Case Report

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Chronic Parotid Fistula: A Case Report and Review of Literature

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Abstract

Introduction: A parotid fistula is a rare, extremely unpleasant disease. Various treatment modalities including surgical and conservative management are present to treat this disease. *Case Presentation:* A 45 year old male presented to us with a 2 years history of a swelling and clear watery discharge from a region above and behind the angle of his left jaw. A diagnosis of a parotid gland fistula was made based on clinical examination and investigations. The parotid fistula was successfully managed by fistulectomy, compression bandage and anti-cholinergic post operatively. *Conclusion:* Chronic parotid fistula is difficult to manage successfully. There are various treatment options available, however it is necessary to standardize the treatment according to the duration of history and the patient's general condition.

Introduction

Though infrequent, parotid fistula, when it does occur, presents a challenging problem in management. Parotid fistula is defined "as an epithelialized tract between the skin or mucosa and a parotid duct or gland through which saliva is discharged" [1].

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The most common cause of parotid fistula is trauma (tangential injury to face, gun shot injuries), followed by malignancy, as complication following surgeries like parotidectomy or Facial Surgery like rhytidectomy [1], tumour resection and infection. It can also be present congenitally [2,3], or can develop due to chronic pathologies of the facial soft tissues, ulceration due to large calculi and injury during drainage of parotid abscess [4,5]. Flow through the fistula increases during meals, particularly during mastication, which confirms diagnosis [4].

We report a case of parotid fistula and its treatment.

Case Report

A 45 year old male presented with complaints of a painless swelling below and in front of the left ear lobule since 2 years associated with clear watery discharge from just above and behind his left jaw for two years. This swelling was of insidious in onset and gradually progressive in size. The watery discharge increased while eating food and chewing. There was no history of fever, recurrent cough, weight loss, loss of appetite, or exposure to tuberculosis. There was no history of any previous surgeries.

Examination revealed a 2X2 cm firm, mobile, non-tender, non-fluctuant mass present about 2 cm anterior to the left tragus and 2 cm below the zygomatic arch. On examination, there was a pinpoint size opening just posterio-superior to the angle of the mandible with a continuous dribbling of clear serous fluid and scarring of the surrounding area (Figure 1). Ear, nose and throat examination including openings of both parotid ducts were normal. Left Facial nerve function was intact. There was no cervical lymphadenopathy. A provisional

diagnosis of Chronic Parotitis with Parotid Fistula was made.

Ultrasonography examination of the left parotid region revealed heterogeneously enlarged parotid gland with increased vascularity. Multiple necrotic intra parotid lymph nodes. A single sinus tract was seen from the parotid to the skin. Final report was given as chronic parotitis with a draining sinus.

Radiographic Fistulography as well as sialography examination was done with iodinated contrast injected into the cannulised tract and left Stenson's duct. It showed a single, blind ending, ill-defined, irregular sinus track measuring 1.6cm in the retro mandibular region (Figure 2) There was no communication between the parotid duct and the Fistula tract. Hence diagnosed as cutaneo-parotid gland fistula of the left parotid gland.

Smears from the fistula discharge, FNAC of the gland and sputum smears were all negative for acid fast bacilli and hence Tuberculosis was ruled out. Routine blood investigations were within normal range.

Operative procedure, Fistulectomy was decided, because of the delayed presentation. Under short general anaesthesia; methylene blue was injected into the fistulous opening. There was no intraoral spillage of the dye, indicting no communication of the fistula with parotid duct. An elliptical incision was taken around the fistulous opening and anchored with stay sutures. The skin island and subcutaneous tissue was dissected until the fistulous tract was visible and traced until its entry into the thick parotid fascia (Figure 3). The parotid fascia was incised, and the tract was seen entering the superficial lobe, at this level the tract was ligated and completely excised. Layered closure of the parotid fascia and the skin was done with vicryl 3-0 and ethylon 4-0 and a tight pressure dressing applied. There was no facial nerve deficit.

Post operatively patient was nil by mouth for 48 hours and Intravenous fluid, antibiotics, analgesics and anti-cholinergics were administered. The sutures were removed on the 7th post-operative day.

