

Extremely Large Submandibular Sialolith Removal - A Case Report

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Abstract

The Rationale: Sialoliths are calcified organic matter that form within the secretory system of the salivary glands. They rarely measure more than 1.5 cm. Giant sialoliths are rare and defined as a size of 3.5 cm or larger. **Patient concerns:** Patient complained of the pain and swelling in the right submandibular area for two years with increase in size during meals. **Diagnosis:** Based on the clinical and radiological investigations. **Treatment:** Sialolith measuring 39 mm and weighing 7.02 g, was removed in a minimally invasive manner through transoral sialolithotomy using diode 810 µm LASER unit under local anaesthesia. **Outcomes:** Patient was relieved of the preoperative symptoms and was on follow-up for one year. **Take-Away Lessons:** Various newer treatment modalities are effective alternatives to conventional surgical treatment of sialoliths. However, transoral sialolithotomy remains the mainstay of management.

Keywords: LASER sialolithotomy, sialoliths, salivary gland calculi, sialolithiasis, submandibular sialolithotomy

INTRODUCTION

Sialoliths are calcified organic matter that form within the secretory system of salivary glands. Sialolithiasis is the second most common disease of the salivary gland after mumps.^[1] The usual clinical presentation of sialoliths is round or ovoid, rough or smooth and chalky white/yellow in colour affecting unilaterally with a size from 1 to <10 mm, with a mean size reported as 6–9 mm. Giant sialoliths are rare and classified as those measuring >15 mm in the greatest dimension.^[2] Large calculi may perforate the floor of the mouth by ulcerating the duct or may result in a skin fistula by causing a suppurative infection. The most common symptoms of sialoliths are recurrent pain and swelling of the associated gland during meals.^[3] This article presents a case of a submandibular sialolith of 39 mm length and its management.

CASE REPORT

This 50-year-old male reported to the Oral and Maxillofacial Surgery outpatient clinic with a complaint of swelling in the right side of the floor of the mouth for more than two years with mild continuous pain and a feeling of fullness, especially

while having food [Figure 1]. Clinical history revealed that the patient is diabetic and under medication for 20 years. Extraoral examination revealed swelling in the right submandibular region with little asymmetry as compared with left side. On intraoral examination, firm, slightly tender swelling of about 4.0 x 0.5 cm was noted on the right floor of the mouth, distal to the second molar which was ballotable on bimanual palpation [Figure 2]. The submandibular duct was noted with no colour changes of the surrounding mucosa. No other palpable swelling was noted in the neck region. Mandibular occlusal radiograph showed a large radiopaque mass with the approximate measurements stated above, which was noted beyond the lower right second permanent molar [Figure 3]. Routine blood investigations, complete blood count, serum urea and electrolytes and serum uric acid were

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carried out and were within the normal limits. The HbA1c was 6.5%. A differential diagnosis of the right submandibular duct sialolith was proposed. After induction of local anaesthesia, sialolith was removed in a minimally invasive manner through transoral sialolithotomy using diode 810 μm LASER unit [Figures 4-6]. Sialolith measured 39 mm in the longest

dimension and weighed around 7.02 g, off-white to yellow in colour. One year follow-up revealed that the patient was asymptomatic with undisturbed salivary flow.



Figure 1: Extraoral view showing the swelling on the right submandibular region



Figure 2: Intraoral preoperative view

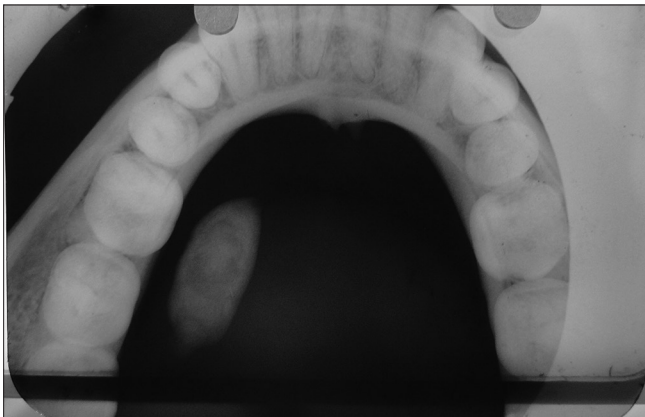


Figure 3: Occlusal radiograph showing sialolith on right side



Figure 4: Intraoperative view showing the laser incision and exposure of the sialolith



Figure 5: Intraoperative view showing the retrieval of sialolith



Figure 6: Giant sialolith measuring 3.9 x 0.5 cm

DISCUSSION

Sialolithiasis affects 1 in 10,000 - 1 in 30,000 of the adult population with a predominance for males affected twice as much as females.^[4] Children are rarely affected. However, one study revealed 100 cases of submandibular calculi in children aged 3 weeks - 15 years old.^[5] They rarely measure more than 20 mm.^[6] They are more common in submandibular salivary glands, followed by parotid and then sublingual glands. The exact pathogenesis is still unknown but it is said that the formation of salivary gland calculi occurs by layered deposition of organic and inorganic materials over a nidus of certain organic substances.

The diagnosis of sialolithiasis is based on a detailed history and thorough clinical examination with symptoms of pain and swelling of the affected gland, especially at times of meals.

Bimanual palpation of the gland itself can be useful, as a uniformly firm and hard gland suggests a hypofunctional or non-functional gland.

The differential diagnosis includes acute inflammation of the glands caused by viral infection or bacterial infection.^[7] Chronic sialadenitis due to obstructing calculi, low-grade non-pyogenic bacterial infection or a lymphoepithelial disease such as Sicca syndrome or Sjögren's syndrome^[7] or granulomatous inflammatory conditions such as mycobacterial, fungal infections and sarcoidosis.^[1] Neoplastic salivary gland enlargement is most often asymptomatic. Non-neoplastic, non-inflammatory swelling of the salivary glands results from various metabolic and nutritional derangements, including alcoholic cirrhosis, uraemia and pellagra.^[7]

The diagnosis is confirmed with imaging studies. Standard occlusal radiographs reveal submandibular sialolithiasis in 80%–94.7% of cases.^[1] Ultrasound has been reported to be helpful and has been shown to detect 90% of stones >2 mm. MRI is not useful.^[1] A high-resolution computed tomography scan is superior to ultrasound and conventional radiographs in detecting single and multiple stones. An alternative imaging method, sialography can be done, if acute sialadenitis is not suspected.

Management

Sialolithiasis may be managed conservatively if the stone is small. If symptoms progress or are more severe, as in the case presented above, the patient may be treated surgically through vertical incision in the floor of the mouth. No closure is needed leaving the duct open for drainage. The case which is presented above was excised using diode 810 µm laser following which the duct was left open for drainage. If the gland has been

damaged by recurrent infections, fibrosis or calculi that have formed within the gland, a complete gland excision is advised. Alternative methods of treatment have emerged such as the use of extracorporeal shock wave lithotripsy, and more recently, the use of endoscopic intracorporeal shockwave lithotripsy, in which shockwaves are delivered directly to the surface of the stone lodged within the duct without damaging adjacent tissue (piezoelectric principle).

CONCLUSION

There are various methods available for the management of salivary stones, depending on the gland affected and stone location. However, transoral sialolithotomy remains the mainstay of management. Newer treatment modalities are effective alternatives to conventional surgical treatment for smaller but probably not giant sialoliths. The decision of the selection of the procedure remains with the surgeons after careful evaluation.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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