

Spontaneous Passage of Stensen's Duct Calculus following Gland Massage: A Case Report

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ABSTRACT

Obstructive parotitis usually occurs as a painful, unilateral swelling of the cheek with a decreased salivary flow and pus discharge, when secondarily infected. The known causes for this condition include commonly, sialoliths, strictures, and/or stenosis of the duct. Imaging in patients with obstructive parotitis has multifactorial benefits ranging from diagnosis to localisation thus, enabling preoperative planning. A 43-year-old female patient presented with features suggestive of obstructive parotitis with secondary infection. The diagnosis was confirmed by Ultrasonography (USG) and a Radiovisiograph (RVG) was performed to localise the sialolith. The patient was admitted and treated with supportive therapy in the form of intravenous antibiotics, milking of the gland, and adequate hydration. Sialolithotomy was scheduled following the resolution of the acute phase of infection. Repeat USG and RVG were performed on the day of surgery to confirm the position of the sialolith but the sialolith could not be located. A panoramic radiograph was performed to confirm the absence of the sialolith. The planned procedure was cancelled, and the patient was continued on systemic antibiotic therapy and anti-inflammatory medication for three more days. On follow-up, copious serous saliva could be expressed from the duct. This highlights the importance of repeating preoperative imaging in patients who have received supportive therapy including gland massage.

Keywords: Obstructive sialadenitis, Parotid swelling, Sialolithiasis, Sialolithotomy, Ultrasonography

CASE REPORT

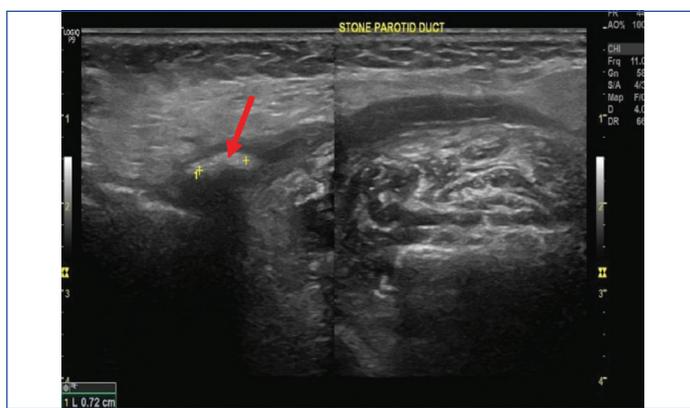
A 43-year-old female patient reported to the Outpatient Department (OPD) complaining of painful swelling of the left cheek for one week. The patient reported similar episodes of recurrent swelling and pain on several occasions in the past five years. There was a history of high-grade fever for the past two days and the swelling and intensity of pain increased during meal time. She was a non compliant hypothyroid patient, who had discontinued thyroxine supplements for over one year which rendered her at high-risk for a procedure under general anaesthesia.

On inspection, she had a smooth, diffuse swelling of approximate size 6x5 cm extending from the region corresponding to the left crus helix to below the left mandibular angle superoinferiorly, and from the retromandibular region to a line drawn along the anterior border of the masseter along its attachment at the mandibular lower border, anteroposteriorly [Table/Fig-1], and the lobule of the left ear was elevated. Palpation revealed a tender and firm swelling involving the left parotid gland with ipsilateral submandibular lymphadenopathy. Mouth opening was restricted to 30 mm. On intraoral examination, copious curdy-white, foul-smelling pus discharge was observed from the left Stensen's duct [Table/Fig-2]. A provisional diagnosis of obstructive sialadenitis was made. The differential diagnosis included acute bacterial ascending sialadenitis and mumps with a secondary bacterial infection.

The patient was sent for USG, which suggested a calculus measuring 7.2 mm in the left distal parotid duct [Table/Fig-3] with a bulky left parotid showing mildly increased vascularity suggestive of obstructive parotitis. A RVG was performed which suggested a radiopaque mass in the cheek in relation to the maxillary second molar tooth [Table/Fig-4]. The patient was admitted and intravenous amoxicillin 1 g+potassium clavulanate 200 mg and oral paracetamol 650 mg TDS were started, pus expressed from the ductal orifice was collected and sent for culture and sensitivity tests. The patient was scheduled to undergo transoral sialolithotomy under local anaesthesia owing to its position closer to the orifice as suggested by imaging studies. During the preoperative period, the patient was



