



Parotid duct sialolithiasis- A case report

Surbhi Juneja¹, Suwarna Dangore- Khasbage^{2✉}, Rahul R Bhowate³

¹Post graduate student, Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences (deemed to be university), Sawangi (M), Wardha, India; Phone no: 8319014089; Email: surbhijuneja2211@gmail.com

²Professor, Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences (deemed to be university), Sawangi (M), Wardha, India; Email: dangore_suwarna@rediffmail.com, Fax- 07152-231412

³Professor, Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences (deemed to be university), Sawangi (M), Wardha, India; Email: dr_bhowate@yahoo.com, Fax- 07152-231412

✉Corresponding author

Professor, Oral Medicine and Radiology, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences (deemed to be university), Sawangi (M), Wardha, India; Email: dangore_suwarna@rediffmail.com

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General Note



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ABSTRACT

Sialoliths are calcified masses present in salivary glands which vary in size and are mostly found in submandibular gland compared to parotid gland. Sialoliths can be symptomatic or asymptomatic depending on severity of obstruction and secondary infection. Symptoms may be present as pain and swelling. Parotid gland stones are usually small, unilateral and are more radiolucent due to low mineral content in its secretion compared to stones present in other glands that are radiopaque. The present case describes the presentation of sialolith in a 45 year old female in left stensen's duct which was expelled during chair side examination.

Keywords: parotid gland, stensen's duct, sialolith

1. INTRODUCTION

As there is formation of calcified coalescence or sialoliths in the salivary gland or in the excretory duct which is characterized by obstruction, this condition is known as sialolithiasis (Torres-Lagares et al., 2006). Clinical features associated are swelling, pain and infection of the affected gland that results in salivary ectasia (Debnath & Adhyapok, 2015). After mumps, it is the most common disease affecting major salivary glands that is about 30% of all the salivary gland disorders. Out of the total population, about 0.01-1.0% is said to be affected with sialolithiasis. Higher incidence of sialolithiasis is reported in males aged between 30 to 60 years (Andretta et al., 2005).

More than 80% of salivary sialoliths occur in the submandibular duct or gland, 6–15% occur in the parotid gland and around 2% are in the sublingual and minor salivary glands (Moghe et al., 2012). Various hypotheses are stated to explain the etiology of these calculi like mechanical, inflammatory, chemical, neurogenic, infectious, strange bodies, etc. but it is thought that more alkaline, viscous, mucus rich saliva, containing higher percentage of calcium phosphates as in submandibular salivary gland favors the formation of sialolith. Also the long and sinuous position of Wharton's duct contributes to the stasis and development of sialoliths, making the submandibular salivary system more prone than the parotid gland (Soumithran et al., 2016). The calculi mostly consist of calcium phosphate (hydroxyapatite), with traces of magnesium, carbonate and ammonia. The parotid gland calculi mostly affect the duct and are commonly found unilaterally. Their size is smaller than submaxillary sialoliths; most of them are smaller than 1 cm (Seifert et al., 1986; Mundada et al., 2018). Several medical and surgical treatment options are available for sialoliths depending on its size and location.

2. CASE REPORT

Fourty five year-old female patient came to the department of Oral Medicine and Radiology with the chief complaint of swelling over left side of face in preauricular region since one week which was initially smaller in size and has gradually increased to present size. Swelling was associated with intermittent dull aching type of pain which increases during meals and relieves on its own. There was history of balm application extra-orally and history of pus discharge intra-orally from left cheek mucosa. Patient has given history of altered taste sensation. There was no history of fever, trauma, bleeding, or difficulty in speech, mastication, deglutition and no history of increased or decreased salivation. Medical history revealed that the patient was known case of hypertension and was on medication for the same since 4 years (Tab. Muktavati- ayurvedic medicine) and had renal stone since 1 year and was on medication. Past dental history was not significant & patient had habit of chewing betel nut 1-2 times a day since 3-4 years.

On extraoral examination, the patient had facial asymmetry due to diffuse swelling on left side of face in preauricular region and angle of mandible of size 3x2 cm approx, shape was roughly oval, surface smooth. On palpation, swelling was tender, soft to firm & local temperature was not raised. (Fig. 1) TMJ movements were bilaterally smooth & synchronous. A single left submandibular lymph node was palpable of size 1x1 cm approx, firm, tender & mobile. On intra-oral examination, an inflamed opening of parotid duct/parotid papilla was seen on left buccal mucosa near maxillary second molar. On manipulation, ductal opening region was very tender and there was pus discharge from the ductal opening. (Fig. 2) Also a single solid mass of greater than a centimetre in size was palpable in the same area close to the opening which was highly suggestive of a calcification in the duct.



