Surgically Created Orifice in the Buccal Mucosa for the Treatment of Parotid Duct Fistula

SUMMARY
The aim of this paper was to present the efficacy of surgically created orifice in the buccal mucosa in the treatment of parotid duct fistula. The treatment was performed in 7 patients with parotid duct fistula. The procedure comprised creation of an artificial orifice in the buccal mucosa by introducing a haemostat via an open extraoral wound and puncturing the mucosa. Through the newly created soft tissue channel, a soft rubber drain was inserted, leaving one end in the wound where it was fixed with 3/0 catgut suture; the other end was left to protrude into the oral cavity for the period of 10 days. The treatment was successful in all patients and can be recommended as a routine cost-effective method of parotid duct fistula management.

Keywords: Salivary Fistula; Stensen’s Duct Injury

CASES REPORT (CR)

Introduction
The location of the Stensen’s duct on the face may be visualized as the middle third of a line from the tragus of the ear to the upper lip. The duct is approximately 4-6 cm in length and 5 mm in diameter. The Stensen’s duct then runs through the buccinator muscle into the oral cavity, followed by the buccal branch of the facial nerve. Trauma to the Stensen’s duct frequently happens as a result of: traffic accidents, occupational trauma, accidental trauma, fights and war injuries.

Such kind of injuries always represents unpleasant condition for the patient, and treatment is difficult for the surgeon, associated with high percentage of failure. Different methods and procedures were developed in order to threat extraoral salivary fistula. Nicoladini first reported primary anastomosis of the parotid duct in 1896, and Morestin reported ligation of the proximal stump in 1917. Basically the next procedures are in use at present: (1) conservative methods using compressive dressings in combination with different medications, such as Bothulinus, Probanthine, Atropine and Glycopyrrolate; (2) microsurgical methods referring to end to end anastomosis, venous grafts (in cases of missing parts of the Stensen’s duct), intraoral rerouting of the proximal part of the duct, reconstruction of the missing parts of the Stensen’s duct using mucosal of skin tubes; (3) tympanic neurectomy; (4) irradiation; (5) Stensen’s duct ligation; (6) internalization of the fistula with a cutaneous cuff in cases of chronic fistulas.

The aim of this article was to describe a surgical technique of an artificial orifice creation in the buccal mucosa in order to treat a parotid duct damage and subsequent salivary fistula.

Case Report
The procedure was performed in 7 patients with massive lacerations of buccal region resulting in injury to the Stensen’s duct and consequent extraoral salivary fistula during the period of 5 years. All patients were operated under local analgesia. Of those treated, 2 male patients, 26 and 32 years of age, are documented in this paper.

First patient sustained injury in a traffic accident, from pieces of a shattered wind shield. Unsuccessful repair was attempted at another department, resulting in...
the extraoral fistula creation and skin wound breakdown (Figs. 1 and 2). Second patient was injured in a street fight by a sharp end of broken glass (Figs. 9-15). In both cases certain part of the duct was missing, so usual method considering end to end anastomosis was not possible.

Figure 1.  
Patient on admission, with extraoral salivary fistula previously treated at another department

Figure 2.  

Figure 3.  
Haemostat used to puncture into the mouth and to place soft rubber drain in order to establish artificial salivary fistula

Figure 4.  

Figure 5. Rubber drain protruding into the mouth

Figure 6. Final result

Figure 7. New orifice

Figure 8. Final result, 6 week
Figure 9. Patient on admission and postoperatively

Figure 10. Inspection of the wound

Figure 11. Creating pathway for intraoral salivary fistula

Figure 12. Soft rubber drain placed into the wound and protruding into the mouth
Surgical Technique

A curved haemostat was introduced through the open wound into the mucosa that was punctured by exerting a pressure (Fig. 3) in order to place soft rubber drain into the wound cavity (Fig. 4). Through the newly created soft tissue channel, a soft rubber drain was inserted leaving one end in the wound where it was fixed with 3/0 catgut suture. The other end was left to protrude into the oral cavity for the period of 10 days. Subcutaneous tissue was sutured with interrupted 4-0 vicryl sutures and skin was closed with 5-0 ethlicrin interrupted sutures (Figs. 5 and 6). Skin sutures were left in place for 2 weeks in order to prevent possible wound breakdown (Figs. 7 and 8).

Patients were placed on the soft and liquid diet with additional i.v. fluid replacement. Ceftriaxon 2x1gr, metronidazole 3x500mg, were administered during 7 days. After that period, additional peroral 3x500mg amoxicillin and metronidazole 3x400mg were given next 7 days. Half an hour before every meal, 0.5mg atropine was administrated subcutaneously.
Results and Discussion

After the sutures were removed, operative wounds were healed, and without the presence of salivary fistula (the most frequent complication in standard procedures used in such kind of injury)\(^3\), and 100% success was obtained in both presented cases.

Chronic fistulous condition may develop often undiagnosed\(^10\). All the methods above described are less efficient with the emphasis on the early diagnosis. Conservative methods combining compressive dressings, different medications in order to diminish parotid secretion (such as Atropine, Botulinum, Glucopyrrolate), and dietary regimens are frequently used. But these methods are time consuming, and associated with a low success rate\(^5,7,8\). Microsurgical procedures, first of all, require adequate training and equipment, and are associated with high success rate when parts of the duct are not missing\(^3,12\). Delayed microsurgical reconstructions using mucosal or skin tubes offer modest results\(^12\). In cases of the distal part of the duct destruction, intraoral rerouting of the proximal part gives good results\(^12\). Venous grafts are recently used in cases of missing parts of the duct\(^11\). Tympanic neurectomy is a method to reduce parotid secretion as secreto-motor fibres for the parotid are carried by the tympanic branch of the glossoharyngeal nerve, and reach the gland via the auriculotemporal nerve, but results are variable\(^9\). Stensen’s duct ligation leads to the atrophy of the parotid gland, but carries the risk of chronic parotitis\(^12\). Irradiation carries the risk and the potential carcinogenic effect\(^6\). In chronic fistulous conditions, internalization of fistula with a cutaneous cuff represents innovative, simple and highly effective procedure\(^10\).

It should be emphasized that early detection of the injury to the Stensen’s duct is an imperative in the treatment of such type of injuries\(^10-12\). Surgically created orifice in the buccal mucosa for the treatment of parotid duct fistula is a simple method for Stensen’s duct reconstruction compared to the other methods\(^9-12\).

Conclusion

Surgically created orifice in the buccal mucosa is a procedure proved to be effective; it is a simple new method in the treatment of parotid duct salivary fistula.

References


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