary for drainage through the main Stensen’s duct. A slender, thin, plastic drain saves the need of complex requirements.<sup>[14,15]</sup>

In the region posterior to the masseter, proximal duct ligation causes “Physiologic Death” of the gland. Duct ligation may lead to early edema of the gland with accompanying pain from stretching of the capsule. This usually subsides spontaneously within 1–2 weeks as atrophy of the gland occurs, but chronic infection of the remaining glandular substance is a late complication.<sup>[16]</sup> Overlying the masseter, parotid duct injury is treated by reapproximation of proximal and distal ends with single layer of interrupted fine suture 8.0–10.0 nylon using surgical microscope.<sup>[17]</sup> Interposition vein graft is also been used to repair stensen’s duct.<sup>[18]</sup> In the region of anterior to masseter, proximal portion of the duct is dissected free and reimplanted into the papilla, cannulation of the duct with silastic tube sewn to the oral mucosa or around maxillary second molar with a chromic suture and hold the stent for 2–3 weeks till the duct heals. Sialodochoplasty using buccal-mucosa pedicle flap is described by creating intraoral fistula for internalization of the salivary flow.<sup>[19]</sup> Parotidectomy has been discouraged as a treatment modality as postoperative facial palsy is seen in 75% of cases.<sup>[20]</sup> Tympanic neurectomy appears to be a satisfactory method of dealing with selected parotid duct fistulas and glandular fistulas. Transtympanic sectioning of the Jacobson’s nerve by drilling into temporal bone at hypotympanum has been reported. Glandular atrophy occurs in 6 months and high failure rate due to varied anatomy of nerve reinnervation.<sup>[21,22]</sup>



## CONCLUSION

In this case report, we present an effective method of management of sialocele treated surgically by placing an intraoral drain to redirect the saliva into the oral cavity which helps the structures to repair. By this method, we found that it is more economical and less morbid. To avoid this inadvertent injury to the parotid gland, a careful surgical preplanning approach and closure with water tight sutures in layers is recommended.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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