

# Conservative approach for Parotid Sialocele: A Review

## Abstract

Parotid gland is one of the major and largest salivary gland. It is located in maxillofacial region, in front of ear near temporomandibular joint behind the ramus of mandible. Parotid gland and duct injury are usually rare complication after parotid gland surgery or temporomandibular joint surgery. Other etiological factors leading to parotid injury are rupture of parotid abscess or inadvertent incision of parotid abscess, complication after superficial Parotidectomy, gunshot injuries and road traffic accidents. Injury to either parotid gland or duct will lead to sialocele or fistula which if undiagnosed and not treated in time leads discomfort to the patient as there is continuous flow of saliva. A good treatment plan includes early diagnosis and early intervention by either conservative management or aggressive surgical procedures.

## Key Words

Parotid Gland; sialocele; conservative approach

Ranjan Chauhan<sup>1</sup>, Abhinay V Deshmukh<sup>2</sup>, Rahul Sharma<sup>3</sup>, Mitali singh<sup>4</sup>, Dilraj Singh<sup>5</sup>, Chaitanya Shriram Metkar<sup>6</sup>

<sup>1</sup>Assistant Professor, Department of Oral & Maxillofacial Surgery, Maharana Pratap College Of Dentistry & Research Center, Gwalior, Madhya Pradesh, India

<sup>2</sup>Post Graduate Student, Department of Oral & Maxillofacial Surgery, Vyas Dental College & Hospital, Jodhpur, Rajasthan, India

<sup>3</sup>Post Graduate Student, Department of Oral Medicine Diagnosis & Radiology, Maharana Pratap College Of Dentistry & Research Center, Gwalior, Madhya Pradesh, India

<sup>4</sup>Post Graduate Student, Department of Oral Medicine Diagnosis & Radiology, Maharana Pratap College Of Dentistry & Research Center, Gwalior, Madhya Pradesh, India

<sup>5</sup>Post Graduate Student, Department of Oral Medicine Diagnosis & Radiology, Maharana Pratap College Of Dentistry & Research Center, Gwalior, Madhya Pradesh, India

<sup>6</sup>Post Graduate Student, Department of Conservative Dentistry & Endodontics, Vyas Dental College & Hospital, Jodhpur, Rajasthan.

## INTRODUCTION

Parotid fistula is a communication between the skin and a salivary duct or gland, through which saliva is discharged on the external surface of skin.<sup>[1]</sup> The most common causes of parotid gland and duct injury are penetrating trauma which can result either from stab wounds, road traffic accidents, or gunshot wounds. There are various other causes which can lead to such injuries are injury during tumor resection, ulceration due to large calculi, and injury during drainage of parotid abscesses.<sup>[2,3]</sup> Injury to the parotid duct is sometimes difficult to diagnose, that is why the initial examining physician must have a high suspicion for injuries occurring in the parotid region. If salivary gland injury remains undiagnosed and not treated in time leads discomfort to the patient as there is continuous flow of saliva. Therefore a good treatment plan includes early diagnosis and early intervention of salivary gland injury by either conservative management or aggressive surgical procedures.

## ANATOMY OF PAROTID GLAND

The parotids are the largest salivary glands located in maxillofacial, in front of the ear and behind the ramus of the mandible. Gland is superficially covered by fascia called the parotid capsule. This gland is intimately associated with the peripheral branches of the facial nerve (CN VII). The parotid duct is thick-walled, formed by the union of the ductules which drain the lobules of the gland. It emerges at the anterior border of the gland on the surface of the masseter muscle and hooks medially over its anterior border. The duct opens into the oral cavity in a papilla opposite the second upper molar tooth. The parotid duct is known as stensons duct. The parotid secretions are serous in nature. The working part of any salivary glandular tissue is secretory end pieces, known as acini and branched ductal system. The fluid formation in salivary glands occurs in the end pieces (acini) where serous cells produce a watery seromucous secretion and

mucous cells produce a viscous mucin-rich secretion.<sup>[4-8]</sup>

### **ETIOLOGY OF PAROTID SIALOCELE**

There are various factors which can lead to salivary gland fistula formation. 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>[2,3]</sup> Posttraumatic salivary fistulas are often result of facial trauma in the course of road accidents where penetrating injuries are associated mostly with the presence of broken glasses. Formation of a salivary fistula following a penetrating injury, after a lesion of glandular parenchyma, can occur early or late in relation to a traumatic event.<sup>[9,10]</sup> There are certain fistula that persist even after complete wound healing, these are classified as permanent fistula and are considered under different subgroup that requires special attention. Permanent fistula are difficult to treat<sup>[11,12,13]</sup> and for this preventive measures should be initiated as early as possible.

