

A Unique Case of Sialolith in Stensen Duct in A Young Boy: A Case Report

Abstract:

Salivary gland sialolith are rare in the paediatric population though they are common in adults. Parotid ductal sialoliths account for only 3% of all cases of sialolithiasis. It is more common in submandibular duct. The usual presentation is pain and swelling during mealtimes owing to salivary duct obstruction. Different modalities can be used to make the diagnosis starting from history, physical examination, ultrasound, sialography, or CT scan. The mainstay of treatment is surgery and the extent of surgery depends on whether the stone is in the salivary duct or intraglandular portion. Here, we report a rare case of unilateral sialolithiasis in stensen duct in a 7 year old male child which was removed trans-orally.

Key-words: Sialolith; Salivary gland; Parotid gland, Stensen duct; Paediatrics

Introduction:

Sialoliths are calcareous concretions in the salivary ducts or glands. It occurs quite commonly with an incidence of about 0.012%.[1] Most sialoliths occur in the submandibular duct or gland (80%), followed by the parotid gland (6–15%) and the sublingual and minor salivary glands (2%). It usually affects middle-aged patients[2] in their third and fourth decades of life. Men are affected twice as frequently as women.

The predisposing factors for sialolithiasis are infections (bacterial and viral), inflammatory diseases (Sjögren's, sarcoidosis, radiotherapy reaction), masses (neoplastic and non-neoplastic), trauma, head and neck radiotherapy, drugs (anticholinergics, antisialogogues), and patients who are elderly[3] or have impaired renal function[4]. The usual presentation is pain and swelling as well as infection of the gland might occur from a sialolith obstructing salivary production.[5] This usually occurs before and during meals. The secretion of saliva is increased which leads to swelling of the affected gland. The amount of swelling and discomfort also depends upon the degree of obstruction.[6]

Diagnosis can be made by taking medical history, performing


physical examination, and employing Ultrasonography, Xrays (most frequently occlusal radiographs or OPG), Sialography, or CT scans. Treatment options for salivary gland calculi vary depending on the size and location of the stones. If it is small, conservative management can be utilized which includes application of moist warm heat with gland massage, using a sialogogue. Surgery may be required when the sialolith is big in size. It is done by removing the sialolith by transoral approach if the duct is obstructed or performing a sialoadenectomy if the sialolith is in the body of gland.[1] When these are not feasible, the other methods of management are Shock wave lithotripsy, sialoendoscopy, laser fragmentation, and endoscopically aided transoral removal.[7,8]

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Received : 18 Aug., 2022, **Published :** 31 March, 2023

Access this article online	
Website: www.ujds.in	Quick Response Code 
DOI: https://doi.org/10.21276/ujds.2023.9.1.16	

How to cite this article: Akash Ganguly, Sajjad Abdur Rahman, Mohammad Danish, & Rizwan Ahmad. (2022). A Unique Case of Sialolith in Stensen's Duct in A Young Boy: A Case Report. UNIVERSITY JOURNAL OF DENTAL SCIENCES, 9(1). 79-82

In this article, we report a unique case of unilateral parotid sialolithiasis in a 7 year old boy which was removed transorally and has been reported very rarely in the literature.

Case Report:

A 7 year – old male patient reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of pain and swelling in the right upper cheek region since one month. The swelling used to increase in size before and during the consumption of food. Though the swelling used to reduce after sometime, it never resolved. It kept on increasing in size. The swelling was accompanied with fever for one day. There was no history of trauma or toothache prior to the swelling. There was no other swelling present in any other part of the body. The patient did not have any significant past medical, personal and family history.

