



## Case Report

# Self-exfoliation of giant submandibular sialolith – A case report

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### ABSTRACT

Sialoliths are commonly encountered soft tissue calcification of salivary glands. Most commonly occurring in adult population, they may be asymptomatic and diagnosed on routine dental examinations or present with symptoms of pain and swelling of the involved gland. Thus, thorough examination and investigation is mandatory to reach the correct diagnosis of sialolithiasis. This paper presents an interesting case of unusually large submandibular sialolith indicated for surgical removal that, surprisingly, exfoliated by itself eliminating the need for surgery along with a literature review.

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## 1. Introduction

Sialoliths are calcific concretions formed within the parenchyma or the ductal system of a salivary gland. Sialoliths typically range in size from one mm to less than one cm. Stones that measure more than one and half cm are referred to as giant salivary gland stones.<sup>1</sup> There have been reports of sialolith that have self-exfoliated. However, it frequently occurs if the sialolith is a few millimetres in size and the calculi can flow through the duct with ease.<sup>2</sup> This paper reports a case of self-exfoliation of giant submandibular sialolith.

## 2. Case Presentation

A 45-year-old male patient reported with the complaint of pain in the floor of the mouth for approximately eight years and swelling for the past four months. The history of presenting illness reveals intermittent pain which increased in intensity in the past four months and aggravated while eating food. Patient gave a previous history of a similar

swelling which had subsided on having medications. The patient had no relevant medical history. The intra-oral examination revealed few fractured teeth and few dental caries. A single, well-defined swelling approximately of three X one cm was seen in the left side of the floor of the mouth extending from 32 to 37 region. On bimanual palpation, the swelling was tender and firm with no discharge or secondary changes.

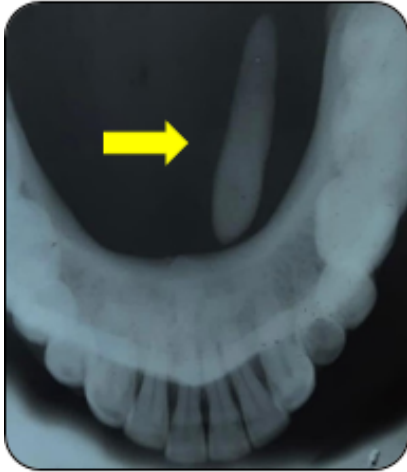


**Fig. 1:** Sialolithiasis of the left submandibular gland, 45-year-old male with single, well-defined swelling approximately three x one cm in the left side of the floor of the mouth.

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The patient was asked to report back with a mandibular occlusal radiograph which revealed a single, well defined oval radiopaque structure present in the lingual aspect of the mandible extending from 32 to 38 region.



**Fig. 2:** Mandibular occlusal radiograph showing a single, well-defined, oval radiopacity, present in the lingual aspect of the mandible extending from 32 to 38 region.

On the basis of history, clinical examination and radiographic investigation, final diagnosis was given as submandibular sialolithiasis. The patient was advised surgical management because of the large size of the stone. But, the very next day, the patient reported saying that sialolith spontaneously came out in the oral cavity. The sialolith was well defined, oval, brownish and calcified measuring three X one cm.



**Fig. 3:** Specimen photograph: showing a calcified, well defined, oval, brownish giant sialolith approximately measuring three x one cm.



**Fig. 4:** Specimen radiograph: showing a well-defined, oval giant sialolith approximately measuring three x one cm.

The intra-oral examination was carried out again, where the patient particularly reported that there was no pain and the swelling had reduced in size.



**Fig. 5:** Left side of the floor of the mouth showing reduced swelling.

Another mandibular occlusal radiograph was taken to confirm the complete exfoliation of the sialolith.



**Fig. 6:** Mandibular occlusal radiograph showing absence of the sialolith.

The patient was given a course of antibiotics (Augmentin 625 mg, thrice a day for five days) after which the patient did not have any symptoms and was very happy.

