

## CASE REPORT

# INTRAORAL DIVERSION IN CHRONIC PAROTID FISTULA AND SIALOCELE

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## ABSTRACT

Trauma is the most common etiology for a parotid fistula and sialocele. Other causes include post parotidectomy, infections and malignancy. We report two cases of a chronic parotid fistula and a case of sialocele. Diagnosis was confirmed by fistulography and ultrasonography of the local part. The patients underwent an intraoral diversion of the fistula tract and closure of the cutaneous opening of fistula. No recurrence of the fistula has been reported in the three patients within 2-3 years of follow-up. Intraoral diversion of the fistula tract appears to be a promising treatment modality in our study.

**Keywords:** Chronic parotid fistula, sialocele, intraoral diversion.

## INTRODUCTION

A parotid fistula is a communication between the skin and a salivary duct or gland, through which saliva is discharged. The most common causes of parotid duct injury are penetrating trauma from stab wounds, motor vehicle accidents, and gunshot wounds. Other causes include injury during tumor resection, ulceration due to large calculi, and injury during drainage of parotid abscesses.<sup>3,4</sup> Flow through the fistula increases during meals, particularly during mastication. Fistulography or sialography is an investigation to confirm the diagnosis.

## CASE REPORT (1)

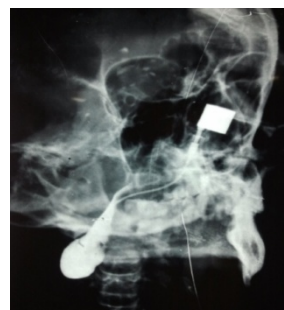
A 50 year old male presented with history of assault with a sharp weapon over the right side of his face 30 days back. The wound was sutured in at a private hospital. Following the healing of the wound, the patient experienced a watery discharge coming from a site on the right cheek over lower part of the suture line. It was clear, watery and increased in amount during meals. The patient also gave history of incomplete closure of the right eye with watering from the right eye.

There was an opening of the fistulous tract 2cm lateral and 1cm cranial from the right angle of mouth with a clear watery discharge. The fistula was cannulated using a 8 number infant feeding tube to reveal a subcutaneous tract reaching up to the right submandibular region and another blind tract going posteriorly up to a length of 2cm. These findings were confirmed on a fistulogram where the radio opaque dye was infused through a catheter inserted via the external opening into the fistula. A sac had been formed subcutaneously in the

right submandibular region connecting to the exterior and another tract opening into the parotid Duct. No dye was seen to leak into the oral cavity via the stenson's duct. Ultrasonography of the local area reconfirmed these findings. The fistula was seen to be a subcutaneous tract leading to a fibrous sac with internal septae in submandibular region.



**Figure 1: Patient with a post traumatic parotid fistula**



**Figure 2: Fistulogram of patient with right parotid fistula**

## CASE REPORT (2)

A 10 year old child presented with a history of an incision and drainage procedure done for a swelling over the right cheek 7 years back. The watery discharge

begun 15 days after the procedure from the site of incision. The patient had taken certain medications for the same inspite of which the discharge persisted.

The child presented to us with a pin point opening in the right parotid region, 2cm anterior to the tragus, with a clear watery discharge. The fistula was cannulated with a thin intravenous canula. The fistulogram revealed a tract from the skin to the right parotid ductal system. The ultrasonography of the local area was normal.



**Figure 3 & 4: Intraoperative photos**

### CASE REPORT (3)

A 8 year old child presented with a swelling in the right cheek which increased in size and became painful during meals. The patient had a history of a fall 6 months back with injury over the right cheek which was sutured. The patient observed a swelling in the right cheek 2 weeks after the accident. The swelling had gradually increased in size since then. It was not associated with pain, redness or discharge.

On examination, the patient had a 3X3 cm, soft, fluctuant, mobile swelling in the right parotid region. Overlying skin was normal without any signs of inflammation. A 7cm linear scar was seen from 2cm anterior to the tragus to 1 cm lateral to the angle of mouth. Fine needle aspiration cytology revealed a clear viscous aspirate which was confirmed to be saliva on microscopy and biochemical analysis. Ultrasonography of the local part revealed a hyperechoic collection in subcutaneous plane in right parotid region with a normal underlying parotid gland.

