

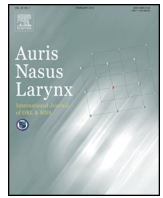


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Auris Nasus Larynx

journal homepage: www.elsevier.com/locate/anl



Case report

Diagnostic and treatment effects of sialendoscopy for patients with swelling of the parotid gland when sialoliths are undetected with computed tomography

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ARTICLE INFO

Article history:

Received 5 May 2017

Accepted 6 November 2017

Available online xxx

Keywords:

Parotid gland

Sialendoscopy

Sialolithiasis

Sjögren's syndrome

Stenosis

Stensen's duct

ABSTRACT

Between August 2009 and May 2016, 74 patients underwent sialoendoscopic surgery. 32 patients had parotid gland disease and 9 patients had intermittent swelling of the parotid gland and sialoliths were not detected with CT imaging. 4 patients were diagnosed with idiopathic Stensen's duct stenosis. Sialendoscopy directly confirmed Stensen's duct stenosis in 2 patients. However, the sialendoscope was unable to be inserted in the other 2 patients, who had stenosis of the orifice of the Stensen's duct. Balloon expansion of the duct was performed in these 2 patients and a steroid drug was injected into the duct in one patient. Complete remission was archived in one patient treated with sialendoscopy. Three patients had sialolithiasis. Microsialoliths and/or white floating matter was observed and removed using sialendoscopy. All patients experienced complete remission. In cases of Sjögren syndrome and recurrent parotitis, sialendoscopic surgery was performed, but the symptoms showed no improvement. For patients with microsialoliths, sialendoscopy may be most useful for diagnosis and treatment when the sialoliths are not detected with CT imaging. At present, sialendoscopic surgery have limitation in the treatment of Stensen's duct stenosis and may similarly have limitation in the treatment of Sjögren's syndrome and recurrent parotitis.

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1. Introduction

Chronic sialadenitis is generally caused by obstruction and stenosis of the salivary duct and chronic gland inflammation. The main causes of obstruction are stones in 60–70% of cases, stenosis in approximately 15–25% of cases, inflammation in 5–10% of cases, and other causes in 1–3% of cases

[1]. Therefore, computed tomography (CT) imaging is useful for diagnosing the cause of chronic sialadenitis in patients with sialolithiasis. However, it is often difficult to diagnose when stones are not detected on a CT scan. Magnetic resonance imaging (MRI), ultrasonography, and sialography are also useful for diagnosis. In particular, sialendoscopy has a very important role. After Katz [2] first reported the potential of sialendoscopic surgery for sialolithiasis, sialendoscopic surgery was developed [3,4]. The aim of this retrospective study was to evaluate the utility of sialendoscopic surgery in diagnosis and

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<https://doi.org/10.1016/j.anl.2017.11.004>

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treatment effects in patients with swelling of the parotid gland in whom CT imaging did not detect sialoliths.

2. Materials and methods

Between August 2009 and May 2016, 74 patients underwent sialendoscopic surgery at our hospital. 32 patients had parotid gland disease and 9 patients complained of intermittent swelling of the parotid gland and sialoliths were not detected with CT imaging. We retrospectively reviewed the findings of the 9 patients (4 men and 5 women, aged 23–69 years).

All patients underwent CT imaging, which did not detect sialoliths. The other data collected from the medical recordings were sex, age, clinical symptoms, medical history, past history, preoperative imaging findings (e.g., MRI, ultrasonography, sialography), surgical procedure (e.g., anesthesia), endoscopic findings, complications, postoperative symptoms and treatment.

Under general or local anesthesia and after adequate dilation of the papilla, a semirigid endoscope (1.3 mm diameter; Karl Storz, Tuttlingen, Germany) was inserted into the Stensen's duct. Saline was administered through the scope's irrigation channel, and the sialendoscope was slowly passed into the Stensen's duct. If the papilla was not identified, we incised the buccal mucosa, identified the Stensen's duct, and then incised it. In this situation, the sialendoscope was inserted into the incision. If a sialolith or stenosis of the duct was identified, endoscopy was transferred to an all-in-one miniature endoscope (1.6 mm diameter; Karl Storz). When removing the sialoliths, we utilized grasping forceps, biopsy forceps, a basket catheter for urinary calculus extraction (i.e., stone extractor), and a balloon catheter for treating coronary arteries. In patients with stenosis or inflammation, steroid or antibiotics were injected into the duct, if determined to be necessary.