Figure 1 Left side of face with diffuse swelling in preauricular region



Figure 2 An inflamed parotid papilla and its surrounding area on left buccal mucosa



Figure 3 A solid mass (calculus) of size 1 x 0.5 cm approximately

Based on the history and clinical findings, the diagnosis was sialolith in left parotid gland duct. An attempt was made to drive out the solid mass by manipulation and single, slender, solid mass of 1 X 0.5 cm was expelled out with little manipulation (Fig. 3). Patient was advised to take Amoxicillin 500mg three times a day for three days and tab Limcee (vitamin C supplement) two times a day for five days. On further recall after 5 days, the patient was totally symptom free.

3. DISCUSSION

As far as the reasons for unilateral parotid gland swelling are concerned, there are many conditions such as bacterial sialadenitis, sialodochitis, cyst, benign neoplasm and malignant neoplasm (Panchbhai, 2015). Also, intraglandular lymph node, masseter muscle hypertrophy and lesions of adjacent osseous structures are the causes. (White & Pharoah, 2009) Although tuberculosis of parotid gland is rare, but it should also be considered in differential diagnosis (Dangore-Khasbage et al., 2015). In the present case, there was unilateral painful swelling in parotid gland area which had correlation with intake of food, as the pain and swelling was increasing during meal. Also there was inflamed opening of parotid duct. Thus, the diagnosis was given as sialolith.

Sialadenitis is considered when mass is absent while lymphadenitis, pre-auricular cyst, sebaceous cyst, benign lymphoid hyperplasia or extra-parotid tumor are taken into consideration when mass is superficial in the salivary gland. Salivary gland tumors affects the parotid gland in 70 percent of cases but in case of a diffuse swelling in the parotid region, unrelated to the parotid gland, masseteric hypertrophy, lesions of the temporomandibular joint have to be considered (Bagulkar et al., 2015). Also, sialoliths should be differentiated from other calcifications of soft tissues.

Parotid sialoliths are characterized by pain and swelling of the salivary gland, whereas, other calcification such as calcified lymph nodes does not show any symptom. The initial events in the formation of a nidus include infection, inflammation, salivary stagnation, physical trauma, introduction of foreign bodies and the presence of desquamated epithelial cells that later will be the site for the precipitation of mineral salts contained in the salivary secretion. The presence of salivary proteins plays an important role in the initial formation of these phenomena (Ledesma-Montes et al., 2007). The aids such as conventional radiography, sialography and USG can be used for diagnostic purpose (Chandak et al., 2011). Also, advanced imaging such as CT scan and MRI have the benefits

of minimal invasiveness and accuracy. Sialoendoscopy is a better option to visualize the stenosis and inflammatory changes in the duct (Rust & Messerly, 1969).

Treatment options in sialolithiasis vary according to the size and location of the calculi. In case of small calculi, treatment of choice should be medicinal instead of surgical. The conservative approach, such as oral analgesia, hydration, local therapy such as warm heat, massage to expell out the stone, natural sialogogues such as small slices of lemon or vitamin C lozenges or sialogogue medication to promote ductal secretions are recommended (Moghe et al., 2012). In most cases, removing the stone will relieve pain except when an associated infection exists so antibiotics covering oral flora for gland superinfection are recommended in such cases. Like in this case, amoxicillin was given which is an antibiotic along with tablet limcee was given that is a vitamin C chewable tablet acting as sialogogue to increase saliva secretion. The treatment of choice for parotid stones not responding to conservative treatment is extracorporeal shock-wave lithotripsy under sonographic control with an advantage that anaesthesia, sedation or analgesia is not required. This method is reported to be effective, with patients stone-free in 50-60% and symptom-free in 80-90%. Although lithotripsy is a useful technique, there is the potential risk of parenchymal damage and fibrosis of the gland (Konstantinidis et al., 2007).

