

Parotid Sialolith- A Case Report and Review of Literature

Srinivas Gadipelly¹, T. Srilatha², B.S.Sheraz², N.Vijaykumar²

ABSTRACT

Introduction: Sialolithiasis is caused by the obstruction of a salivary gland or its excretory duct by the formation of calcareous concretions or sialoliths. It is the most common disease of the salivary glands and accounts for 30% of salivary diseases. Sialolithiasis commonly involves the submandibular glands (83-94%) less frequently the parotid (4-10%) and the sublingual glands (1-7%). Salivary calculi affecting the parotid gland are usually small unilateral and are located in the duct.

Case report: A 56 year male patient with a sialolith of right parotid duct came to our institute. Examination and plain radiographs confirmed the diagnosis. Patient was treated with intra-oral sialolithotomy and oral antibiotics and analgesics.

Conclusion: Parotid gland calculi generally are unilateral, affecting duct more commonly than the gland and are less common than submandibular calculi. Depending upon size, site of sialolith the treatment options vary.

Keywords: Parotid gland, Sialolith, Stensen's duct, Sialoendoscopy.

INTRODUCTION

Salivary duct lithiasis refers to the formation of calcareous concretions or sialoliths in the salivary duct causing obstruction of salivary flow resulting in salivary ectasia, sometimes even dilatation of the salivary gland. This also may be complicated by infection of the salivary gland which may result in chronic sialadenitis.¹

Parotid gland stone incidence in males to females is 2:1. It generally occurs at 3rd to 6th decades of life. In children, submandibular stones are commonly seen than parotid stones. Intraductal sialolith have more incidence of occurrence than intraglandular sialoliths.² Parotid calculi are unilateral, generally seen in duct and size is less than 1cm. Sialolith which are not detected by radiograph may require sialoendoscopy as 40% of parotid and 20% of submandibular stones are not radioopaque. The exact etiology and pathogenesis of salivary calculi is not known.

CASE REPORT

A 56 year old male reported at our Maxillofacial unit, for an opinion on a firm mass in the right cheek region. The patient gave history of the swelling from last two years.

The pain was localized, pricking in nature continuous and aggravated at mealtimes. There was no history of trauma. Past-medical history revealed that the patient was having joint pains and is on medication. On extraoral examination, the patient had facial asymmetry due to a slight swelling on the right side of the face. The swelling was diffuse, extending 2 cm laterally from ala of the nose anteriorly till 2 cm in front of the ear posteriorly. The swelling was about approximately 3 x 3cm in size. The skin over the swelling was smooth, stretched. There were no secondary changes. Palpa-

tion revealed hard, non tender swelling.

Intra-orally, the mouth opening was normal with and no involvement of the teeth. A swelling was present in the right buccal mucosa extending from first molar tooth to the opening of the right Stensen's duct posteriorly, superiorly 2 cm below upper buccal sulcus to upto the level of occlusal plane inferiorly. The opening of the Stensen's duct was slightly inflamed and red. Bi-digital palpation revealed no pus discharge from the duct with reduced salivary flow.

Plain radiographs showed radiopaque mass of 2 × 1 cm² size confirmed the provisional diagnosis of sialolith in the right parotid duct, As the calculus was located near the duct orifice and planned surgical removal by an intra-oral approach under local anesthesia. The dilated duct was left open without suturing. Patient was kept on antibiotics and analgesics and was discharged with the advice to take lemon slices frequently. No recurrence of pain and swelling when patient was reviewed in subsequent appointments.

DISCUSSION

Sialolithiasis is a relatively common disease, reported to account for up to 30% of salivary gland disorders.¹ Patient age in our case report was adult of 56 years old as in commonly occurring age range (50-60 years).