### OPERATIVE PROCEDURE

Intra oral diversion of the parotid secretion into the oral cavity was adopted. A stent was inserted from the wound into the oral cavity, hence leading to formation of a false tract for drainage of the saliva intraorally. External wound was closed in two to three layers. The stent was fixed to the buccal mucosa intraorally with sutures. It was removed one and half month after the procedure ensuring patency of the tract.

The patient with a sialocele underwent a similar procedure. The cyst was excised and a stent was kept from site of the cyst into the buccal cavity, thus allowing the drainage of salivary secretion intraorally. Patient was given antibiotics for 7 days. Salivary secretion was reduced by tab Probanthine. Oral hygiene was maintained by potassium permanganate gargles after

meals. Patients were followed up for 2-3 years and no recurrence has been reported in the above 3 cases.

### DISCUSSION

Parotid fistula is a rare condition, most common etiology being a penetrating injury such as a stab injury, vehicular accident, gunshot wound. Other causes include Post parotidectomy, after incision and drainage of a parotid abscess, ulceration due to a large parotid stone.<sup>3,4</sup> Parotid sialoceles are the lesions that occur after the trauma or injury to the parenchyma or duct of parotid gland causing accumulation of saliva in the area<sup>6</sup>.

Investigations performed may include fistulography. It is a radiographic procedure that demonstrates the origin and extent of fistulae (abnormal passages, usually between two internal organs). In this method, the tract is filled with a radiopaque contrast medium, usually under fluoroscopic control. Right angle and oblique projections are occasionally required to demonstrate the full extent of a sinus tract<sup>7</sup>.

Sialography<sup>3</sup> may be performed but is usually not necessary to establish the diagnosis of parotid duct injury. If performed, water-soluble contrast material should be employed because it is more easily drained and absorbed, and it does not remain as an irritant to the gland. In doubtful cases fluid can be sent for laboratory analysis; raised salivary amylase levels confirm the diagnosis.<sup>4</sup> Computed tomography fistulography can be performed to look for the extent of the fistula<sup>5</sup>.

An injury classification system has been devised by Van Sickels<sup>2</sup> for parotid duct injuries as per site of the trauma. This system divides the parotid duct into the following 3 regions: Posterior to the masseter or intraglandular (site A) Overlying the masseter (site B) Anterior to the masseter (site C). The decision to use a certain modality of treatment depends upon the site and type of injury sustained.

### Treatment of Parotid Sialoceles and Fistulae: Current options

The surgical techniques can be classified as those that divert parotid secretions into the mouth and those that depress parotid secretion either by duct ligation or nerve sectioning. Conservative approaches include attempts to depress parotid secretion by antisialagogues or radiotherapy.

The techniques that attempt to divert secretion into the oral cavity can be broadly classified as 1) Methods to reconstruct the duct to restore passage for the internal drainage of parotid secretion. This is carried out by using vein grafts. Distal duct injury can be repaired by buccal mucosa flaps and anastomosis of the proximal duct to buccal mucosa. 2) Methods to create a controlled internal fistula into the oral cavity. It is held open by means of a polyethylene catheter into the

proximal duct or T- tube or catheter drainage of the cavity of sialocele into the mouth. Parotidectomy, local therapy to the fistula by excision and cauterisation are other options.

The techniques to depress parotid secretion include surgical and conservative approaches. Duct ligation leads to “physiologic death”<sup>8</sup> of the gland. Early oedema of the gland with pain due to stretching of the capsule occurs which resolves spontaneously within 1-2 weeks due to glandular atrophy. Sectioning of the auriculotemporal nerve or Jacobson’s nerve leads to loss of parasympathetic innervations of the gland. Atrophy occurs at 6 months. High failure rates due to varied nerve anatomy are seen.<sup>9, 10</sup> Botulinum toxin type A injections have been described to diminish parotid secretion by presynaptic inhibition of acetylcholine release.<sup>11</sup>

Conservative methods include administration of antisialagogues, radiotherapy and pressure dressing can be carried out. Radiotherapy causes fibrosis and atrophy of the gland

## CONCLUSION

The management of parotid sialoceles and fistulae have been unsatisfactory in the past, and numerous methods of treatment with varying success and morbidity have been described. Persistent salivary fistula may be most troubling to the patient. The treatment depends on the location of the injury and thus should be specifically chosen for each situation.

Intraoral diversion of the fistula tract appears to be a promising treatment modality. But the number of cases

is very small. It requires more cases to be treated similarly to predict the success of this procedure.

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