



Sialendoscopic Management and Gland Preservation in an Unusual Case of Extensive Submandibular Sialolithiasis

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Abstract Sialolithiasis is one of the most common benign pathologies of the salivary glands. It is associated with frequent bacterial infections and significant discomfort. Large &/or multiple stones are traditionally treated by ductal marsupialisation or gland excision. Sialendoscopy, a relatively new minimally invasive technique is a useful technique which can preserve a functioning gland and reduce postoperative morbidity. The current report demonstrates the successful use of sialendoscopy in evacuating 13 stones from a submandibular gland.

Introduction

Sialolithiasis is one of the most common pathologic conditions affecting the salivary glands [1]. It occurs due to an obstruction in a salivary gland or its duct due to a calculus. The formation of a salivary stone is believed to be secondary to the deposition of mineral salts around a nidus [2]. This condition is frequently associated with recurrent bacterial infection.

While small stones are frequently treated by gentle milking and expulsion through the ductal opening, large/multiple stones are often treated by ductal marsupialisation and/or gland excision [3, 4]. Sialendoscopy is a relatively new, minimally invasive technique that is a useful tool to treat extensive sialolithiasis as shown in this report.

Case Report

A 60 year old asymptomatic male who has come in for a routine dental check was found to have a swelling at the distal end of the right Wharton's duct. There was no demonstrable salivary flow from that duct. He gave a history of right submandibular swelling and pain one year ago. 2 large sialoliths were palpated along the duct. A CT of the region showed multiple clusters of stones along the right Wharton's duct [Fig. 1]. The largest stone was 18 mm in length.

A targeted and precise combined approach were planned to evacuate the stones intra orally. The first 3 stones were endoscopically localised (Fig. 2) in the anterior floor of the mouth. On finding them impacted and stuck to the duct wall (which precluded basketing), a small incision was placed to deliver thee stones. Further endoscopy revealed 2 more stones which were delivered via the same incision by an open approach. A megalith was encountered next on the endoscopy, due to its large size a new mid ductal incision was placed to deliver this stone (Fig. 3). Another huge stone behind the megalith was also delivered into the same incision. At this point all further stones were in the post hilar region of the ductal system beyond the edge of the mylohyoid muscle. The last 6 proximal stone was ensnared by the basket with the endoscope being passed into the duct via the second incision (Fig. 4). Considering that most of the last 6 stones were post hilar and in the secondary ductal system it was very unlikely that these could be retrieved without endoscopic basketing. A total of 13 stones were evacuated intra orally (Fig. 5). An indigenous salivary stent was sutured in the remnant duct (Figs. 6 and 7). The mucosa at the floor of mouth was reapproximated and sutured. Postoperatively, salivary flow from the stent was demonstrated. The stent was removed 3 weeks post-operatively and the patient has recovered with no further complications.

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Fig. 1 CT showing multiple stones

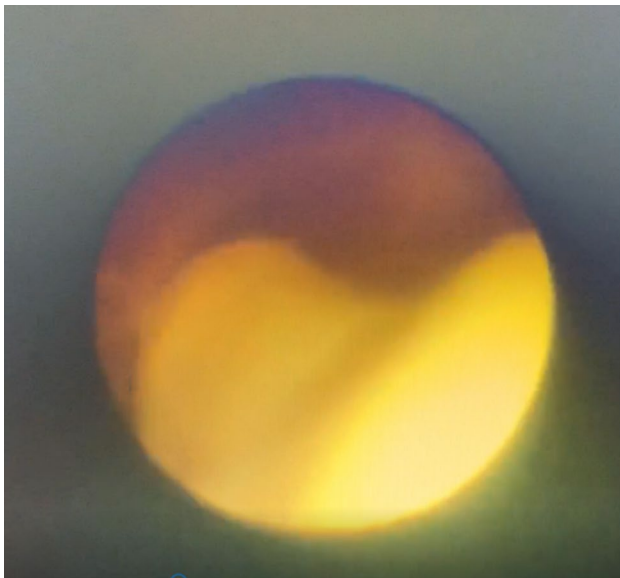


Fig. 2 Endoscopic visualisation

Discussion

Salivary gland diseases, though prevalent are frequently under diagnosed and improperly treated. Long standing

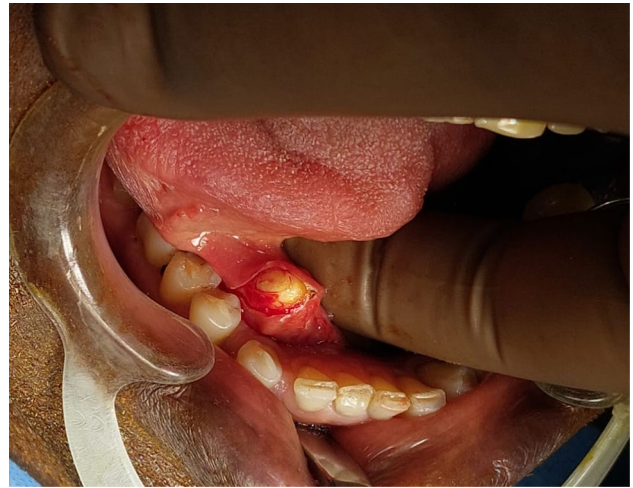


Fig. 3 Mucosal Incision



Fig. 4 Smaller stone basketed and retrieved

sialolithiasis is thought to cause gross gland fibrosis and dysfunction [5]. Also, large and proximally located stones that hard to access intraorally are traditionally treated with gland removal [3, 4, 6], leading this condition to be the most common benign cause of salivary gland removal [7]. Such a surgery is associated with significant morbidity, longer hospital stay and the loss of a functional organ. Sialendoscopy uses of miniaturised instruments and endoscopes with enhanced optics gives surgeons an opportunity to accurately and precisely treat the cause without compromising on the quality of care. Reports of sialendoscopic aid to locate and evacuate stones with or without intraoral incisions have



Fig. 5 All the stones evacuated



Fig. 6 Indigenous Salivary Stent

described a postoperative return of gland function [6, 8]. Though the technique involves a learning curve, it is gradually increasing the efficacy of salivary stone treatment by preserving the gland, greatly reduces postoperative morbidity and hospital stay [9].



Fig. 7 Stent in position

Declarations

Conflict of interest The authors would like to declare that there is no conflict of interest and no funding was received for this study.

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