

A Case Report on Giant Submandibular Sialolithiasis

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ABSTRACT

Sialolithiasis is a term used to denote the formation of salivary stones / sialoliths which are calcified concretions located within the parenchyma / ductal system of salivary glands. In today's times it is a very common salivary gland disorder leading to salivary secretion obstruction. Conservative management is the choice of treatment for small accessible stones while surgical intervention is needed for larger stones. Treatment modalities include salivary gland massage, the use of sialagogues or surgical removal of the gland.

KEYWORDS- Sialolith, Sialadenitis, Salivary stone, Wharton's duct, Submandibular gland excision, Giant sialolith.

INTRODUCTION

With a reported incidence of 1:10000 people within the adult population, sialoliths are one of the more frequent entities affecting the salivary secretory glands culminating in salivary gland dysfunction¹. This obstruction of the salivary secretory glands leads to classic inflammation followed by bacterial infection that may or may not progress further to formation of an abscess. This inflammation of the glands is widely known as Sialadenitis. The most commonly affected gland are the submandibular glands with the literature reporting an 80 – 90% incidence rate while the parotid gland is less frequently involved with the literature reporting 5 – 20% chance of incidence².

CASE REPORT:

A 35-year-old male patient presented with a history of swelling in the left lower jaw region since the past 2 months. Further history of presenting illness determined the swelling to be intermittent followed by pain during meals which further showed auto – resolution post prandially. Further questioning revealed presence of unpleasant sensations while having sour / acidic food. An absence of pain, discharge or any fever in the history of presenting illness further helped in ruling out other differentials. Clinical examination and palpation revealed the swelling to be firm, round in consistency, non – tender, showing no local rise in temperature and also exhibiting fixity to the underlying tissues (Figure 1). Bi – manual palpation determined a firm swelling in the floor of the mouth and a provisional diagnosis of sialolith

within the left submandibular salivary gland was derived based on the clinical findings. The final diagnosis of sialolith was confirmed with the help of imaging modalities of Computed Tomography (CT) and Orthopantomogram (OPT) (Figure 2).

Following all aseptic protocols and conditions, the patient was taken under general anaesthesia. An incision of size 5 cm approximately was made over the submandibular gland at 1 – 2 finger breadths below the inferior border of the mandible as depicted in Figure 3. Post incision, the platysma was dissected, marginal mandibular nerve – a branch of the facial nerve was identified and protected and the inferior pole of the submandibular salivary gland was visualized. Sub – capsular dissection at the postero – inferior pole as well as the superior pole aided with the exposure and further mobilization of the gland, while the anterior pole was mobilized off the mylohyoid muscle. After proper exposure and mobilization, the posterior edge of the mylohyoid muscle was retracted and the gland was excised (Figure 4a). Hemostasis was achieved followed by thorough irrigation and the placement of a drain. This procedure was later accompanied by layer wise closure utilizing 3 – 0 vicryl and 4 – 0 ethilon (Figure 4b). No further complications was presented by the patient on all follow – up evaluations (Figure 6). The excised specimen was sent for excisional biopsy and histopathology report confirming the diagnosis of chronic sialadenitis associated with sialolith within the left submandibular salivary gland (Figure 5).



