EDITORIAL

Sialendoscopy: A Paradigm Shift in Management of Obstructive Salivary Gland Diseases

Sethu Thakachy Subha

Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine & Health Sciences, Universiti Putra Malaysia, Serdang, 43400, Selangor, Malaysia.

The technological advancements in the field of head and neck surgery have altered the diagnostic and therapeutic strategies for salivary disorders (1). The most frequent non-neoplastic salivary disorder is obstructive sialadenitis which may be due to calculi, mucous plug, duct stenosis, stricture and anatomic variations of the duct (2). Obstructive sialadenitis can also occur when salivary glands exposed to radioiodine therapy in patients with thyroid carcinoma (3). The obstructive sialadenitis is clinically present with painful swelling of the involved gland at mealtimes and frequently complicated by recurrent acute bacterial infections (4). Traditionally the diagnosis is based on ultrasonography, computed tomography and magnetic resonance (MR) with MR sialography (5). Though these imaging modalities provide details of the salivary duct system indirectly, patients will get exposed to radiation and can be complicated by infections or iatrogenic injuries to the ductal wall (4). The emergence of new endoscopic technology, sialendoscopy provides a direct evaluation of the salivary duct system and thus assisting in the diagnosis of salivary obstruction without the limitations of conventional radiological techniques.

The management of non-neoplastic salivary gland disease is going through a paradigm shift due to the advent of sialendoscopy. Interventional sialendoscopy and sialendoscopy-assisted surgery facilitate minimally invasive and conservative treatment techniques for functional preservation of the affected salivary gland (6). Sialendoscopy was first described by Katz in 1991 (7) using a flexible scope, ever since then, a wide range of sialendoscopy instruments (rigid and semi-rigid devices, with various diameters equipped with working channels and irrigation ports) were developed by Nahlieli et al and Marchal et al (8,9).

Sialendoscopy is an image-guided technique that has revolutionized as the diagnostic and therapeutic tool for the management of obstructive salivary gland pathologies (10). Sialendoscopy involves a miniaturized camera, semirigid endoscopes and specially designed instruments which enables the direct visualization and localisation of salivary ductal pathology. This endoscopic approach to the salivary duct allows removal of the calculi mucous plug or polyps, dilatation of the ductal stenosis and opening up of the kinks. Furthermore, sialendoscopy is proved to be valuable in the treatment of adult recurrent parotitis, radio-iodine-induced parotitis, or other inflammatory /autoimmune salivary disorders leading to ductal strictures (11).

Interventional sialendoscopy is also useful for the evaluation and treatment of non-neoplastic salivary disorders in children with low morbidity. This includes early treatment of juvenile recurrent parotitis, salivary calculi and stenosis in the paediatric population eliminating the undesirable effects of open surgery (12). The indications for the sialendoscopy include diagnostic evaluation in recurrent episodes of swelling of the major salivary gland without an obvious cause, ductal stenosis and intraductal pathologies, treatment of submandibular and parotid sialadenitis commonly due to calculi, radioiodine sialadenitis, paediatric inflammatory and obstructive salivary pathologies (10). Interventional sialendoscopy is also applicable in the management of inflammatory diseases such as recurrent chronic parotitis or autoimmune disorders like Sjogren's syndrome by irrigating the duct system with saline solution, antibiotics and steroids. Acute suppurative sialadenitis is the only contraindication to sialendoscopy because the inflamed ductal system increases the chance of ductal injury and perforation. The treatment of acute sialadenitis consists of antibiotics, salivary massage and hydration.

The advantage of sialendoscopy is that, this procedure can be carried out on a day-care basis with low morbidity and is specifically useful for elderly patients who have co-morbid issues. Luers et al in their retrospective study concluded that small-sized (<5mm), mobile, round or oval, and distally located salivary stone in the main salivary duct are the positive prognostic factors. Salivary stones of size 3-7 mm diameter need additional procedures like lithotripsy. Large stones of size more than 7 mm or multiple stones can be removed by sialendoscopy assisted transoral surgery. The sialendoscopy can be combined with an external approach, extracorporeal or intracorporeal lithotripsy, and sialendoscopy-assisted transoral surgery (13).