The exact etiology and pathogenesis of salivary calculi is not known. Several hypotheses put forward to explain the etiology of these calculi include: mechanical, inflammatory, chemical, neurogenic, infections, strange bodies etc. Traditional theories suggest that the formation of sialoliths occur in two phases: (1) Formation of a central core and (2) A layered periphery. The central core is formed by the precipitation of salts, which are bound by certain organic substances. The second phase consists of the layered deposition of organic and inorganic material. Submandibular sialoliths are thought to be formed around a nidus of mucus, whereas parotid sialoliths are thought to be formed around a nidus of inflammatory cells or a foreign body. A retrograde theory for sialolithiasis has also been proposed. Aliments, substances or bacteria within the oral cavity migrate into the salivary ducts and become a nidus for further calcification. Some authors have suggested hypercalcemia as one of the causative factors of formation of sialolith in animal model. This, however, has to be proved in humans. Thus a preventive diet, regarding

¹Professor and HOD, ²Post Graduate Students, MNR Dental College and Hospital, Sangareddy, Hyderabad, Telangana 500045, India

Corresponding author: Dr. Himanshu Shrivastava, Krishna Nagar Colony, Dostpur Road, Akbarpur, Ambedkar Nagar, (U.P), India

How to cite this article: Srinivas Gadipelly, T. Srilatha, B.S.Sheraz, N.Vijaykumar. Parotid sialolith- a case report and review of literature. International Journal of Contemporary Medical Research 2016;3(4):1211-1213.



Figure-1: Parotid stone near the right Stensen's duct opening



Figure-2: OPG



Figure-3: PA projection of the mandible showing the sialolith on right parotid duct

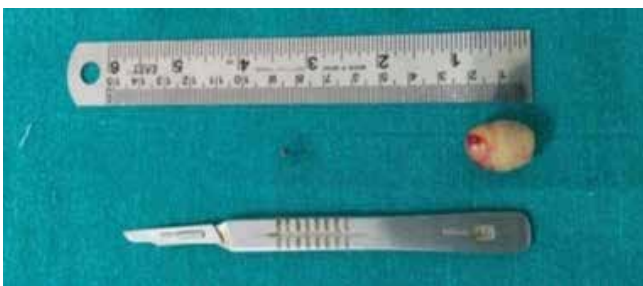


Figure-4: Removed stone

the calcium concentration does not exist in the current literature.³

Symptom of salivary gland or duct obstruction by a sialolith is salivary duct swelling at meal time without any reason and lasts for less than 2hrs, later it disappears and may reappear throughout the day.

On some occasions, the swelling is accompanied by an episode of salivary colic, an acute, lacerating pain which does not last for long and disappears after 15 or 20 minutes. Patient also complained of similar type of pain during meal times.

The clinical symptoms are characteristic and aid in early diagnosis, however, pain is only one of the symptoms and it does not occur in 17% of cases.⁴ Sialoliths are usually unilateral and do not cause xerostomia. They consist of mainly calcium phosphate and smaller amounts of carbonates in the form of hydroxyapatite as also magnesium, potassium and traces of ammonium. The ratio of organic to inorganic material in a submandibular stone is 18:82, whereas that in a parotid stone is 51:49.⁵ Sialoliths are usually small and measure from 1 mm to less than 1 cm in size. They rarely measure more than 1.5 cm. The mean size varies from 6 to 9 mm. Grossly, the sialolith has a round or ovoid shape, a porous texture and a pale yellow color. Parotid stones are smaller in size and more radiolucent than submandibular stones but our case of 2 X 1 cm² size, pale yellow colour stone with porous texture, larger than conventional parotid stones and of radiopaque in nature. Sialoliths are usually more or less organized hard concretions, of a pale yellow colour and porous aspect. They usually have an oval or long shape, although we may also find some in the form of a cast.⁵ Messerly removed a 51 mm long calculus that occupied the entire length of Stenson's duct in a 66-year-old man.⁶ Brusati and Fiamminghi removed a sialolith from the left submandibular duct of a 55 year-old man measuring 27 x 31 mm.⁷ More recently Leung et al. removed a sialolith 14 x 9 mm from the right submandibular duct.⁸

The diagnostic aids other than sialography are CT scan and MRI with the benefits of minimal invasiveness and accuracy. Sialoendoscopy is better option to visualize intraductal stenosis and inflammatory changes.⁶ Treatment options vary according to size and site of calculi. Differential diagnosis include diffuse unilateral swelling in parotid region, sialadenitis is considered when mass is absent and lymphadenitis, pre-auricular cyst, sebaceous cyst, benign lymphoid hyperplasia or extra-parotid tumor are considered when mass is superficial in the salivary gland.

