Transoral Balloon Sialodochoplasty and Sialolithotomy: A Minimally-Invasive Option for Treatment of Recurrent Sialadenitis

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OBJECTIVES:
The purpose of this study is to present a case of recurrent parotid sialadenitis secondary to an obstructive sialolith, treated via a minimally invasive technique that offers a safe alternative to open management and without the use of endoscopic materials.

INTRODUCTION:
Sialolithiasis is a relatively common condition, resulting from the formation of inorganic crystals within a salivary gland duct. This causes obstruction to the gland’s flow, leading to swelling, pain, and the risk of sialadenitis. The submandibular gland is most commonly affected, representing 80-95% of salivary calculi, whereas the parotid gland accounts for only 5% to 20%. The remaining glands are rarely affected by stone formation. Approximately 1.2% of the population experience sialolithiasis with males affected up to twice as often as females. Untreated obstructing stones may cause a sialoal fistula creating further morbidity.

Recent management of salivary stones has turned to minimally invasive techniques such as sialolithotomy and endoscopic retrieval. Avoidance of potential open complications, such as lingual, hypoglossal, and marginal mandibular nerve injury from submandibular gland resection or facial nerve injury from parotid resection have created the need for these less invasive techniques.

With sialolithotomy and some endoscopic approaches, intraoral palpation of the stone is required for retrieval. Hilar or intraglandular based stones may necessitate sialadenectomy or more advanced endoscopic approaches. When palpable, however, endoscopic setup and even small intraoral incision may be unnecessary in a truly minimally invasive technique.

METHODS:
This case represents a retrospective case of recurrent parotid sialadenitis with radiographic evidence of salivary duct calculus treated at a university-affiliated institution. A 46 year old male patient presented to the emergency room with unilateral acute parotitis of several days duration. The patient reported a history of multiple similar episodes each on the left side, which was treated with conservative measures including local heat, aggressive hydration, sialogogues, and oral antibiotics. A contrast enhanced computed tomography scan revealed a 5 mm calculus in the parotid duct, with proximal dilatation, significant gland edema and inflammation, with likely phlegmon. The patient was admitted and treated with IV antibiotics for 48 hour duration. The patient was taken to the operating room after failure to improve with conservative measures and repeated imaging confirmed development of enhancing abscess.

RESULTS:
Intraoperatively, the parotid duct was explored with a lacrimal probe and a moderate amount of pus was expressed from the gland. A 4 Fr Fogarty catheter was then introduced into the duct and advanced past the calculus, which was determined by palpation. The catheter was slowly inflated and withdrawn and the calculus was successfully retrieved from the duct. Copious amounts of pus were then drained from the gland with angiocatheter irrigation. The patient was subsequently discharged after resolution of the calculus post-operative day two. At two month follow-up, the, the patient continues to do well with normal function of his parotid gland.

DISCUSSION:
Over the last ten years, sialolithiasis has been progressively turning toward minimally invasive techniques due to mounting evidence that salivary gland function may be preserved by alleviating ductal obstruction, possibly removing the need for sialadenectomy. Minimally invasive sialolithotomy maintains some potential for both neurological and non-neurological sequelae, as the ductal tract is invaded and surrounding tissue is exposed to sharp dissection. Additionally, endoscopy can add unnecessary operative time due to setup and equipment malfunction or operator inadequacy.

The use of Fogarty catheters have been well respected for decades in endovascular treatment of emboli and thrombi. Salivary duct anatomy and obstruction share striking similarities, which may support similar treatment modalities. When sialoliths are identifiable via palpation, balloon retrieval presents a minimally invasive technique that is relativelyatraumatic and rapid without the need for fluoroscopy or endoscopy.

CONCLUSION:
Transoral, minimally-invasive, balloon sialodochoplasty with sialolithotomy is an effective, safe alternative to surgical management of obstructive salivary disease that fails to respond to conservative measures. Dependent upon palpation, this adds to the armamentarium of the orofacial surgeon in the treatment of symptomatic sialolithiasis.

REFERENCES:
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