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Case Report

STENSON'S DUCT SIALOLITH- A RARE CASE REPORT

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ABSTRACT

Salivary gland diseases are one of the most common diseases of the stomatognathic system. Around 30% of the diseases are included in this category. Parotid duct sialolithiasis is one of the rare diseases that we encounter among them. Here we present a case report of a 46 yearold male diagnosed with parotid duct sialolith which was managed conservatively.

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INTRODUCTION

Sialolithiasis is a condition caused by obstructions of salivary gland or its excretory duct due to formation of calcareous mass which are also known as sialolith. (Soumithran C.S et al, 2016) Mostly submandibular gland is affected due to its chemical composition of its secretions and also because of its ductal anatomy. (Banerjee N. et al 2015) Sialolith formation in parotid gland or its duct is considered to be a rare occurrence. (Soumithran C.S et al, 2016) Clinical signs and symptoms are pain, swelling, sometime secondary infection of affected gland, foul taste, halitosis. Mostly these symptoms are seen during meal time. (Alaskar J et al, 2012) The etiology of salivary gland lithiasis is still not clearly understood, but various hypotheses have been put forward along with various factors which may play an important role in its formation. (Torres L.D. et al, 2006) Intraroral and extraoral radiography can be helpful in diagnosing this disease but computed tomography is the diagnostic aid of choice as it can detect calculi which are not detected in plain radiography. Other diagnostic aids can also help in its investigation. The treatment planning should be based on the size of the calculi and on its location. Medical management should be given first priority, if the stones are small in size and located near the orifice¹. If stones are medium or large in size, intraglandular, multiple sialolith, and when

other treatment modalities have failed then surgical treatment should be planned. (Banerjee N., 2015 and Neelima Ch, 2016)

Case Report

A 46-year-old male visited our department of oral and maxillofacial unit with a complain of pain, swelling over left ear region, bad breath and foul taste since seven days. The pain was intermittent in nature and aggravated during meals. Swelling was persistent. On extraoralexamination a diffuse swelling was noted on the left preauricular region measuring approximately 2 x 2 cm (fig1A). Skin over the swelling was smooth and tensed. The swelling was firm, warm and tender on palpation. Intraoral examination revealed optimum moth opening, evident swelling and inflammation was seen over the left buccal mucosa near the opening of the parotid duct. On bidigital palpation a hard mass was felt near the duct orifice which was tender(fig 1B). A plain intraoral radiograph and computed tomography imaging showed ductal calculus at its orifice(fig 2). As the calculus was seen at the orifice, a conservative treatment management was planned. Local anaesthesia was infiltrated around the orifice, patient was asked to have some lemon slices as it is a natural sialogogue. Duct opening was dilated with lacrimal probe and gentle milking of the duct was done from proximal to distal end which caused expulsion of the calculus measuring approximately 3 x 2 mm in size, cylindrical in shape, yellowish in colour. (fig – 3A).

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Antibiotics and analgesics were prescribed for 5 days. Patient was evaluated after a week and was symptomfree(fig 3B).



Fig 1A frontal view -Swelling present over left preauricular region,



Fig 1B sialolith is visible at the opening of the stensons duct.



Fig 3A calculi measured approximately 3 x 2 mm.



Fig3B evaluation after seven days, shows no sign of inflammation around the duct orifice



Fig 2 sialolith seen in computed tomography

DISCUSSION

Salivary duct lithiasis refers to the formation of calcareous concretions which obstructs the salivary flow, may results in ectasia and even dilation of salivary gland. Some chronic infection due to sialolith may cause salivary gland resulting in chronic sialadenitis⁶. Sialolithiasis is mostly seen in submandibular gland (83-94 %) and less frequently parotid gland (4-5%) and sublingual gland (1-7%). Parotid gland calculi have higher incidence in male². Mostly occurs at 3rd to 6th decade of life but even it is reported at two years of age^{4,7}. It is rarely seen in south indian population, but in our case it was reported in an south indian individual. The exact etiopathogenesis of salivary calculi is unknown. Several hypothesis have been put forward to explain the cause of calculi formation mechanical, chemical, neurogenic, infections, strange bodies⁶. It is known that systemic disease such as gout, sjogrens syndrome, medications (anticholinergic, antisialologue), local trauma, head and neck radiotherapy, old age and kidney disease may predispose sialolith formation¹. Serum calcium level may play role calculi formation as shown in animal models, although it is not yet proven in human⁸. Salivary calculi is more common in submandibular gland due to higher alkalinity, viscous, mucinous nature, higher calcium and inorganic content of its secretion coupled with long, sinuous position of Wharton's duct. Parotid duct lithiasis is rare². The lipidic content of the parotid calculi is about 8.5% and mineral component of 20.2%⁴.

