

Fibrous hyperplasia involving the orifice of Stensen's duct

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Abstract. This study aimed to describe the clinical features and surgical management of fibrous hyperplasia involving the orifice of Stensen's duct. The clinical data of three patients (one male and two females) were collected and analyzed to characterize this lesion. The lesions surrounding the orifice of Stensen's duct were painless and without obvious causes. The patients' clinical features included sensation of a foreign body and an awkward bite during mastication. All patients received surgical management to resect the polyp and reconstruct the orifice of Stensen's duct. The ducts were preserved intact and parotid glands functioned normally after 12–18 months follow-up. In conclusion, the key point for surgical management of fibrous hyperplasia involving Stensen's duct is to keep the duct intact and unobstructed in consideration of its particular location.

Key words: fibrous hyperplasia; orifice of Stensen's duct; surgical resection.

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Reactive fibrous hyperplasia is a common lesion on the buccal mucosa; most such lesions arise from trauma or chronic inflammation. Surgical resection is recommended for the treatment of these lesions. Physiologically, the opening of Stensen's duct is located on the buccal mucosa opposite the second molar of the maxilla. The anatomically thickened mucosa surrounding the opening forms the orifice of Stensen's duct, which can be an unusual anatomical siting of this common oral lesion. The surgical treatment of fibrous hyperplasia involving the orifice of Stensen's duct is a challenge for the maxillofacial surgeon because the duct is easily damaged and obstruction of the duct may occur.

Recently, three patients with fibrous hyperplasia involving the orifice of Stensen's duct were treated in our department. The key points with regard to the

diagnosis and management of this lesion are discussed herein.

Materials and methods

From May to November 2011, three patients were diagnosed with fibrous hyperplasia involving the orifice of Stensen's duct. Data from the medical records and information on the surgical process, histopathological findings, and follow-up were collected and analyzed to define the characteristics of this lesion.

Results

The patients included one male aged 29 years and two females aged 49 and 57 years. One lesion was located in the left buccal mucosa and the other two were found in the right buccal mucosa.

Medical history

The case histories ranged from 3 months to 2 years. None of the patients had a history of obvious trauma or of medication for general diseases. Treatment was required because a painless lesion on the buccal mucosa was increasing slowly in size. Two of the three patients complained of the sensation of a foreign body on the buccal mucosa no matter whether they were chewing or not, and of an awkward bite during mastication. However, there was no history of a demonstrated obstruction of Stensen's duct for any of the three patients. None of these patients complained of symptoms of xerostomia.

Clinical symptoms

Clinically, all patients showed a polyp-like lesion with a pedicle that surrounded the orifice of Stensen's duct. The diameter

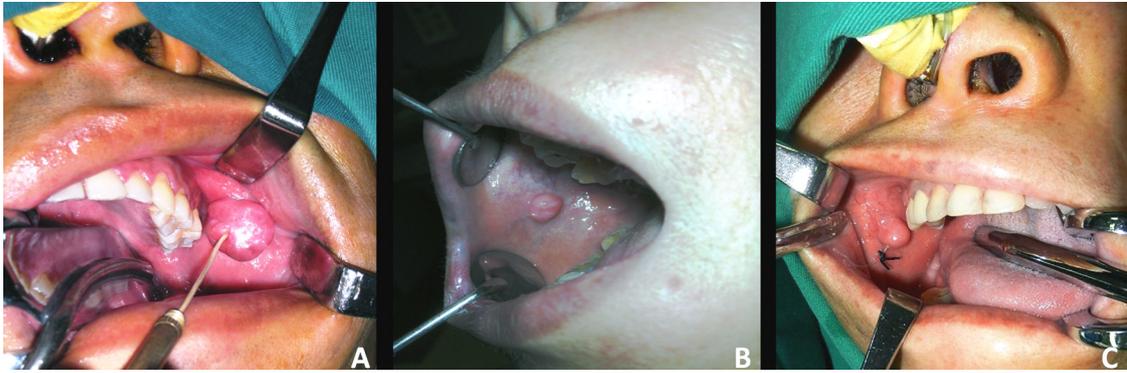


Fig. 1. Polyp-like exogenous lesion surrounding the orifice of Stensen's duct. The site of the ductal orifice is indicated by a probe or nylon tube inserted into the duct. (A) Case 1; (B) Case 2; and (C) Case 3.

of the lesion ranged from 1.0 cm to 1.5 cm and its superficial mucosa was smooth (Fig. 1). Palpation indicated that the lesion was soft, painless, and able to be mobilized. Upon milking the parotid gland, clear saliva was discharged from the orifice of the duct. Parotid sialography was performed in each case, which revealed the imaging of the parotid gland with filling of contrast in the acini and the duct system and a longer Stensen's duct.

