



Perforating Sialolith: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. Author SS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AA and AJ managed the analyses of the study. Author AJ managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Sialolithiasis is one of the common disease affecting salivary gland of head and neck region mainly submandibular gland. They are calcified deposits found in gland or its duct, composed of organic and inorganic substances. Rarely they enlarge in size above 10 mm and cause perforation of the floor of mouth. Such sialoliths are called as giant sialoliths. They manifest as a hard swelling in floor of mouth, associated with pain. Diagnosis is confirmed with the help of radiographs – occlusal radiograph, orthopantomogram or computed tomography scan in which the stone manifest as well defined radio-opacities. Various modalities of treatment were described in literature, which include intraoral/extraoral sialolithotomy, milking of gland, resection of gland etc. The choice of treatment should be based on size and location of the stone. Here we report a case of perforating sialolith in a 62 year old male patient treated by intraoral sialolithotomy.

Keywords: *Sialolith; submandibular gland; salivary gland; giant submandibular stone; sialolithotomy.*

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1. INTRODUCTION

Salivary stones or salivary gland duct calculus also called as sialoliths are the second most common disease affecting salivary glands after mumps [1,2]. They are composed of inorganic and organic substances and can occur in salivary glands of head and neck region [2]. Most common site is submandibular salivary gland and its duct which accounts for approximately 80-92% of the cases, followed by the parotid gland(6-20%) and sublingual or minor salivary glands(1-2%) [3]. Stones greater than 10 mm are relatively uncommon and are termed as giant sialoliths [4].

Choice of treatment depends on location, size, shape, number, and quality of the sialolith [5]. It ranges from conservative medical treatments such as antibiotic therapy, sufficient hydration, and hot massage to advanced methods such as surgical excision and extracorporeal shock wave lithotripsy (ESWL) [6]. However, transoral sialolithotomy with sialodochoplasty or sialadenectomy remains the mainstay of management for giant sialoliths [1].

Here we report a case of giant submandibular sialolith perforating floor of mouth treated by surgical excision.

2. CASE REPORT

A 62 year old male patient presented to the department of oral and maxillofacial surgery with chief complaint of pain and swelling in floor of mouth since 1 year. Pain is dull aching type and is continuous. Pain aggravates on chewing food. Patient gives history of hard swelling in the floor of mouth which was initially pea sized and has gradually increased in size to achieve the present state. No history of pus discharge or fever present.

On systemic and extraoral examination, no abnormalities were detected. Left submandibular lymph node were palpable, tender and firm in consistency (Fig. 1).

On intraoral examination, a mass was noted in the floor of mouth on the left side extending from a line joining distal of mandibular left second premolar to distal end of mandibular left first molar. Penetration of floor of mouth is noted (Fig. 2). The mass appears white to yellowish in colour, with smooth surface. Surrounding area appears erythematous. On palpation, inspector

findings are confirmed. It was hard in consistency, mobile and tender. Pus discharge also was noted.



Fig. 1. Preoperative profile



Fig. 2. Preoperative intraoral

Mandibular occlusal radiographic examination revealed a large, well defined radio opaque mass on left side of floor of mouth.

It was provisionally diagnosed as submandibular salivary gland sialolith and treated by surgical excision after obtaining informed consent from the patient. Under local anesthesia, the giant sialolith was removed in a minimally invasive manner via intraoral sialolithotomy and sialodochoplasty (Fig. 3). An incision of approximately 15 mm in length were made in the floor of mouth. Blunt dissection was carried out. Another small incision was taken over the wharton's duct overlying the giant sialolith. Milking of gland was done and the sialolith was pushed out of the duct and removed. It measured approximately 44 mm x 18 mm in maximum dimension (Fig. 4). A paediatric cannula (26G) was passed into the duct and was secured in place with 3-0 silk in the orifice region. Closure of duct and mucosa was done with 5-0 and 3-0 vicryl respectively. Patient was kept on antibiotics and analgesics from the first post-operative day.

The pediatric cannula, along with its sutures were removed on the 7th postoperative day.



Fig. 3. Intraoperative photograph



Fig. 4. Specimen removed

Follow up was done at intervals of 1 month, 3, 6 and 12 months postoperatively during which the patient remained asymptomatic with satisfactory glandular function.

3. DISCUSSION

Sialolithiasis refers to stone or Calculi formation in the salivary glands of head and neck region [5, 7]. Most commonly involved is submandibular salivary gland. The reasons cited include the longer submandibular duct, its horizontal flow in the opposite direction of gravity, the narrow opening of the duct being narrow, and the alkaline nature of submandibular saliva with more mucous secretions [6].

It is common between 30-60 years of age and males are affected twice more commonly than females [8].

They usually has an asymptomatic course. However obstruction of salivary flow by the

calculus result in the development of cardinal signs of sialoliths that is pain and swelling [9,10]. An acute inflammation of submandibular gland with giant stones may result in posterior perforation of the floor of mouth [4]. Rapid onset with partial resolution in one to several hours, residual glandular swelling, decreased salivary flow as compared to the contralateral gland, intensified pain during meal times (when salivary flow is stimulated) and unusually suppuration or localized cellulitis may occur [5].

Clinically, the calculi may appear as white to yellowish coloured, round or oval masses with rough or smooth surface [9].

Usually sialoliths are 5mm in maximum diameter. Kuruvila et al stated that stones over 10 mm should be considered as giant sialoliths [8].

Stones which perforate the floor of mouth are rare. They are also called as perforating stone (sialolith), self-exfoliating stone or stone related sialo-oral fistula in the literature [4].

Diagnosis are done based on clinical and radiographic findings however smaller or hypomineralized calculi require specialized radiographs like sialograph, ultrasound, CT, magnetic resonance imaging (MRI), scintigraphy or sialoendoscopy [9].

Various treatment modalities were described in the literature which include intraoral/extraoral removal of stone, interventional sialendoscopy or resection of the gland [10]. Small sialoliths can be removed through the duct orifice by milking of the gland. Larger or proximally located sialoliths in the duct may require surgical removal through intraoral or extraoral approach. Submandibular gland resection is performed as the last resort when the sialolith (12 mm or more) is located within the gland and intraoral surgical access is inadequate [10].

4. CONCLUSION

Giant sialoliths penetrating floor of mouth are rare. A careful history and radiographic examination is required to confirm the diagnosis. Intraoral sialolithotomy is a simple surgical procedure that can be carried out under local anesthesia with minimal complications and about 80 to 100% success rate. Though newer technique have emerged, giant sialoliths of submandibular gland are best treated using intraoral sialolithotomy and sialodochoplasty even today.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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