On extraoral examination, an ovoid swelling about 2x1.5 cm² in dimension was observed in the right parotid region. It extended anteroposteriorly from 1 cm from an imaginary line parallel to the midsagittal plane drawn from outer canthus of eye to the lower border of mandible and 2 cm anteriorly from tragus of right ear. Superoinferiorly it extended from an imaginary line drawn from right ala of nose till tragus of right ear and 4 cm above lower border of mandible. The swelling had diffuse borders, raised temperature and was not fixed to the surrounding skin.(Figure 1) On intraoral examination, his right buccal mucosa revealed an ovoid swelling of about 1.5x1 cm² in dimension with respect to upper deciduous first molar and upper permanent first molar region. The overlying mucosa showed signs of inflammation. The swelling was non-tender, non-compressible and soft in consistency. (Figure 2) Due to the pressure of a mass, the mucosa was pale. On milking the gland, the ejection of saliva was not as free-flowing as it was on the other side. The provisional diagnosis of sialolith was made and the patient was advised intraoral periapical radiograph of cheek to confirm the sialolith.



Figure 1. Right parotid swelling extending to the cheek area

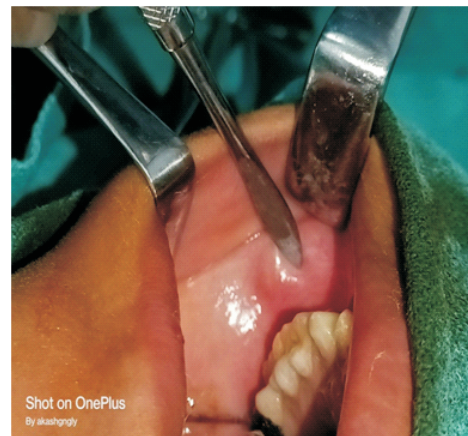


Figure 2. Stone like mass palpated on the right buccal mucosa

Intraoral periapical radiograph suggested calcified structures in the cheek. Further, to confirm USG was done which revealed that the right parotid duct was dilated to 6mm and one stone of 4mm diameter in the distal right parotid duct making the right parotid gland bulky with an enlargement of 15x9 mm seen adjacent to parotid gland. The echogenicity of gland was within normal limit.

On the basis of radiological and clinical data, the lesion was diagnosed as a parotid sialolith.

The patient was taken up for surgery to remove the stone. Under general anaesthesia, a Y shaped incision as described by Seward in 1968 was given with a single anterior arm 5 mm anterior to papilla with two arms projecting posteriorly at an angle of about 60° about 5 mm distance from duct orifice. (Figure 3) Dissection was followed along the Stensen duct using No.15 blade and artery forceps and the duct was isolated. Horizontal incision was given on the lateral wall of duct using the same blade. Duct was followed and explored bluntly using artery forceps and the stone was identified and removed. Dimension of the stone was about 4 mm x 2.5mm. (Figure 4,5)

The gland was milked to monitor the free flow of saliva and to check the patency of the duct. Duct patency was checked using No.22 intracath cannula inserted through the duct orifice. Free saliva was seen to be flowing through the surgical opening of the duct. Then closure of the duct was not attempted but closure of the mucosa over the duct with Vicryl 3-0 was done.

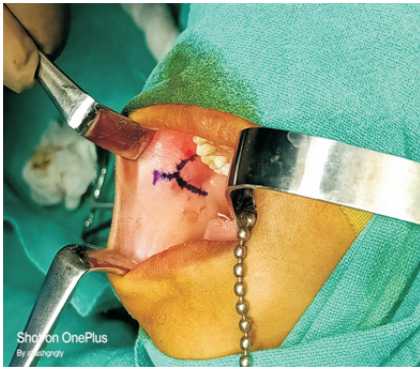


Figure 3. Y shaped incision

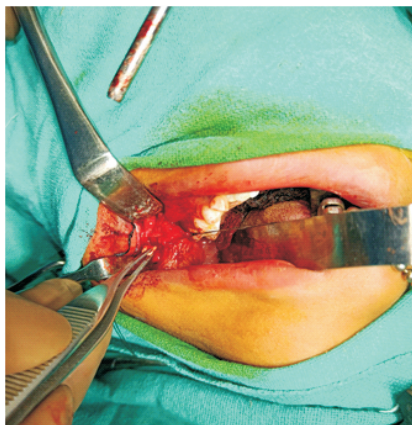


Figure 4. Sialolith derived from the parotid duct

Discussion:

