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Technical Note

Management of chronic parotid fistula with sodium tetradecyl sulfate

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ARTICLE INFO

Article history:

Received 18 November 2012

Accepted 27 December 2012

Keywords:

Parotid fistula

Sclerosing agent

Sodium tetradecyl sulfate

ABSTRACT

A parotid fistula is a rare, extremely unpleasant disease. It may be due to chronic pathologies of the facial soft tissues, trauma (tangential injury to face), infection or congenital. Various treatment modalities including surgical and conservative management are present to treat this disease. Conservative management plays a vital role in patients who are systemically compromised and unfit for surgery. In the present case report an alternative conservative technique of parotid fistula management has been described in a 28-year-old girl who was severe anemic with parotid fistula since last 25 yrs.

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1. Introduction

Parotid fistula is a rare, devastating disease. It consists of a communication between the salivary gland or duct and the skin, through which saliva is discharged.¹ Parotid gland and duct injuries are rare complications following surgery of parotid gland and temporomandibular joint. Various other causes of parotid injury are rupture of parotid abscess, inadvertent incision of parotid abscess, complication of superficial parotidectomy, tangential gunshot wounds and trauma. 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. Therefore, the initial examining physician must have a high index of suspicion for injuries occurring in the parotid region. Successful treatment depends on early recognition and appropriate early intervention. Clinical features include salivary fluid extravasation into the tissues causing swelling over or adjacent to parotid gland (sialocele), expanding neck mass

and cutaneous fistula formation. In glandular fistulas discharge is less and tends to heal spontaneously with conservative treatment, whereas ductal fistulas continuously discharge saliva and spontaneous healing is very rare.

Examination of parotid injuries should include assessment of location, size, shape, type (e.g., puncture, laceration, avulsion, crush, and abrasion), asymmetry, drainage (i.e., quality, character, and odor), tenderness, surrounding erythema, edema, cellulitis. In literature there is no controversy in acute parotid fistula repair but the treatment of chronic fistula is dogmatic.²

Many methods of repair have been suggested, conservative as well as aggressive which are associated with varying degrees of success and morbidity.

Management options include pressure dressings and use of antisialagogues,³ total parotidectomy, tympanic neurectomy,⁴ intraoral transposition of parotid duct,⁵ radiation therapy,⁶ use of botulinum toxin A,^{7–9} and use of fibrin glue and other sclerosing agent.

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<http://dx.doi.org/10.1016/j.jobcr.2012.12.001>

In present case effectiveness of sclerosing agent (sodium tetradecyl sulfate) has been described for treating this disease.

2. Case report

A 28-year-old girl reported to Department of Oral & Maxillofacial Surgery, PGIDS, Rohtak with chief complain of watery discharge from right side of cheek since last 25 years. There was history of increase in watery discharge while eating food and drinking water. Patient gave history of some swelling when she was 3 years old. Swelling was not associated with any pus discharge. After few days, swelling ruptured with some watery discharge. Since then she was having watery discharge from the same site. On examination an opening was present near parotid region. A clear watery discharge (Fig. 1) was present from that opening which increased on asking patient to suck lemon. The area of discharge was soft, non-tender, non-erythematous. Diagnosis of parotid fistula was made on the basis of history, location and inspection of discharge. Past medical and family history was not significant yet finger of suspicion pointed patient as anemic as per physical observation. Later patient was sent for complete hemogram. Report depicted severe anemia (Hb –2 g%) and raised value of SGOT and SGPT which with help of physician opinion it was proved that patient had jaundice. Patient was planned for surgical repair of parotid

Fig. 1 – Pre operative photograph with a glistening secretion from the orifice of fistula.

fistula. Due to compromised systemic condition, decision of surgical repair was changed to conservative approach after one month of date of reporting. We selected sodium tetradecyl sulfate (setrol) (Fig. 2) which is a sclerosing agent. An insulin syringe with marking of 40 unit was used. After scrubbing of concerned region, 5 unit of solution was injected in to the fistula tract slowly. Patient was called after 3 days for review, she complained of mild pain while eating and drinking as well as a firm mass at injection site but no complain of discharge was present. Patient was advised for hot fomentation and massage of that area which led to resolution of pain as well as firm mass at injection site within seven days (Fig. 3). Patient reported regularly for six months without any discharge or other complains (Fig. 4).

3. Discussion

Salivary fistula is a rare disease which can be congenital¹⁰ or may be a complication following trauma or facial surgery in the parotid region.¹ Its symptoms become apparent in the form of chronic fistulation, often along surgical scar, gustatory intensification of salivary exudation. The autolytic saliva components hinder wound healing and favor infections. Treatment of parotid fistulas is complex, troublesome and lengthy. Surgical and conservative techniques are two treatment modalities. By surgical approach diversion of parotid secretion in oral cavity is halted by duct ligation and nerve division. Conservative techniques advocate to depress the secretion by radiotherapy and anti sialoguges.⁴ But both the techniques have some shortcomings. Surgically nerve section may lead to facial palsy or post surgical morbidity.

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.⁷

Some duct fistula and glandular fistula are treated by tympanic neurectomy but in some cases it causes suppression of parasympathetic system activity.⁵ Other method like pressure dressing also 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.⁴ Antisialagogues like anti cholinergic drugs, if used alone may cause some side effects so these are not also reliable method for reducing secretion.

Fig. 2 – Sclerosing agent.

Fig. 3 – One week post injection.

Conservative treatment, consisting of botulinum toxin A injections, are useful but these are given repeatedly and remission of fistula are high, cost is also limiting factor to use this technique apart from hypertonic saline¹¹ which is

Fig. 4 – Six month follow up.

method of choice but is time consuming because it has to be boiled up to 60 °C to gain its fibrosing property.

We used sodium tetradecyl sulfate as a sclerosing agent. It acts by detergent action which produces endothelial damage through interference with cell surface lipids. Strong detergents, such as STS produce maceration of the endothelium within 1 s of exposure. The intercellular “cement” is disrupted, causing desquamation of endothelial cells in plaques. Because the hydrophilic and hydrophobic poles of the detergent molecule orient themselves so that the polar hydrophilic part is within the water and the hydrophobic part is away from the water, they appear as aggregates in solution (micelles) or fixed onto the endothelial surface.¹² It is also fruitful in treating varicose vein, hemangioma and telangiectasias. We have achieved more stable and earlier results than other conservative techniques using sodium tetradecyl sulfate in treating parotid fistula.

4. Conclusion

The use of sodium tetradecyl sulphate in parotid fistula closure shows a promising result but as this disease is a rare disease so, multi-center trial with more cases is needed to prove the efficacy of this drug.

Conflicts of interest

All authors have none to declare.

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