Fig. 1: Parotid Fistula with Glistening watery discharge

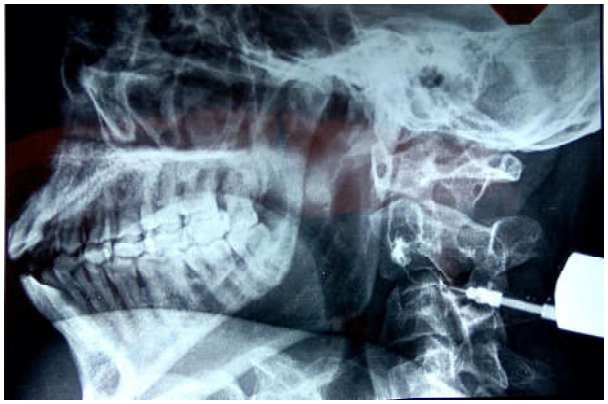

Fig. 2: Fistulogram: showing Blind ending sinus tract

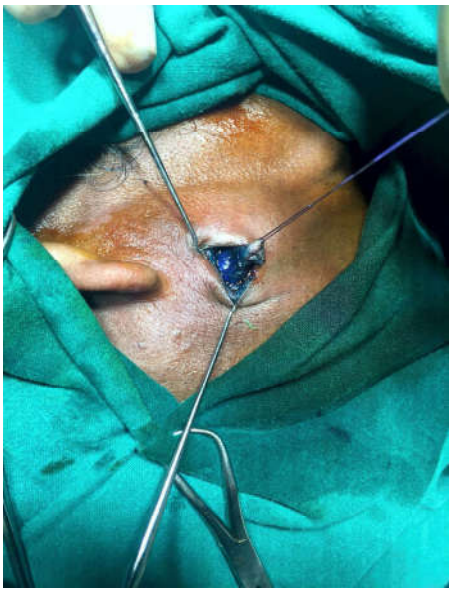

Fig. 3: Per operative: Fistulous tract Excision

The histopahological examination revealed a fistulous tract lined by stratified squamous epithelium with subepitheilal dense chronic non-specific inflammatory cell infiltrate. Our patient was followed up for a period of 8 months and is found to have successful healing of the wound with no complications or recurrence.

Discussion

Parotid fistula is a rare condition which can be congenital [2,3], but most commonly occurs after a trauma (stab injury, vehicular accident, gunshot injury) or facial surgery in the parotid region and temporomandibular joint. Other causes include

inadvertent incision and drainage of parotid abscess, ulceration due to a large parotid stone [4,5]. Formation of salivary fistula following penetrating injury can occur early or late in relation to the traumatic event [1].

A proper evaluation of facial lacerations must include demonstration of the integrity of the parotid duct and branches of the facial nerve. The parotid duct is 7 cm long and arises from the anterolateral portion of the gland and passes superficially over the masseter and turns medially at its anterior border to pierce the buccinator, where it is most susceptible to injury in penetrating facial trauma. It travels awhile beneath the buccal mucosa and opens in the papilla opposite the second maxillary molar. The surface anatomy of the duct can be approximated by the middle third of a line drawn from the tragus to the midpoint of the upper lip. Any laceration crossing this line must be suspected of having damaged the parotid duct or its accompanying neurovascular bundle and should be meticulously assessed [6].

Injury to the parotid duct is difficult to diagnose and may lead to salivary fistula formation which will not heal spontaneously because of continuous flow of saliva. Parotid Gland and duct injuries are classified by Parkeh in 1989, based on the sialographic appearances (Table 1). An external parotid fistula usually develops within the first week after injury [7].

Table 1: A New Classification of Parotid Injury
(Based on Sialographic Appearances) (Parekh *et al 1989)*

Glandular Injury	
Type 1:	Injury to the parenchyma or to minor ducts (G 1)
Type 2:	Injury to a major intraparotid duct (G 2)
Ductal Injury	
Type 1(a):	Partial transection of the parotid duct [D1(a)]
Type 1(b):	Complete transection of parotid duct [D1(b)]
Type 2(a):	Partial disruption of parotid gland-duct junction [D2(a)]
Type 2(b):	Complete disruption of parotid gland-duct junction [D2(b)]

Symptoms Parotid Fistula become apparent in the form of chronic fistula, often along surgical scar and gustatory intensification of salivary exudation. The autolytic saliva components hinder wound healing and favour infections.