In case of a diffuse swelling in the parotid region, unrelated to the parotid glands, masseteric hypertrophy, lesions of the temporomandibular joint have to be considered. It is also important to differentiate sialoliths from other soft tissue calcifications. Parotid sialoliths are characterized by pain and swelling of the salivary gland, whereas, other calcifications such as calcified lymph nodes are symptom-free. There are various methods available for the management of salivary stones, depending on the gland affected and stone location. Regarding the general management of sialoliths, for small calculi, the treatment of choice should be medical rather than surgical. The patient with small liths can be administered natural sialogogues such as small slices of lemon or sialogogue medication.

Drugs like pilocarpine and short-wave infrared heating will stimulate contraction of ducts, but medium or large salivary colic may occur and calculus may not be cleared.

The treatment of choice, for parotid stones not responding

to conservative treatment, is extracorporeal shock-wave lithotripsy under sonographic control. Moreover, it does not require anaesthesia, sedation or analgesia. 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.³ Some authors advocate treatment of sialolithiasis by means of intraductal instillation of penicillin or saline. According to these authors, this method is more effective than systemically administered drugs due to low recurrence rate and many other advantages.¹

When medical therapy is ineffective the next alternative is surgical removal of the calculus or even of the whole gland. One of the disadvantage is facial nerve damage. Intraoral surgery is more effective than extraoral technique because of no visible scar.¹

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.^{9,10}

The most conservative technique is the anastomosis of Stensen's duct by means of microsurgery. Factors affecting treatment are size, site and composition of sialolith. Salivary stone removal through the oral cavity, creation of a salivary fistula interventional sialoendoscopy, and resection of the gland are treatment options.

CONCLUSION

Parotid sialolithiasis is less frequent than that of submandibular sialolithiasis, generally unilateral and predominantly affects the salivary duct than gland. Sialendoscopy can be used as newer diagnostic and therapeutic aid. Treatment depends on size and location of sialolith.

REFERENCES

1. Torres-Lagares D, Barranco-Piedra S, Serrera-Figallo MA, Hita-Iglesias P, Martínez-Sahuquillo-Márquez A, Gutiérrez-Pérez JL. Parotid sialolithiasis in Stensen's duct. *Med Oral Patol Oral Cir Bucal* 2006;11:E80-84.
2. Ali Iqbal, Anup K Gupta, Subodh S Natsu, Atul K Gupta. Unusually large sialolith of Wharton's duct, *Annals of Maxillofacial Surgery*, 2012,2:70-73.
3. I Konstantinidis, S Paschaloudi, S Triaridis, G Fyrmipas, S Sechlidis, and J Constant inidis. Bilateral multiple sialolithiasis of the parotid gland in a patient with Sjögren's syndrome. *Acta Otorhinolaryngol Ital*. 2007;27:41-44.
4. Giacomo Oteri, Rosa Maria Procopio and Marco Cicciù. Giant Salivary Gland Calculi (GSGC): Report of Two Cases, *Open Dent J*. 2011;5:90-95.
5. Bodner L. Parotid sialolithiasis. *J Laryngol Otol* 1999;113:266-7.
6. Rust TA, Messerly CD Oddities of salivary calculi. *Oral Surg, Oral Med, Oral Pathol* 1969;28:862-865.
7. Brusati R, Fiamminghi L Large calculus of the submandibular gland: report of case. *J Oral Surg* 1973;31:710-711.
8. Leung AK, Choi MC, Wagner GA Multiple sialoliths and a sialolith of unusual size in the submandibular duct. *Oral Surg, Oral Med, Oral Path, Oral Radiol, Endod* 1999;87:331-333.
9. Zenk J, Werner G, Hosemann M D, Iro H. Diameters of the main excretory ducts of the adult human submandibular and parotid gland – a histological study. *Oral Surg, Oral Med, Oral Pathol, Oral Radiol, Endod* 1998; 85:576-580.
10. Iro H, Schneider H Th, Fodra C et al. Shockwave lithotripsy of salivary duct stones. *Lancet* 1992;339:1333-1336.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 05-03-2016; **Published online:** 05-04-2016