### 3. Discussion

Sialolithiasis is a common salivary gland disorder that is more common in men than women, affecting 12 out of every 1000 middle-aged persons.<sup>3</sup> Long-term stagnation of saliva, increased alkalinity, increased calcium content, infection, inflammation, or physical trauma are risk factors for sialolith formation.<sup>1</sup> The submandibular gland is involved in 80% of cases, the parotid gland in four to ten percent, and the sublingual and minor salivary glands in one to seven percent.<sup>1</sup> Sialoliths are most common in the submandibular gland due to the Wharton's duct's tortuous route, the submandibular gland's dependent position which makes them susceptible to stasis, the greater calcium and phosphate levels in its saliva, and the greater mucous nature of its saliva.<sup>4</sup> Sialoliths typically range in size from one mm to less than one cm. Stones that measure more than one and half cm are referred to as giant salivary gland stones. Giant salivary gland stones, measuring more than three cm are extremely rare. It is believed that sialoliths grow by about one to one and half mm on average per year, which implies that it takes ten years for the sialolith to become giant.<sup>1</sup> The ability of calculus growth to become a giant sialolith depends on the ability of adjacent ducts to dilate, allowing almost normal salivary flow, resulting in an asymptomatic disease.<sup>5</sup> Hypotheses regarding the pathogenesis suggest that, there is an initial organic nidus which gradually expands by the deposition of inorganic and organic substances or that intracellular microcalculi are discharged in the canal and act as a nidus for

further calcification. It has also been proposed that debris, bacteria or substances may migrate from the oral cavity and enter the salivary ducts.<sup>1</sup> Rarely, multiple calculi, bilateral involvement, or the simultaneous involvement of multiple glands occur.<sup>3</sup>

The majority of sialolithiasis cases present with episodes of pain and swelling of the affected gland that may last for a few hours followed by long episodes of remission (weeks or months). The blocked salivary flow in the affected gland leads to saliva accumulation and an increase in intraglandular pressure, which causes the pain and swelling. Saliva may leak through or around the sialolith in cases of incomplete obstruction of the duct. In these situations, a salivary stone may not cause any symptoms and may only be discovered by chance on a dental panoramic radiograph.<sup>6</sup> Saliva stasis causes fibrosis, gland atrophy, and infection. The involved gland is enlarged and tender on palpation.<sup>4</sup> Self-exfoliation of sialolith is rare. In a literature report, analysing 90 cases of sialolithiasis, only 26% of giant sialolith self-exfoliated.<sup>7</sup> It commonly occurs if the patient is relatively asymptomatic and has normal salivation, the calculi is only a few millimeters in size and when the sialolith are placed in the distal region of the duct allowing easy passage through the duct.<sup>2</sup> Submandibular calculi can be identified by careful bimanual palpation of the floor of the mouth from posterior to anterior direction. Presence of parotid stone can be revealed by careful palpation of Stenson's duct orifice.<sup>3</sup>



**Fig. 7:** Bimanual palpation of the floor of the mouth from posterior to anterior direction.

Sialoliths are solid masses that can be spherical or oval, rough or smooth, and they range considerably in size. The stone is often yellowish or yellowish-white in colour. Parotid stones are made up of 49% inorganic and 51% organic material, while submandibular stones are made up of 82% inorganic and 18% organic material. Glycoproteins, mucopolysaccharides, and cellular waste constitute the organic materials. The majority of the inorganic materials are calcium carbonates and calcium phosphates.<sup>3</sup>

Imaging plays an important role in investigation of sialolithiasis.<sup>3</sup> Plain film radiography involves occlusal radiography, orthopantomogram and puffed cheek A-P view (for parotid sialolith).<sup>4</sup> Less than 20% of submandibular sialoliths and 40% of parotid sialoliths are radiolucent.<sup>3</sup> Sialography can be used to image radiolucent sialoliths.<sup>6</sup> Computed Tomography with ten-fold greater sensitivity than plain film radiography, can detect sialolith of any size. Stones having a diameter of two mm or more can be detected by ultrasonography.<sup>4</sup> A variety of differential diagnosis can be considered for submandibular sialolithiasis such as retained roots, opaque foreign bodies, calcified lymph nodes, phleboliths and myositis ossificans.<sup>3</sup>

Management of a sialolith depends on its size and location. Antimicrobials and analgesics are given for symptomatic relief.<sup>3</sup> Small sialoliths can be managed conservatively by advising the patient to increase fluid intake, apply warm moist heat, massage the gland as well as use sialagogues like lemon slices or medicine.<sup>2</sup> Bimanual palpation can also be used to milk out small stones through ductal orifices.<sup>1</sup> If the calculus is attached to the duct wall or has a diameter of more than eight to ten mm, surgical removal is the option.<sup>2</sup> Extracorporeal shock wave lithotripsy may be used in the treatment of large sialoliths that are present in the near proximal duct. Endoscopic intracorporeal shock wave lithotripsy is also gaining importance because of less damage to the adjacent tissues during the procedure. Large sialoliths and ductal obliteration can both be treated by sialadenoscopy, a non-invasive procedure. Due to its benefits of low bleeding, less scarring, clear vision, and minimal post-operative complications, CO<sub>2</sub> laser therapy is becoming more and more popular for treating sialolithiasis.<sup>1</sup>

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None.

#### 5. Conflict of Interest

None.

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