Parotid Fistulas are diagnosed by history, clinical examination. The continuous dribbling of clear serous fluid from fistula will be evident clinically on sighting food and while eating is diagnostic.

Analysis of the fluid in uncertain cases will confirm parotid secretion due to the very high amylase content (usually exceeding 10,000 units/1) [7].

Sialo-fistulography, Ultrasonography and Computed Tomography help to analyse the origin

Table 2: Management of parotid fistulae – A classification of reported methods in the literature (Parekh et al 1989)

1. Diversion of parotid secretion into the mouth
A. Reconstructive methods
Delayed primary repair of duct
Reconstruction of duct with vein graft
Mucosal flaps
Suture of proximal duct to buccal mucosa
B. Formation of a controlled internal fistula
T-tube or catheter drainage into the mouth
Drainage of proximal duct by a catheter
C. Parotidectomy
D. Local therapy to the fistula
Excision
Cauterization
2. Depression of parotid secretion
A. Surgical approaches
Duct ligation
Sectioning of the auricotemporal or Jacobsen's nerve
B. Conservative approaches
Administering nothing orally to the patient until the fistula closes
Drugs: atropine or Pro-banthine
Radiotherapy
Repeated aspiration and pressure dressing

and extent of the fistula.

The method of treatment for the parotid fistula chosen is based on the time, site, and mechanism of injury. Many methods of repair have been suggested, conservative as well as aggressive which are associated with varying degree of success and morbidity [7] (Table 2).

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

Early fistulae are self-limiting and can be managed conservatively by reducing the salivary secretions with use of anti-cholinergics and/or use of pressure dressing.

Anti-cholinergics are most beneficial in glandular injuries. The most commonly used drug is Propantheline bromide, which inhibits the postganglionic nerve endings of the parasympathetic nervous system, thus control of salivary secretion. It has been proved a safe, effective means of rapid sialocele control [8]. 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 [8,9].

Regular aspiration of the content should be done prior to compression dressing. Pressure dressing discourage the secretion from gland by pressing the lobule of gland against inelastic capsule which further compresses the capillaries and vein that ultimately lead to decline of secretion [10]

Reduction of salivary flow in patients with salivary fistulas by local injection of botulinum toxin type A into the salivary glands proved to be a dependable therapy. Salivary flow rates drops sharply within 1 week after injection and increased again after a period of 12 to 16 weeks [11]. Botulinum toxin A injections, are useful but these are given repeatedly and remission of fistula are high, cost is a limiting factor [9,11].

Other recent conservative techniques include injecting sodium tetradecyl (sclerosant) [12], warm hypertonic saline (osmotic sclerosant) [13,14] and fibrin tissue glue [15]. Each technique has its advantages and disadvantages. These techniques need to be further tested and evaluated.

Low dose radiotherapy is supposed to be significant method since it reduces the salivary flow but long term ill effects of radiotherapy decline the use this method.[16] Radiotherapy has been used but is no longer popular. Doses required for healing are high and may cause secondary malignancies [1,7,17].

Diversion of parotid secretion into the mouth can be done by various reconstructive methods, which include reconstruction of duct with vein graft, mucosal flaps or suturing of proximal duct to the buccal mucosa [9]. The major problem with techniques attempting to divert secretions into mouth been the difficulty in identifying the proximal duct in the extensive scarring that forms around the fistula with its associated significant risk of damage to the facial nerve [1].

Tympanic neurectomies are disadvantageous, since they represent additional and dangerous surgical procedures [1,18-20].

Parotidectomy has also been discouraged as a treatment modality as postoperative facial palsy is seen in 75% of cases [1].

Fistulectomy, complete excision of the fistulous tract is preferred over superficial parotidectomy, there is no injury to facial nerve and parotid gland function is intact.

Conclusion

Parotid fistula is a cause of great distress and embarrassment to the patient. There are various treatment options mentioned in the literature depending upon the origin and the duration of parotid fistula. Diagnosis of Parotid fistula is done by clinical examination and sialofistulography. When in doubt salivary amylase to confirm the salivary fistula and Computed tomography can be used to study the extent of the fistula.