### **CLINICAL FEATURES OF PAROTID SIALOCELE**

There are so many different causes which can lead to formation of parotid sialocele, but there clinical presentation more or less is always same. Clinical features include salivary extravasations into the tissues causing swelling over or adjacent to parotid gland (sialocele), expanding neck mass and cutaneous fistula formation. It has been seen that salivary flow increases from fistula during mastication.

### **CLASSIFICATION OF PAROTID INJURIES**

An injury classification system has been devised by Van Sickels.<sup>[14]</sup> This system divides the parotid injuries into three regions: 1) Posterior to the masseter or intraglandular (site A); 2) Overlying the masseter (site B) and; 3) Anterior to the masseter (site C).

### **INVESTIGATION**

Investigations performed include fistulography and sialography:

*Fistulography* - It is a radiographic procedure that demonstrates the origin and extent of fistulae. 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>[15]</sup>

*Sialography*<sup>[2]</sup> - This 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>[3]</sup> Computed tomography fistulography can be performed to look for the extent of the fistula.<sup>[16]</sup>

### **EXAMINATION**

Examination of parotid gland after any injury must include assessment of location, size, shape, type (e.g., puncture, laceration, avulsion, crush, abrasion), asymmetry, drainage (i.e., quality, character, odor) tenderness, surrounding erythema, oedema, cellulitis, or crepitation and facial nerve status. Good examination of gland helps in making proper diagnosis and then it helps in planning suitable intervention for the correction of problem that too in patient comfort.

### **MANAGEMENT**

Treatment of parotid injury can be categorized as either conservative approach or surgical approach. The approach to be undertaken for the treatment depends upon the acute or chronic condition of the salivary fistula. Acute parotid injuries should be explored & repaired primarily. Patients requiring manipulation of the parotid duct through the oral cavity must receive prophylactic antibiotics after primary closure.<sup>[17]</sup> Other Management options include pressure dressings, use of antisialagogue, total parotidectomy, tympanic neurectomy, intraoral transposition of parotid duct, radiation therapy, use of botulinum toxin A, reconstruction of salivary gland duct, cauterization of the fistula and use of fibrin glue.<sup>[18-22]</sup> A conservative approach includes regular aspiration of the content and compression dressing. Some authors<sup>18,23,24</sup> use anticholinergic agents to suppress glandular function during healing phase or they use anticholinergic agent in an attempt to close a fistula or resolve a sialocele spontaneously. Most commonly used agent is propantheline bromide (Pro-Banthine), which inhibits the action of acetylcholine at the postganglionic nerve endings of the parasympathetic nervous system (adult dose 15 mg PO qid half an hour prior to meals). Compression and pressure dressing usually helps in resolving sialocele, because sialocele involves collection of saliva from the duct beneath the skin. Usage of anticholinergic drugs should be under constant

monitoring and regular follow up because they have many undesired side effects such as xerostomia, constipation, photophobia, tachycardia and urinary retention.<sup>[25]</sup> Radiation therapy is also used in the management of parotid sialocele but it has been seen that radiation therapy induces fibrosis & atrophy of the gland. The approximately radiation dosage is 1800 rads for more than 6 weeks is required. Radiation is mostly considered for refractory salivary fistulas.<sup>[26]</sup> The main aim of any line of treatment is to reduce the secretion of the remaining glandular tissue in order to both alleviate the symptoms and facilitate closure of the fistula. This goal can also be attained in a minimally invasive manner with the usage of botulinum toxin. Botulinum toxin is the non-invasive method of reducing the saliva secretion from rest of the glandular tissue. In few studies there was not closure of fistula but there was definite improvement in the salivary flow from the salivary glandular tissue. Effect of botox starts after 3 days so mostly fruitful result is seen within 4 days. Apart from its use to manage sialocele and salivary fistula, botulinum toxin has also been used to treat Frey's syndrome<sup>[27,28]</sup> and sialorrhoea,<sup>[29,30]</sup> with high efficacy and safety.

### CONCLUSION

For the management of parotid sialocele our first line of treatment should focus on conservative approach. In conservative approach aspiration with pressure dressings and antisialagogue therapy together can be used for the purpose of fistula closure because it is cost effective, safe, easily available, non-toxic and non-irritant to the surrounding structures and serves the purpose of causing fibrosis of gland parenchyma and spontaneous closure of fistula with no complications. Botulinum toxin is minimally invasive approach for reducing the salivary flow.

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