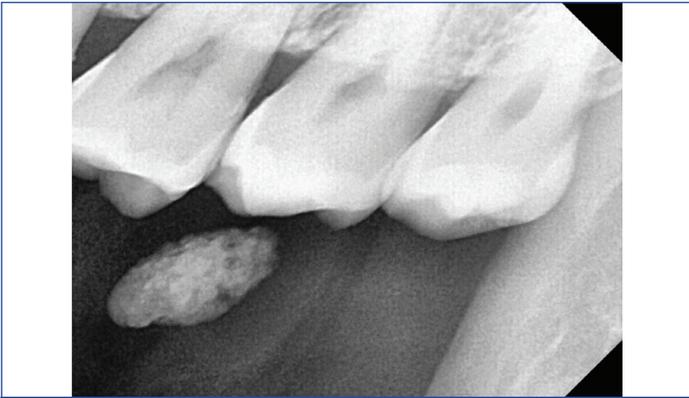
[Table/Fig-1]: Extraoral image showing diffuse left cheek swelling.
[Table/Fig-2]: Intraoral image showing pus discharge from the left Stensen's duct. (Images from left to right)



[Table/Fig-3]: USG showing 7.2 mm calculus in the left distal Stensen's duct.

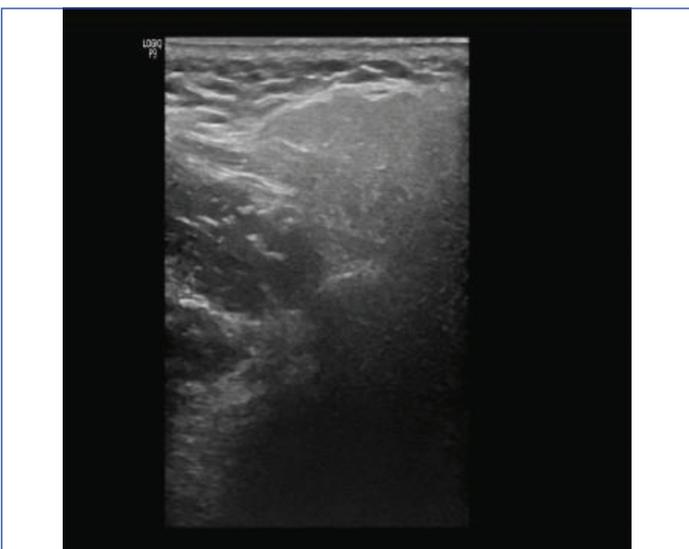
instructed to avoid sour food, take adequate oral fluids and massage the gland from the posterior mandible towards the commissure.

On the day of surgery, the patient showed considerable improvement in mouth opening, reduced swelling, and pus discharge. A repeat USG was performed to reconfirm the position of calculus in relation to masseteric bend so that a transoral approach could be

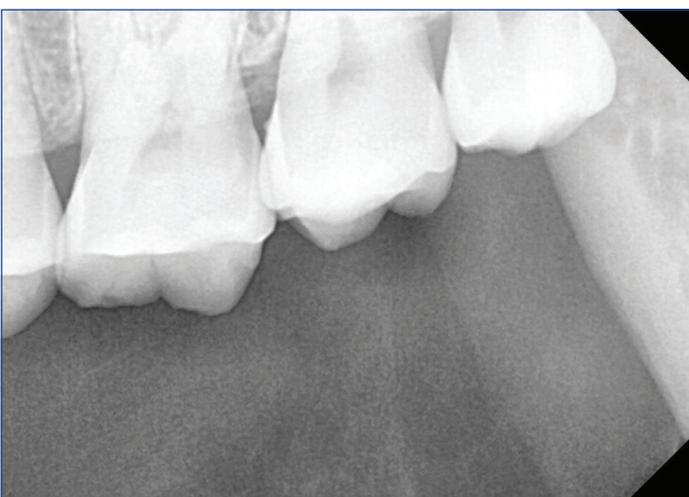


[Table/Fig-4]: Radiovisiograph (RVG) showing the calculus in relation to the maxillary left second molar tooth.

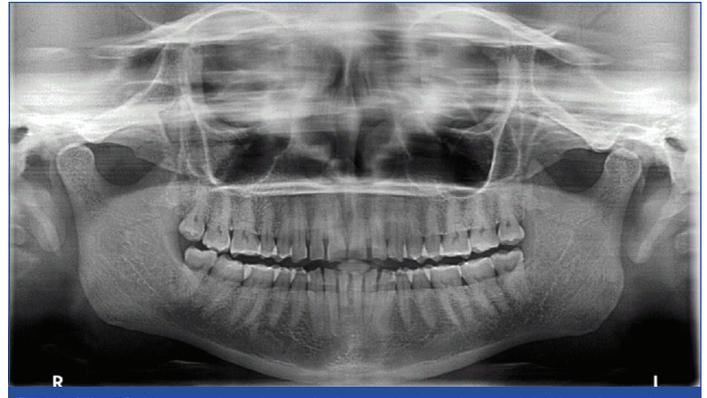
performed. The calculus could not be located throughout the length of the duct or within the gland [Table/Fig-5]. Further, a repeat RVG [Table/Fig-6] covering the length of the duct could not locate the sialolith. A panoramic radiograph was then performed, which ruled out the presence of sialolith in the left parotid [Table/Fig-7]. With the assumption that secondary to milking of the gland, the sialolith passed through the orifice of the duct either in toto or in pieces along with the pus that got expressed through the duct orifice, the planned procedure was cancelled. The patient was discharged with continued oral antibiotic and anti-inflammatory medication for three days. At one week review, mouth opening had improved to 38 mm, inflammation was resolving and serous salivary discharge could be expressed from the left Stensen's duct.