In our patient Fistulectomy was done due to delayed presentation. Parotid Fistula wastreated by meticulous dissection and complete excision of the fistulous tract with layered closure of the parotid fascia. The injury to facial nerve was avoided. Post-operative pressure bandage application, use of anticholinergic agents and antibiotics act as a synergetic effect in the management. Our patient had no complications or recurrence in the follow-up period of 8 months.

References

1. Ananthakrishnan N, Parkash S. Parotid fistulas: a review. Br J Surg. 1982; 69:641e643.

2. Yamasaki Hiroshi, Tashiro Hideo, Watanabe Tetsuaki. Congenital parotid gland fistula. Int J Oral Maxillofac Surg. 1986; 15:492e494.
3. Gopalakrishnan R, Ravikumar NP. Congenital parotid duct fistula: A case report and review of literature. Arch Int Surg 2014; 4:108-10.
4. Marchese-Ragona R, De Filippis C, Staffieri A, Restivo DA, Restino DA: Parotid gland fistula: treatment with botulinum toxin. Plast Reconstr Surg 2001; 107:886-887.
5. Chadwick SJ, Davis WE, Templer JW: Parotid fistula: current management. South Med J 1979; 72:922-1026.
6. Parekh D, Stewart M, Demetriades D. Parotid injury. In D Pantanowitz,ed. Modem Surgery in Africa. Johannesburg: Southern Publishers, 1988.p.19-31.
7. Parekh D, Glezerson G, Stewart M, et al. Post-traumatic parotid "stulae and sialoceles. A prospective study of conservative management in 51 cases. Ann Surg 1989; 209(1):105-11.
8. Krausen AS, Ogura JH. Sialoceles: medical treatment first. Trans Sect Otolaryngol Am Acad Ophthalmol Otolaryngol. 1977 Sep-Oct; 84(5):ORL890-5. PubMed PMID: 919158.
9. Managutti A, Tiwari S, Prakasam M, Puthanakar N. Fistulectomy of the parotid fistula secondary to suppurative parotitis: A case report. J Int Oral Health 2015; 7(1):59-62.
10. Kerr A. The Physiological Regulation of Salivary Secretion in Man. Oxford: Pergamon Press, 1961.
11. Ellies M, Gottstein U, Rohrbach-Volland S, Arglebe C, Laskawi R. Reduction of salivary flow with botulinum toxin: extended report on 33 patients with drooling, salivary fistulas, and sialadenitis. Laryngoscope. 2004 Oct; 114(10):1856-60. PubMed PMID: 15454785.
12. Singh V, Kumar P, Agrawal A. Management of chronic parotid fistula with sodium tetradecyl sulfate. Journal of Oral Biology and Craniofacial Research. 2013; 3(1):36-38. doi:10.1016/j.jobcr.2012.12.001.
13. Rao JKD, Gehlot N, Laxmy V, Siwach V. Management of parotid fistula using hypertonic saline. National Journal of Maxillofacial Surgery. 2011; 2(2):177-180. doi:10.4103/0975-5950.94477.
14. Chhabra N, Chhabra S, Kapila SA. Use of hypertonic saline in the management of parotid fistulae and sialocele: a report of 2 cases. Journal of Maxillofacial & Oral Surgery. 2009; 8(1):64-67. doi:10.1007/s12663-009-0016-9.
15. Zwaveling S, Steenvoorde P, da Costa SA. Treatment of postparotidectomy fistulae with fibrin glue. Acta Medica (Hradec Kralove). 2006; 49(1):67-9. PubMed PMID: 16696446.
16. Robinson AC, Khoury GG, Robinson PM. Role of irradiation in the suppression of parotid secretions. J Laryngol Otol. 1989 Jun; 103(6):594-5. PubMed PMID: 2769027.
17. Shimm DS, Berk FK, Tilsner TJ, Coulthard SW. Low-dose radiation therapy for benign salivary disorders. Am J Clin Oncol 1992; 15(1):76-8.
18. Arulpragasam AC. On the treatment of parotid fistulae. J Laryngol Otol 1967; 81(3):329-37.
19. Davis WE, Holt GR, Templer JW. Parotid fistula and tympanic neurectomy. Am J Surg. 1977; 133:587e589.
20. Mandour MA, El-Sheikh MM, El-Garem F. Tympanic neurectomy for parotid fistula. Arch Otolaryngol 1976; 102(6):327-9.