FIGURE 1- A diffuse swelling present on the left submandibular region

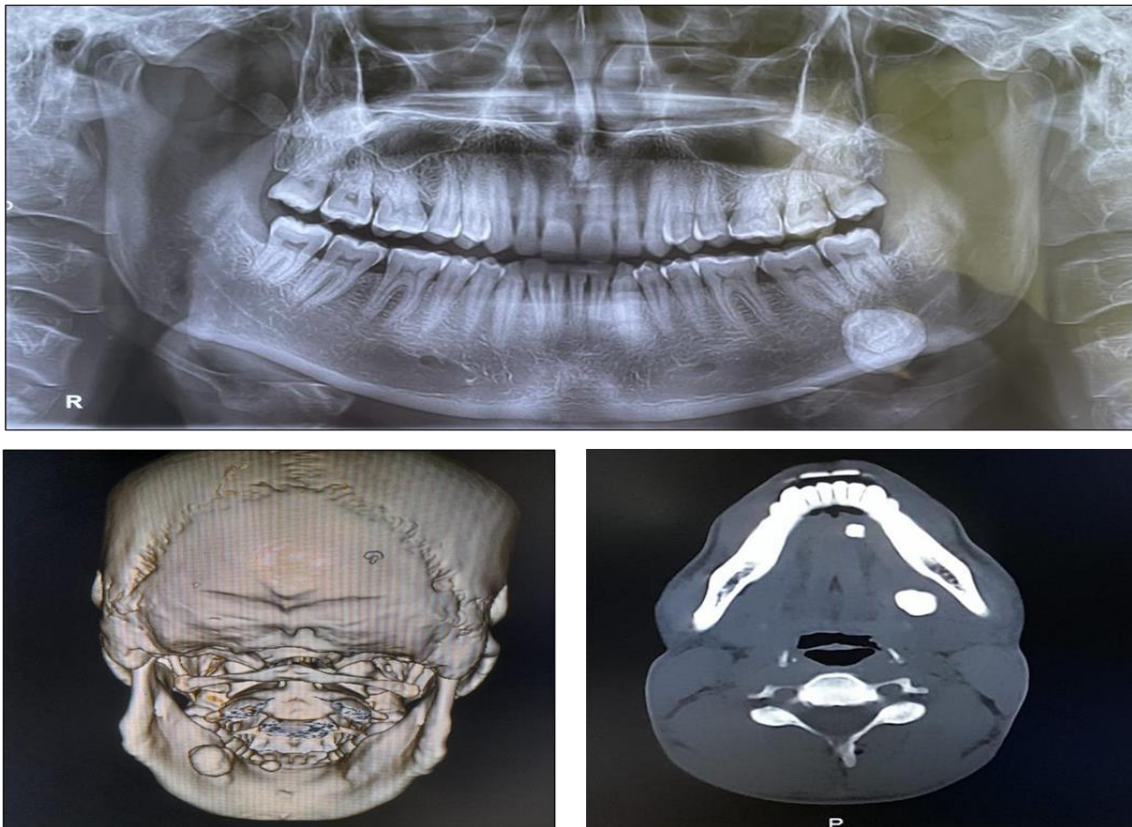


FIGURE 2 -OPG and axial view in computed tomography showing sialolith.

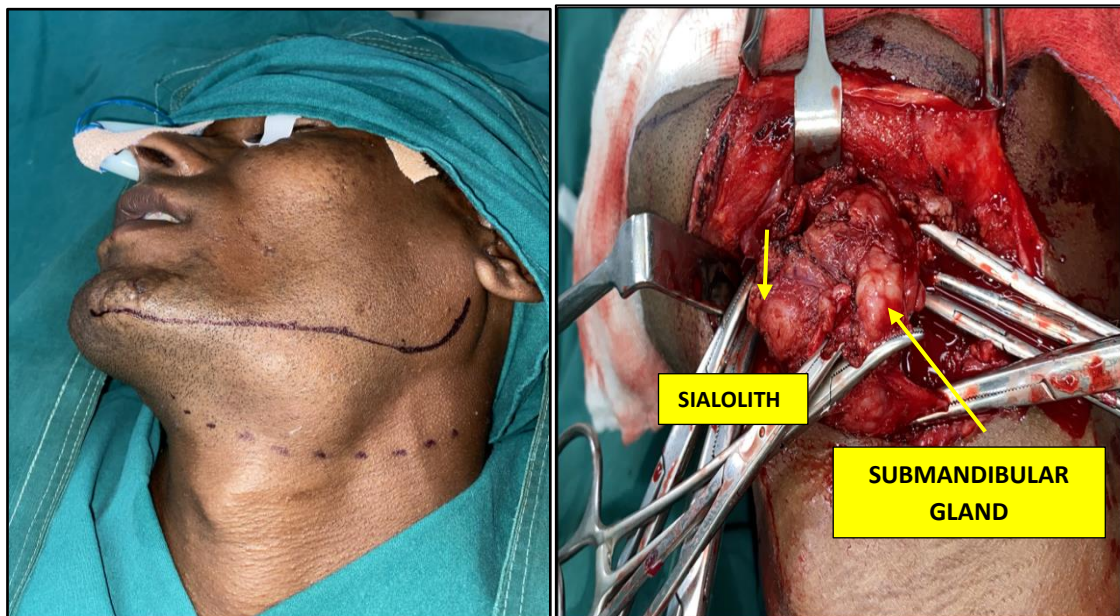
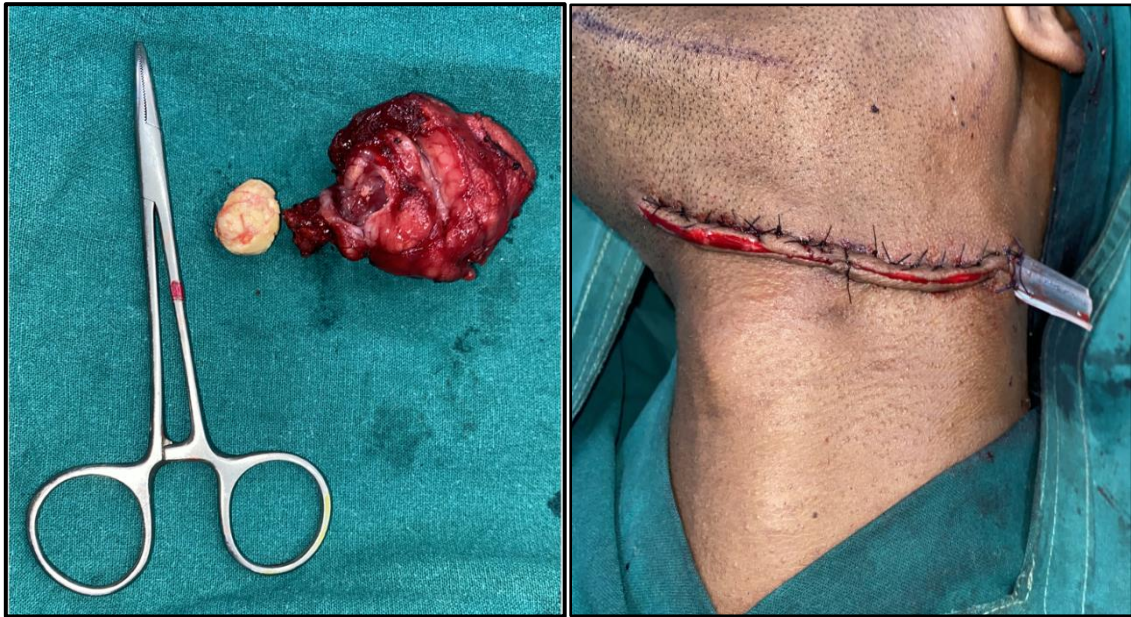