When medical therapy is ineffective the next alternative is surgical removal of the calculus or even of the whole gland. One of the disadvantages is facial nerve damage. Extraoral Surgery is less effective than intraoral technique because of visible scar (Torres-Lagares et al., 2006). Parotidectomy should be considered as the last treatment option, in patients with multiple stones (> 3mm stones) in the same gland, recurrent episodes of sialadenitis and after failure of minimal invasive techniques and shock-wave lithotripsy (Zenk et al., 1998; Iro et al., 1992). The reported risk to the facial nerve after superficial parotidectomy varies from 16% 38% for temporary weakness, and up to 9% for permanent damage (Samani et al., 2016). In the present case, the location of the sialolith was close to the ductal opening and it was small in the size. Therefore, it was removed out during milking through the duct.

4. CONCLUSION

Parotid sialolithiasis is less frequent than that of submandibular sialolithiasis, usually unilateral and predominantly affecting the salivary duct rather than gland. It should be removed to prevent further complications. Sialendoscopy can be used as a newer diagnostic and therapeutic aid as it is minimally invasive and gland sparing strategy. The use of other techniques depends on size and location of the sialolith.

Study period

The study was conducted in the month of July 2019.

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Patients Consent

Patient was consented for the use of her medical records for the purpose of research and publication benefits.

REFERENCE

- Andretta M, Tregnaghi A, Prosenikliev V, Staffieri A. Current opinions in sialolithiasis diagnosis and treatment. *Acta Otorhinolaryngologica Italica* 2005;25:145-9.
- Bagulkar BB, Gawande M, Chaudhary M et al. XIAP and Ki-67: a correlation between antiapoptotic and proliferative marker expression in benign and malignant tumours of salivary gland: an immunohistochemical study. *Journal of clinical and diagnostic research: JCDR* 2015;9:EC01.
- Chandak R, Degwekar S, Bhowte RR et al. An evaluation of efficacy of ultrasonography in the diagnosis of head and neck swellings. *Dentomaxillofacial Radiology* 2011;40:213-21.
- Dangore-Khasbage S, Bhowate RR, Degwekar SS et al. Tuberculosis of parotid gland: a rare clinical entity. *Pediatric dentistry* 2015;37:70-4.
- Debnath SC, Adhyapok AK. Sialolithiasis of an accessory parotid gland: an unusual case. *British Journal of Oral and Maxillofacial Surgery* 2015;53:658-9.
- Iro H, Fodra C, Waitz G, Nitsche et al. Shockwave lithotripsy of salivary duct stones. *The Lancet* 1992;339:1333-6.

7. Konstantinidis I, Paschaloudi S, Triaridis S et al. Bilateral multiple sialolithiasis of the parotid gland in a patient with Sjögren's syndrome. *Acta otorhinolaryngologica italica* 2007;27:41.
8. Ledesma-Montes C, Garcés-Ortiz M, Salcido-García JF et al. Giant sialolith: case report and review of the literature. *Journal of oral and maxillofacial surgery* 2007;65:128-30.
9. Moghe S, Pillai A, Thomas S, Nair PP. Parotid sialolithiasis- Case Reports. *BMJ* 2012. bcr2012007480
10. Mundada BP, Surana S, Bhola N et al. Multiple Recurrent Simultaneous Salivary Calculi. *Journal of clinical and diagnostic research* 2018;12:1-2.
11. Panchbhair AS. Primary squamous cell carcinoma of salivary gland: Report of a rare case. *Journal of cancer research and therapeutics* 2015;11:664.
12. Rust TA, Messerly CD. Oddities of salivary calculi. *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology* 1969;28:862-5.
13. Samani M, Hills AJ, Holden AM et al. Minimally-invasive surgery in the management of symptomatic parotid stones. *British Journal of Oral and Maxillofacial Surgery* 2016;54:438-42.
14. Seifert G, Miehke A, Haubrich J, Chilla R. Diseases of the salivary glands. *JPRAS* 1986; 40:551.
15. Soumithran CS, Mathew M, DP AD. Parotid Sialolithiasis: A Case Report. *Journal of Dental and Medical Sciences* 2016;15:96-100
16. Torres-Lagares D, Barranco-Piedra S, Serrera-Figallo MA et al. Parotid sialolithiasis in Stensens duct. *Med Oral Patol Oral Cir Bucal* 2006;11:80-4.
17. White SC, Pharoah MJ. *Oral radiology: Principles and interpretation*. St. Louis: Mosby: 6th edn, 2009.
18. Zenk J, Hosemann WG, Iro H. Diameters of the main excretory ducts of the adult human submandibular and parotid gland: a histologic study. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*. 1998;85:576-80.