This case report is approved by the Institutional Review Board in accordance with the Code of Ethics approval No. 22.12.2016, 4207 of the World Medical Association (Helsinki Declaration).

3. Results

Table 1 shows clinical symptoms and preoperative imaging examinations and findings of 9 patients. Four patients underwent MRI. MRI revealed duct expansion and pooling of saliva in patients with Stensen's duct stenosis (Fig. 1a and b), stenosis of the orifice of the Stensen's duct in patient with Sjögren's syndrome, and multiple cystic lesions in patient with recurrent parotitis. Sialography was performed in 3 patients. Expansion of the duct was particularly useful for diagnosing patients with Stensen's duct stenosis (Fig. 1b). Multiple transudation of the contrast medium occurred in a patient with recurrent parotitis. Diffuse salivary duct expansion occurred in a patient with sialolithiasis (Fig. 2a).

Two patients underwent ultrasonography. Ultrasonography showed duct expansion or pooling of saliva in the parotid gland in a case of Stensen's duct stenosis (Fig. 1c) and small strong echo in a case of sialolithiasis.

Table 2 shows the operation methods and findings, postoperative diagnosis, and postoperative prognosis. There were 4 cases of idiopathic Stensen's duct stenosis and one case of Stensen's duct stenosis with Sjögren's syndrome. Among these 5 patients, sialendoscopy directly confirmed stenosis of the Stensen's duct in 2 patients (Fig. 1d). The remaining 3 patients had stenosis of the orifice of the Stensen's duct, but it was not possible to insert the sialendoscope. Sialendoscopy was useful for diagnosing Stensen's duct stenosis in 2 of the 5 patients (2 of the 4 patients had idiopathic Stensen's duct stenosis). The duct was expanded by balloon in 2 of the 4 patients with idiopathic Stensen's duct stenosis (Fig. 1e). Using sialendoscopy, a steroid drug was injected into the duct in one patient. For the patient with idiopathic Stensen's duct stenosis in whom the sialendoscope could not be inserted, a steroid drug was injected with a sialography needle without sialendoscopy. Complete remission was archived obtained in one patient treated with sialendoscopy. Complete remission was archived in one patient in whom it was not possible to insert the sialendoscope; therefore, a steroid drug was injected with a sialography needle. Additional treatment was required at a dispensary in one patient treated with sialendoscopy. Therefore, sialendoscopy was useful for treatment in 1 of the 4 cases.

There were 3 patients of sialolithiasis, which were not detected on the CT scan. In 3 patients, microsialoliths (Fig. 2b) and/or white floating matter (Fig. 2c) was observed and removed with sialendoscopy. In all 3 patients, the sialoliths were very small; in two of these patients, white floating matter was observed. The sialoliths were removed and complete remission was archived in all patients. In one patient white floating matter was completely removed with grasping forceps; in the other patient, the white floating matter was not completely removed.

The patient with Sjögren's syndrome had stenosis of the orifice of the Stensen's duct, and the sialendoscope was unable to be inserted. Therefore, orifice plasty was performed. The Stensen's duct was observed and absence of stenosis of the proximal duct was confirmed. Symptoms remained after surgery, and the patients required additional treatment.

In cases of recurrent parotitis, white floating matter was detected and removed. Using sialendoscopy, the Stensen's duct was washed with antibiotics through the irrigation channel. However, the patient's symptoms were not alleviated.

4. Discussion

Patients often present with swelling of salivary gland, and most patients are diagnosed with obstructive sialadenitis by sialoliths. However, the patients show no evidence of sialolithiasis on imaging examination, and it is usually difficult to diagnose and treat them. A CT scan is often used in the diagnosis of sialolithiasis. However, sialography, ultrasonography, and MRI are traditionally used in the diagnosis of a salivary duct disorder.

Sialendoscopy has recently been used to diagnose or treat these patients. Sialendoscopy allows direct visualization of the inside of the duct and allows treatment with forceps or a catheter. We performed sialendoscopic surgery in 32 patients

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