Sialoendoscopy in the Management of Salivary Gland Disorders – 4 Years Experience

Abstract:

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Sialoendoscopy is a minimally invasive technique used in the diagnosis and management of salivary gland disorders with success rates. Our objective is to describe our experience in sialoendoscopy, outlining our technique, success rates and complications, and to compare our data to those reported in the literature. A retrospective review and analysis of all sialoendoscopic procedures performed by our service between 2006 and 2010 was performed. 41 patients were identified. 4 (9.7%) patients had normal findings, 2 (4.8%) had anatomical variants, 4 (9.7%) had benign strictures, 11 (26.8%) had mucinous debris and 20 (48%) had obstructing stones. Stone removal was successful in 19 (95%) of the 20 cases and symptomatic relief was achieved in 34 (83%) cases. In our experience a single interventional modality was used, despite that our success rates are similar to those reported in the literature where multiple therapeutic modalities were used.

Methods

A retrospective study on 41 patients undergoing sialoendoscopy between 2006 and 2010 was performed. All patients presented with signs and symptoms of chronic or recurrent salivary gland obstruction. Most patients had a preoperative radiological evaluation, this included ultrasound, CT and/or MRI evaluation. Data regarding patients gender, affected gland, findings at sialoendoscopy, success rate, post-operative complications and the need for further intervention were collected. Patients with recurrent or persistent obstructive symptoms, even in the absence of abnormal findings were offered an evaluation and intervention. All patients initially underwent an out-patient evaluation followed by a therapeutic one if pathology is found. Contraindications included acute sialadenitis, intraparenchymal stones, stones in the proximal part of the duct and stone diameter greater than 7mm.

In our institute, patients undergo sialoendoscopy under general anaesthesia using a rigid mini-endoscope manufactured by TEKNO Surgical; single port diagnostic endoscope with a 1.6mm diameter and a double port therapeutic endoscope of a 1.7mm diameter. Following progressive dilatation of the papilla with a lacrimal probe a diagnostic endoscope is introduced into the ductal orifice. Once the endoscope is introduced saline irrigation is used to maintain ductal luminal distension and lubrication, easing the introduction of the endoscope and preventing local trauma. The entire ductal system is visualised until a stone or an obstructive pathology is encountered. Encountered stones are removed using a mini-grasper or a basket in one piece or after crushing into smaller pieces using the grasper. Strictures are occasionally encountered and dilated by passing the endoscope through the narrowed segment. Mucinous plugs are cleared away with a gentle continuous irrigation. Prophylactic antibiotic administration is not routinely done and the decision regarding that is based on intra-operative findings. Patients are discharged six hours post operatively, unless complicated, with 6 and 12 weeks outpatient follow up appointments and an advice on saliva stimulation and gland massaging.

Results

Out of the 41 patients, 20 (48.7%) were males and 21 (51.2%) were females. Mean age at first procedure was 47 years (range 21-73yrs). Twenty nine (70.7%) cases were due to obstructive submandibular gland symptoms and 12 (29.2%) due to obstructive parotid gland symptoms. Following progressive dilatation of the papilla with a lacrimal probe a diagnostic endoscope is introduced into the ductal orifice. Once the endoscope is introduced saline irrigation is used to maintain ductal luminal distension and lubrication, easing the introduction of the endoscope and preventing local trauma. The entire ductal system is visualised until a stone or an obstructive pathology is encountered. Encountered stones are removed using a mini-grasper or a basket in one piece or after crushing into smaller pieces using the grasper. Strictures are occasionally encountered and dilated by passing the endoscope through the narrowed segment. Mucinous plugs are cleared away with a gentle continuous irrigation. Prophylactic antibiotic administration is not routinely done and the decision regarding that is based on intra-operative findings. Patients are discharged six hours post operatively, unless complicated, with 6 and 12 weeks outpatient follow up appointments and an advice on saliva stimulation and gland massaging. Ninteen (95 %) of these calculus were in the submandibular ducts and 1 (5%) in the parotid duct. The largest stone was <7mm in size. Stone retrieval was successful in 19 (95%) of the 20 cases. In 1 (5%) case a large stone in the proximal part of the submandibular duct required an intraoral sialolithotomy. One (2.4%) patient developed sialadenitis post operatively and required an overnight stay. Out-patient follow up of patients following sialoendoscopy revealed symptomatic relief in 34 (83%) patients over 2 years period. Seven patients (17%) had persistent symptoms and required further intervention; 6 (14%) underwent submandibular gland excision and 1(2.5%) required superficial parotidectomy.

Discussion

Sialolithiasis accounts for more than 50% of all major salivary gland disorders.7-9 The exact mechanism of sialolithiasis is unknown. Many theories have been proposed to explain this. These include calcifications around a foreign body, desquamated ductal epithelial cells and micro-organisms. Increased saliva viscosity due to dehydration or reduced secretion due to reduced oral intake have also been proposed. Certain medication which potentially lower saliva production and saliva stasis, as a result of mechanical obstruction of a foreign body, desquamated ductal epithelial cells and micro-organisms. Sialolithiasis accounts for more than 50% of all major salivary gland disorders.

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Reported stone retrieval using sialoendoscopy in conjunction with an additional interventional technique is very promising. Success rates are 70% - 90%. This is likely to reflect success rates in the experienced hands and proper case selection which depends largely on stone size and mobility. Only few studies in the literature reported high success rates without prior stone fragmentation. Using a combination of sialoendoscopic interventional techniques, Nahlieli et al\(^1\) reported a success rate in stone removal of 82% and symptomatic relief of 83%. Marchal et al\(^2\) success rate in stone removal was 82% and resulted in symptomatic relief in 85%. Luers et al\(^3\) reported an overall success rate in endoscopic removal of stones of 61% while Marish et al\(^4\) reported symptomatic relief of 84% after sialoendoscopy and stone removal in 80% of cases.

Our success rate in stone retrieval using this single modality alone is 95%. This also resulted in symptomatic relief in 83% of all 41 patients. Despite using a single therapeutic modality our success rates are consistent with previous reports where multiple therapeutic modalities were used.\(^6,8,14,16-18\)

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References

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