[Table/Fig-5]: Repeat USG showing absence of sialolith in its previous location.



[Table/Fig-6]: Repeat Radiovisiograph (RVG) in relation to the maxillary left second molar tooth showing missing sialolith.



[Table/Fig-7]: Panoramic radiograph demonstrating absent sialolith in the entire ductal system and gland.

DISCUSSION

Obstructive sialadenitis secondary to sialolithiasis is one of the most common pathologies affecting salivary glands in the middle-aged population, with about 6-15% of total sialoliths occurring in relation to parotid glands. The exact aetiology is still unknown; however, it is suggested that stasis of viscous, mucous, alkaline-rich saliva could contribute to the formation of salivary calculi. Most salivary calculi are small and known to grow by deposition at the rate of 1-1.5 mm/year. Calculus formation results in further stasis of saliva, allowing bacterial ascent, resulting in an increased risk of acute salivary gland infection and an impending abscess formation [1].

Various imaging modalities have been described in the diagnosis of sialadenitis. USG is often preferred because it is non invasive and tolerable, although it is operator-dependent and helps in the diagnosis of obstructive sialadenitis by the detection of dilated ducts or areas of calcification within the ductal system or the glands [2]. Although conventional radiographs may not reveal sialoliths unless they are 60-70% calcified, intraoral periapical view by placing the film or RVG sensor in the buccal vestibule may be helpful in imaging sialoliths as they are easily available, involve minimal radiation exposure and are inexpensive [3].

In the present case, USG was first performed to confirm the diagnosis of obstructive parotitis. An intraoral periapical view with the RVG sensor placed on the palatal aspect was performed to note the position of the sialolith in relation to the dentition. The sialolith was found to be located in relation to the second molar tooth corresponding to the ductal orifice. So, a transoral sialolithotomy could be planned.

Obstructive parotitis may be managed conservatively and surgical intervention may be required in selected cases. Conservative treatment involves ensuring good hydration, providing proper analgesia, glandular massage, and antibiotics acting on oral flora for gland superinfection among others [4], all of which were advised to this patient while waiting for the acute phase to be resolved. However, in patients with a history of recurrent episodes of pain and swelling over a long period such as the present case, the cause of the obstruction i.e., the sialolith requires to be removed. Lithotripsy, sialendoscopy, fluoroscopy-guided wire basket extraction, and surgical removal are the options [5].

Transoral surgical removal of parotid sialoliths is a minimally invasive procedure that can be utilised to remove sialoliths in the distal duct, anterior to the masseteric bend [1,4,6-8]. Based on the findings, a transoral surgical removal was planned in the present case. However, since milking of the gland is known to cause migration of the sialolith [9-11], repeat USG and RVG were performed in the present case, on the day of the planned procedure to reassess the position of the sialolith and sialolith could not be located in its previous site or throughout the length of the duct or within the gland. In addition, a panoramic radiograph [3] was sought to confirm its absence, which suggested that the sialolith was missing/absent. In the following

course of treatment, the patient responded well to medical treatment in the form of continued oral antibiotics, adequate hydration, and continued gland massage. Since the patient could not recollect swallowing or spitting the sialolith, the fate of the calculus is unknown and it was assumed that it has expelled spontaneously either in-toto or in fragments following gland massage. In case symptoms recur, sialendoscopy would be a reasonable diagnostic and therapeutic option. This, however, throws light on the importance of repeat imaging in indicated cases.

CONCLUSION(S)

Since many sialoliths may be mobile, immediate preoperative imaging of sialoliths is advised because accurate localisation shortly before surgery may enable for appropriate management. The perioperative imaging of sialoliths may also utilise dental radiographic assistance. The authors of this paper recommend repeat preoperative imaging in all patients who have previously been diagnosed with sialolithiasis and treated conservatively. Particularly, in patients who have been advised to massage their glands in the perioperative period, because spontaneous passage might occur in those patients with a higher frequency, as was in this particular case.

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