

Management of Deep and Giant Sialolith in Submandibular Salivary Gland by Gland Excision: A Case Report

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Abstract

Sialolithiasis is the most common disease of the major salivary glands, with the submandibular gland being most frequently affected. Large intraglandular sialoliths may lead to chronic obstruction, recurrent sialadenitis, and irreversible gland damage, thereby necessitating surgical excision of the gland. We report a case of submandibular gland sialolithiasis in a patient presenting with recurrent pain and swelling in the submandibular region. Radiographic investigations confirmed a large calcified mass within the gland parenchyma. Owing to chronic symptoms and gland dysfunction, complete excision of the submandibular gland was performed through a transcervical approach. The postoperative course was uneventful, with complete resolution of symptoms. This case report highlights the diagnostic considerations, indications for surgery, and surgical management of advanced submandibular gland sialolithiasis.

Introduction

Sialolithiasis is a common salivary gland disorder characterized by the formation of calcified deposits within the salivary ductal system or glandular parenchyma. The submandibular gland accounts for approximately 80–90% of all cases due to factors such as the long and tortuous course of Wharton's duct, antigravity salivary flow, and the alkaline, calcium-rich nature of its secretions.¹

Clinically, patients often present with pain and swelling in the submandibular region, typically exacerbated during meals. Management strategies depend on the size and location of the sialolith and range from conservative measures to minimally invasive procedures such as sialendoscopy. However, large intraglandular calculi associated with chronic sialadenitis often require surgical excision of the affected gland. This case report describes the clinical

presentation, diagnosis, and surgical management of submandibular gland sialolithiasis treated by gland excision.

Case Report

A patient named **Aditya Kumar, 58 year-old male** reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of swelling in the **left submandibular region** since 12 days.

Patient was apparently alright 5 years ago then he started experiencing tooth pain with respect to left lower back tooth region of jaw for which he underwent extraction with respect to 36,37,38 after which he noticed soft swelling in left lower side of face which eventually subsides by its own; then he noticed small extraoral nodule like swelling with respect to left lower border of mandible which causes pain on compression(VAS- 6).So patient reported to Rama Dental College, Kanpur for needful treatment.

Extraoral examination revealed a firm, mildly tender swelling in the submandibular region. Intraoral examination showed reduced salivary flow from the corresponding Wharton's duct, with no evidence of pus discharge. The stone was not palpable intraorally.



Fig.1- Frontal view



Fig.2- Left profile view



Fig.3- Worms view

Investigations

Ultrasonography- Left submandibular gland appears bulky with multiple calculi within, largest calculi measuring $\sim 7.5 \times 8.5\text{mm}$. Left sub mandibular gland duct appears unremarkable – suggesting sialadenitis with sialolithiasis. **Orthopantomogram** demonstrated a radiopaque mass in sub-mandibular region. **Computed tomography** confirmed a well-defined calcified mass measuring $\sim 1.5\text{cm} \times 1\text{cm} \times 0.6\text{mm}$ within the gland parenchyma, associated with features of chronic sialadenitis. **Routine hematological investigations** were within normal limits.

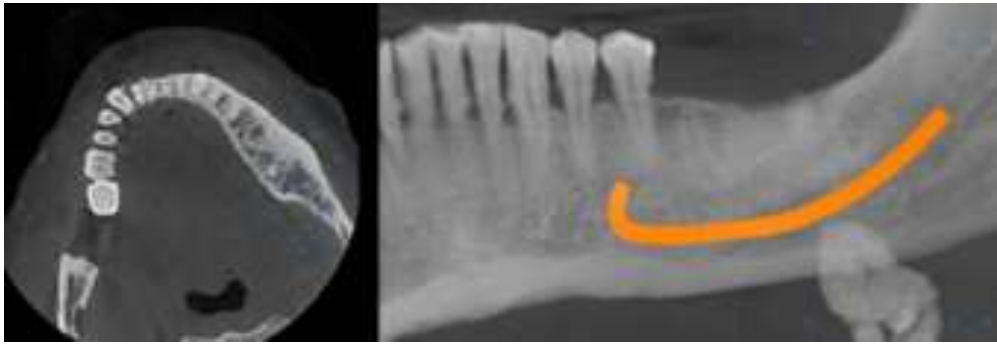


Fig.4- CBCT with respect to left mandible showing radiopacity in submandibular region.