Some sialoliths are asymptomatic and are discovered by chance during jaw imaging. Submandibular sialolithiasis causes painless swelling in around 30% of cases, although the hallmark symptoms of duct obstruction include pain and swelling of the affected gland during eating, when saliva production is at its peak and salivary flow is pressed against a fixed obstruction.[9]

Swelling may gradually subside after that, but as salivary flow is encouraged, unpleasant symptoms may reappear. As salivary fluid builds within the duct, patients may have waxing and waning symptoms of episodic swelling and discomfort, or more permanent symptoms. In our patient also similar symptoms were reported. Stones can occasionally be felt with a digital inspection; they feel like hard tiny pebbles. In our patient, intraorally we were able to see shiny yellowish structures through the mucosa which was hard on palpation. Sometimes at the gland duct orifice, they are seen as granular masses. Extensive discomfort, intraoral and/or extraoral swelling, and the absence of saliva on palpation are all signs of severe gland obstruction.

Stasis, infection, and modification of duct constituents are the three causes of cholelithiasis and renolithiasis which also contribute to the production of salivary stones.¹⁰ Microorganisms, salivary duct-derived lysosomes, and mitochondria-like structures may all be present in the matrix that forms before calcium is present in the duct, along with desquamated epithelial cells.[10]

Conventional radiography, USG and sialography are examples of diagnostic imaging that can be used to diagnose suspected salivary calculi. In the USG, calculus can be seen as white echogenic structures with glandular inflammatory alterations of the salivary gland, but no other cause of gland enlargement can be determined. For imaging the ductal system for salivary gland examination, the gold standard has traditionally been sialography. It can show obstruction as a duct filling defect and duct stenosis. It is contraindicated in patients with an acute infection or a severe contrast allergy.¹¹ Currently, the imaging technique of choice for the examination of salivary stones is high-resolution non-contrast CT scanning. At least 60-70% calcification of sialoliths is necessary to be detected by standard radiography like intraoral periapical and orthopantomograms with at least 20% of submandibular and 50% of parotid stones.[9]

Latest method to treat obstructive disorders of the salivary gland duct system is small calibre endoscopy. It is both diagnostic and therapeutic, with the added benefit of distinguishing between inflammatory obstructive diseases and calculi.[12]

When expectant treatment fails or is ineffective, alternative options include sialoendoscopy, fluoroscopy-guided wire basket extraction, lithotripsy, and surgical removal. Treatment options for salivary gland calculi vary depending on the size and location of the stones, procedure's availability and the expertise of the surgeon. If the sialolith is small with a diameter of less than 2mm, conservative management can be utilized which includes oral analgesics, hydration, local warm heat therapy, massage to 'milk' out the stone, sialogogues (tart hard candies) to encourage ductal secretions, and stopping anticholinergic drugs as soon as possible.[9]

Removing the sialolith will usually lead to decrease in symptoms unless accompanied by infection. Antibiotics that cover the oral flora are advised for gland superinfection.

Surgical intervention is frequently required in cases of severe obstruction, especially when the obstruction is close to the gland.

Our patient was found to have a stone of 4mm x 2.5mm in dimension. The surgery was performed under general anaesthesia. The patient was asymptomatic during the 7 months of follow up. (Figure 6) This is a unique case as a boy as young as 7 years old has got affected with sialolithiasis with respect to Stensen duct.

Conclusion:

The present case of sialolith is quite rare in routine practice. This patient presented with infection of cheek which was looking like an odontogenic infection. Proper evaluation allowed us to diagnose a sialolith in a parotid duct. We suggest that when we encounter any patient of swelling in cheek, we should never ignore the parotid duct and gland because sometimes we can get sialolith in this region. We believe that simple approach to treat these patients is effective and should be utilized whenever feasible.



Figure 5. Dimension of sialolith about 4 x 2.5mm after retrieval



Figure 6. Follow-up picture after 8 months

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