Surgical management

All three patients underwent resection of their lesions and reconstruction of the

orifice of Stensen's duct under general anaesthesia. The surgical procedure used was as follows: (1) design of the incision: a circular incision was marked on the mucosa according to the location of the ductal orifice. Approximately 0.3 cm of mucosa surrounding the ductal orifice was reserved as a cuff to ensure its reconstruction (Fig. 2A); (2) lesion resection: before resecting the lesion, a silver probe or a nylon tube was inserted into the duct to indicate the direction of the duct. The lesion was then resected carefully and the duct was protected such that it remained intact (Fig. 2B); and (3) reconstruction of the ductal orifice: after resection of the

lesion, the remaining mucosa surrounding the ductal orifice was put back in place and sutured with the buccal mucosa to form a new orifice (Fig. 2C and D). A nylon tube was maintained inside the duct for 7–10 days to ensure the duct remained unobstructed.

Histopathology

The surgical specimens from all three patients were determined to be benign fibrous hyperplasia. Mild oedema of epithelial cells and hyaline degeneration were observed accompanied by mild

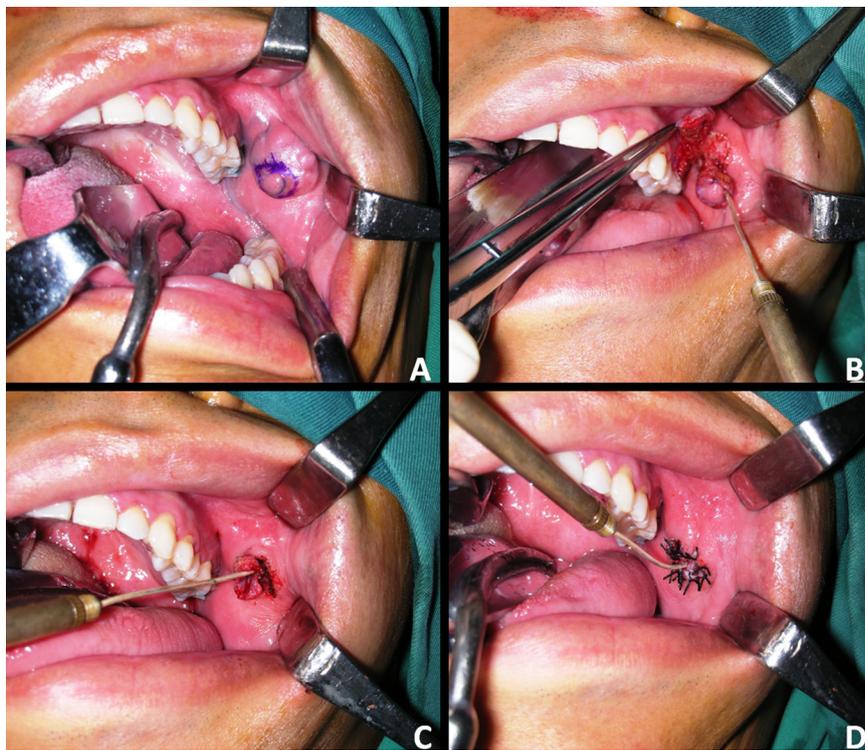


Fig. 2. The surgical procedure. (A) A circular incision was marked on the mucosa; a 0.3-cm cuff of mucosa surrounding the ductal orifice was preserved; (B) the lesion was resected and the duct was protected such that it remained intact; (C) the remaining mucosa surrounding the ductal orifice was put back in place; and (D) the mucosa surrounding the ductal orifice was sutured with the buccal mucosa to form a new orifice.

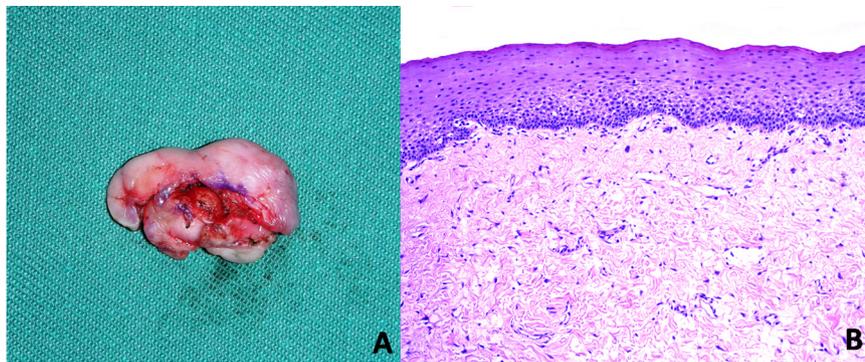


Fig. 3. Histopathological appearance of the lesion. (A) Gross appearance of the surgical specimen and (B) histopathology showing fibrous hyperplasia (haematoxylin and eosin stain, original magnification 40 \times).

inflammatory cell infiltration (Fig. 3). No tumour cells were found.