FIGURE 3- RISDON incision and SUBMANDIBULAR GLAND EXPOSURE



**FIGURE 4a- Excised submandibular gland.
FIGURE 4b- Closure with drain placement.**




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<p>GROSS: Received one soft tissue and 3 hard tissue specimen. The soft tissue specimen is 5x4cm in diameter and largest hard tissue specimen measuring about 1.5x1cm in diameter.</p> <p>Provisional Diagnosis: Sialolith in left Submandibular gland</p> <p>HISTOPATHOLOGICAL REPORT:</p> <p>H&E stained sections show salivary glandular tissue depicting acinar atrophy, ductal dilatation and ductal hyperplasia, interstitial fibrosis and diffuse chronic inflammatory cellular infiltrate. Cross section of muscle and nerve are seen.</p> <p>IMPRESSION: - Clinicopathological correlation suggestive of "Chronic Sialadenitis Associated with Sialoliths"</p>		
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FIGURE 5- Histopathological report.



FIGURE 6- Post-op OPG

DISCUSSION

Salivary stones or calculi further denoted as Sialolithiasis is the phenomenon of occurrence of calcareous concretions within the ducts or glandular parenchyma of the salivary glands culminating in the mechanical obstruction of the normal salivary flow³. This phenomenon accounts for greater than 50% of all the maladies of the major salivary glands and is one of the profound *founs et origo* of acute and chronic inflammation of the salivary glands⁶.

Sialolithiasis shows a male predilection with a ratio of 4:3 and usually manifests within the 3rd and 5th decade of life⁵⁻⁷. The submandibular salivary duct or gland usually is affected more with a reported incidence of 80 – 94%, followed by the parotid gland with a 5 – 18% chance and lastly by the sublingual gland with an occurrence rate of 2% or less⁴.

The greater predilection for the formation of sialoliths in the submandibular salivary gland can be accommodated based on the following factors:

1. An alkaline pH in the range of 6.8 – 7.1 as opposed by the more acidic product of the parotid gland (6.3 – 7.4).
2. The presence of a greater concentration of calcium and phosphate salts presenting itself in the form of apatite.
3. The relative alkalinity in conjunction with alterations in salivary calcium – phosphorus ratio leads the salivary apatite to exceed its solubility product culminating in the precipitation of these salts
4. The mucous content and the secretions of the submandibular salivary gland may become more viscous as compared to those of the parotid gland
5. The submandibular duct / Duct of Wharton is usually longer, more tortuous and is situated at a lower level than its orifice (non – dependent) thus further leading to increased salivary stagnation culminating in calculus formation.

Though usually 1 – 10 mm in size, larger sialoliths have also been reported in the literature occasionally. Ledesma – Montes et. Al. conducted a review of the literature and discovered only 16 reported cases of sialoliths exceeding 3.5 cm in size. Large sialoliths are a rare occurrence with their sizes varying from 1.5 – 7 cm approximately⁷. Delving further into the literature, sialoliths are usually found to be 5mm in maximum diameter while concretions greater than 10mm should be reported as a sialolith of unusual size⁸. Differential radiographic diagnoses of salivary calcifications simulating sialolithiasis of the major calculi include air bubbles & film defects, retained roots, torus mandibularis, opaque foreign bodies, calcified

lymph nodes, phleboliths, calcifications of the facial artery, cysticercosis, myositis ossificans, calcified sebaceous cyst, osteoma cutis, tuberculosis of the salivary glands, calcified acne, milk-alkali syndrome and metastasis from distinct calcifying neoplasms.

Sialoadenectomy is the mainstay of surgical management for the majority of intraglandular stones⁹⁻¹⁰. Shock wave lithotripsy, salivary gland endoscopy, and radiologically guided basket retrieval are newer techniques that are effective in the removal of Sialoliths from the major glands. These minimally invasive techniques have low morbidity and may preclude the necessity of gland removal¹¹.

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FIGURE LEGENDS:

Figure 1	Diffuse swelling present on the left submandibular region
Figure 2	OPG and axial view in computed tomography showing sialolith
Figure 3	Risdon incision and Submandibular Gland Exposure
Figure 4a	Excised Submandibular Gland
Figure 4b	Closure with drain placement
Figure 5	Histopathological report
Figure 6	Post – Op OPG