Before sialendoscopic era, traditional treatment of obstructive salivary disease consisted of observation,

sialagogues, duct dilatation, incision and dissection or salivary gland excision. The most common complications developing after salivary gland excision are nerve injuries (facial /lingual/hypoglossal nerve) facial scar, sialocele and salivary fistula (14). The complications from sialendoscopy were reported to be minor as compared to the salivary gland excision.

The most common complication following sialendoscopy is glandular swelling which is self-resolving and will subside within a day or two. The other complications include trauma to the duct or papilla, paraesthesia of lingual nerve, post-operative strictures and ranula formation. According to various studies the success rate of sialendoscopy procedure ranging between 80-91% and it has annihilated the need for morbid salivary gland excision (6,11,15).

Sialendoscopy is a minimally invasive technology that epitomises the latest management of obstructive salivary gland disorders. This conservative technique is amenable to all age groups and will assure the functional preservation of the affected salivary gland.

REFERENCES

1. Marchal F, Dulguerov P, Becker M, Barki G, Disant F, Lehmann W. Submandibular diagnostic and interventional sialendoscopy: new procedure for ductal disorders. Ann Otol Rhinol Laryngol. 2002 ;111(1):27-35. doi: 10.1177/000348940211100105.
2. Capaccio P, Minetti AM, Manzo R, Palazzo V, Ottaviani F. The role of the sialoendoscopy in the evaluation of obstructive salivary disease. Int J Maxillo Odontostomatol 2003; 2:9-12.
3. Nahlieli O, Nazarian Y. Sialadenitis following radioiodine therapy - a new diagnostic and treatment modality.Oral Dis. 2006 ; 12(5):476-9.
4. Capaccio P, Torretta S, Ottavian F, Sambataro G, Pignataro L. Modern management of obstructive salivary diseases. Acta Otorhinolaryngol Ital. 2007;27(4):161-172.
5. Ugga L, Ravanelli M, Pallottino AA, Farina D, Maroldi R. Diagnostic work-up in obstructive and inflammatory salivary gland disorders. Work-up diagnostico nella patologia ostruttiva e infiammatoria delle ghiandole salivari. Acta Otorhinolaryngol Ital. 2017;37(2):83-93. doi:10.14639/0392-100X-1597
6. Rahmati R, Gillespie MB, Eisele DW. Is sialendoscopy an effective treatment for obstructive salivary gland disease? Laryngoscope. 2013;123(8):1828-9. doi: 10.1002/lary.23958.
7. Katz P. Endoscopy of the salivary glands.Ann Radiol (Paris). 1991; 34(1-2):110-3.
8. Nahlieli O, Nakar LH, Nazarian Y, Turner MD. Sialoendoscopy: a new approach to salivary gland obstructive pathology. J Am Dent Assoc; 137:1394–140 (2006).
9. Marchal F, Becker M, Dulguerov P, et al. Interventional sialendoscopy. Laryngoscope; 110:318–20 (2000).
10. Singh PP, Gupta V. Sialendoscopy: introduction, indications and technique. Indian J Otolaryngol Head Neck Surg. 2014;66(1):74-78. doi:10.1007/s12070-013-0675-1
11. Erkul E, Gillespie MB. Sialendoscopy for non-stone disorders: The current evidence. Laryngoscope Investig Otolaryngol. 2016;1(5):140-145. Published 2016 Sep 7. doi:10.1002/lio2.33
12. Iro H, Zenk J. Salivary gland diseases in children. GMS Curr Top Otorhinolaryngol Head Neck Surg. 2014;13: Doc06. Published 2014 Dec 1. doi:10.3205/cto000109
13. Luers JC, Grosheva M, Stenner M, Beutner D. Sialendoscopy: prognostic factors for endoscopic removal of salivary stones. Arch Otolaryngol Head Neck Surg 2011; 137:325–329.
14. Nahlieli O. Complications of traditional and modern therapeutic salivary approaches. Acta Otorhinolaryngol Ital. 2017 Apr;37(2):142-147. doi: 10.14639/0392-100X-1604. PMID: 28516977; PMCID: PMC5463522.
15. Nahlieli O, Nakar LH, Nazarian Y, Turner MD. Sialoendoscopy: a new approach to salivary gland obstructive pathology. J Am Dent Assoc. 2006 Oct. 137(10):1394-400