Follow-up

The patients were followed for 12–18 months. During this time, their symptoms of sensing a foreign body and of having an awkward bite during mastication disappeared. None of the patients complained of meal-time swelling of the parotid gland. Clinically, the mucosa surrounding the ductal orifice healed well and a new papilla with a normal appearance could be observed (Fig. 4A). The salivary secretion from the orifice of the duct was clear after milking the parotid gland. Parotid sialograms revealed regular ductal systems with no obstructions (Fig. 4B). Meanwhile, normal functioning of the parotid glands was demonstrated using ^{99m}Tc -pertechnetate scintigraphy (Fig. 4C)

Discussion

We have presented a common lesion located to a special site – fibrous hyperplasia involving the orifice of Stensen's duct. This lesion is usually caused by chronic irritant factors including occlusal trauma, inapposite dentures, and inflammation.^{1,2} All three patients in our study had no demonstrated history of obvious

mechanical stimulation, trauma, or medication for a general condition. However, the chronic imperceptible friction/trauma of the teeth on the orifice of Stensen's duct, a papilla structure in the buccal mucosa, could not be eliminated.

The clinical symptoms were relatively definite in all three cases. The polyp-like exogenous lesion with a pedicle occurred in the specific location of the buccal mucosa, surrounding the orifice of Stensen's duct, and its size was obviously larger than the normal papilla of the ductal orifice. The common features of a benign lesion could be found, including slowly increasing size and no obvious subjective symptoms. The patients came to see their doctors because they had the sensation of a foreign body on the inside of the cheek and because their bite during mastication was affected once the lesion had expanded to a certain size. It is remarkable that no signs of stricture or obstruction of Stensen's duct were observed and that salivary secretion was regular even though the ductal orifice was enveloped inside the lesion. There were no specific features noted on pathological examination of the resected tissues, which mainly showed the presence of fibrous hyperplasia.

This lesion should be differentiated from the tumour related to Stensen's duct. Carcinoma of the salivary gland in the

region of Stensen's duct is rare, and in this condition, no polyp-like exogenous lesion occurs at the orifice of the duct. The malignant features of carcinoma, such as an irregular mass that infiltrates deep into the buccal mucosa, should be easy to differentiate from this benign hyperplasia.^{3,4}

Surgical resection is the treatment of choice for fibrous hyperplasia involving the orifice of Stensen's duct. Although the resection of a hyperplastic lesion on the oral mucosa is a routine procedure for the oral and maxillofacial surgeon, particular consideration should be given to lesions surrounding the orifice of Stensen's duct. The principle of surgery is to keep Stensen's duct intact and unobstructed in order to preserve the function of the parotid gland based on removal of the lesion. Attention should be paid to two key points during surgery: (1) to preserve a cuff of 0.3 cm buccal mucosa surrounding the orifice of the duct to prevent scar formation or stricture of the ductal orifice, and (2) to ensure that the duct is intact and unobstructed. In our experience, inserting a silver probe to indicate the direction of the duct during the operation is very important. Insertion of a nylon tube into the duct and maintaining it in that position for 7–10 days after surgery is an effective means to prevent stricture of the ductal

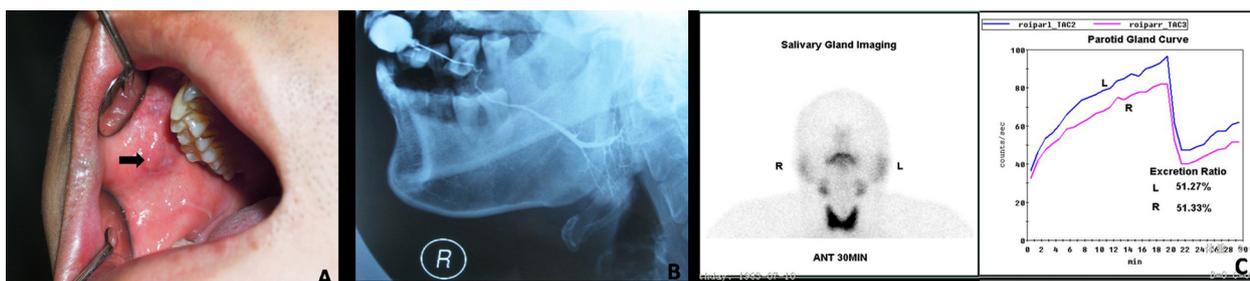


Fig. 4. Postoperative follow-up result. (A) The mucosa healed well and a new papilla of the ductal orifice was formed; (B) parotid sialograms revealed a regular ductal system without obstructions; and (C) a ^{99m}Tc -pertechnetate scintigram showed normal functioning of the parotid gland.

orifice. In our series, a successful operation and follow-up results were achieved based on these key points.

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Competing interests

None declared.

Ethical approval

Not required.

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