Differential Diagnosis

The differential diagnosis included:

- Chronic submandibular sialadenitis
- Phlebolith
- Benign salivary gland neoplasm
- Tuberculous lymphadenitis

Based on clinical and radiological findings, a diagnosis of **submandibular gland sialolithiasis** was established.

Indications for Surgery

Surgical excision of the submandibular gland was indicated due to:

- Presence of a large intraglandular sialolith
- Recurrent episodes of pain and swelling
- Chronic inflammatory changes within the gland
- Reduced functional salivary flow

Surgical Management

Under general anesthesia, a standard transcervical submandibular approach was employed. A horizontal incision was placed approximately 2 cm below the inferior border of the mandible. After incising the platysma, careful dissection was performed with identification and preservation of the marginal mandibular nerve. The facial artery and vein were ligated, and



Fig.5- Incision marking for submandibular incision



Fig.6- Facial artery identified

the submandibular gland was dissected free from surrounding tissues. The lingual nerve is identified and preserved. The gland containing the sialolith was excised intoto.

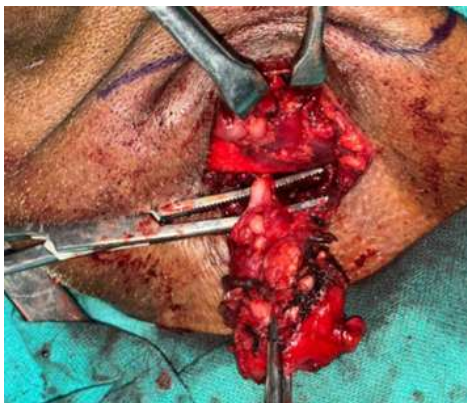


Fig.7- Submandibular gland excision intoto



Fig.8- Excised submandibular gland with measurement

Hemostasis was achieved, a suction drain was placed, and the wound was closed in layers.



Fig.9- Giant sialolith with measurement



Fig.10- Primary closure

Outcome and Follow-Up

The postoperative period was uneventful. The patient reported complete resolution of pain and swelling. No neurological deficit or surgical site complication was observed during follow-up, and the cosmetic outcome was satisfactory.

Discussion

The submandibular gland is particularly predisposed to sialolith formation because of its anatomical and physiological characteristics. Although advances such as sialendoscopy have reduced the need for gland excision, large intraglandular stones associated with chronic sialadenitis continue to require surgical removal of the gland.²⁻⁴

Stones may be silent and present as an incidental finding, or may typically present with recurrent painful swelling following meals, known as 'mealtime syndrome'. The patient in the current case presented with painless swelling. This was due to the ability of the duct adjacent to the sialolith to dilate, allowing normal secretion of saliva around the stone, which allows a stone to grow into a huge or giant calculus.⁶

The primary objective of treatment for giant sialoliths is the restoration of normal salivary secretion. The treatment options for submandibular sialoliths are intraoral removal of stone, interventional sialendoscopy and resection of the gland. The appropriate treatment method is chosen according to the size, location and number of sialoliths. Small sialoliths can be removed through the duct orifice using bimanual palpation. Larger or proximally located sialoliths in the duct require surgical removal through oral cavity. Submandibular gland resection is indicated when a sialolith with a substantial mass (12 mm or more) is located within the gland and intraoral surgical access is not possible.⁷

Alternative methods of treatment have emerged such as extracorporeal shock wave lithotripsy (ESWL), and more recently the use of endoscopic intracorporeal shockwave lithotripsy (EISWL), in which shockwaves are delivered directly to the surface of the stone lodged within the duct without damaging adjacent tissue (piezoelectric principle).⁸ Findings have also suggested that best results in salivary stone lithotripsy are achieved when the maximum size of stone fragments does not exceed 1.2 mm.⁹

The transcervical approach remains the most reliable method for complete gland excision, offering excellent exposure and low recurrence rates. Careful identification of adjacent neurovascular structures is critical to minimizing complications. In the present case, complete gland excision resulted in excellent functional and aesthetic outcomes, reinforcing its role as the definitive treatment for advanced submandibular sialolithiasis.

Conclusion

Submandibular gland sialolithiasis is a frequently encountered salivary gland disorder that may lead to chronic inflammation and gland dysfunction. Large intraglandular calculi are best managed by surgical excision of the affected gland i.e. sialodenectomy. Early diagnosis, appropriate imaging, and meticulous surgical technique ensure optimal outcomes with minimal morbidity.

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