Pain is one of the primary symptoms and it does not occur in 17% of cases. The pathogenesis of calculus exists in 2 phases. In the first phase the central core is formed and in the second phase a layered periphery develops. The central core is formed by precipitation of inorganic salts laminated by certain organic substances⁸. Some author suggest a multifactorial cause, all these factors usually provoke the precipitation of amorphous tricalcium phosphate which crystallises into hydroxyl appetite becomes initial focus, later it acts as a catalyst that attracts and supports the proliferation of new deposits of different substances⁵

Parotid duct is around 5 cm in length and follows a slightly uphill course as it ends from the gland on its path towards its intraoral orifice³. Parotid duct calculi are less than 1 cm, single, unilateral, so xerostomia is mostly absent, but megaliths have also been reported. They are mostly, round, cylindrical, pale yellow in colour and has a porous texture. Patients with parotid sialolith complains of swelling and pain at meal time without any reason and last for less than 2 hrs, later it disappears and may reappear throughout the day⁸. It may be accompanied with salivary colic. Sometimes it may be asymptomatic⁴.

On extraoral examination diffuse swelling is seen over the involved parotid gland, which may lead to facial asymmetry. Intraoral examination may reveal swelling and inflammation in the ductal region or near the orifice. On bidigital palpation a discrete mass may be felt along the ductal course. Investigation include radiographic techniques like intraoral radiography, extraoral radiography, sialography, ultrasound, nuclear magnetic resonance, computed tomography, sialodenoscopy is a diagnostic as well as therapeutic aid.²

Around 20% of submandibular and 40% of parotid calculi are radiolucent, due to low mineral content mostly in case of

parotid calculi.⁶ Intraoral radiographs are difficult to place and only anterior part of the duct located in front of the masseter is visualised and in extraoral radiographs, superposition of other structures makes it difficult to interpret. Moreover if stones are present in the gland itself it becomes more difficult to identify. The diagnostic aid of choice in today's era is computed tomography¹. Sialography can also be used for detection of calculi, as it allows visualisation of entire duct system, but sialography is contraindicated in acute infection and in patients allergic to iodine containing dyes. It is also not recommended if the calculi are in distal position of the duct as it may push the calculi proximally making it more difficult to remove. Sialography is of great help if the calculi are radiolucent or when they are absent in case of ductal stenosis⁶. Computed tomography and nuclear magnetic resonance are non-invasive but both are useful diagnostic aids. Scintigraphy may be a complimentary exploratory technique when sialography is not indicated. Recently sialodenoscopy is the latest optical technology for in depth visualization of intraductal anatomy for location of salivary calculi⁴. Differential diagnosis of parotid sialolithiasis is varied. They include sialadenitis, sialodochitis, lymphadenitis, pre-auricular cysts, sebaceous cysts, Mikulicz diseases, Sjogren's syndrome, masseteric hypertrophy, Temporomandibular joint lesions, soft tissue calcifications, calcified lymph nodes, hamartoma, heavy metal poisoning, benign and malignant neoplasias, glandular adenopathies, infections (mumps, HIV), osteomyelitis affecting maxilla, lymphatic ganglia^{4,6}

The management of parotid duct calculi mostly depends on the size of the calculi, and its anatomic location. If the calculi are small in size and located in the distal portion of the duct then treatment of choice should be conservative. Natural sialogogue like lemon or sialogogue medication pilocarpine (which also causes ductal contraction), moist warm heat application, hydrating the patient, diet rich in protein and liquids including acid foods and drinks, gland massage, short wave infrared heating are certain treatment options⁵. Infectious complications have to be treated with antibiotics. Analgesic may be prescribed for palliative care. Lacrimal probes may be used for dilating the duct and if the stone is identified near the orifice, it should be milked forward, grasp and removed². The most conservative surgical technique is the anastomosis of Stenson's duct by means of microsurgery. Creation of salivary fistula is another option⁴. Sometimes transoral incision directly over stone is made under local anesthesia¹. Parotid calculus management is sometimes cumbersome as only one segment of the duct is approachable through intraoral incisions. Surgical opening of the duct can sometimes cause complication like post surgical stenosis of the duct. If the parotid duct is not approachable intraorally or intraglandularly, then extraoral incisions are used, which may result in extraoral scars and facial nerve palsy.^{2,8}

Alternative methods of treatment such as extracorporeal shock wave lithotripsy and more recently, endoscopic intra-corporeal shock wave lithotripsy in which shock waves are directly delivered over the surface of the stone within the duct without damaging the adjacent tissues. Complications of surgery like use of general anaesthesia, facial nerve damage, surgical scars, Frey's syndrome and discomfort to the patient are avoided². But there are chances of parenchymal damage and fibrosis of

gland⁸.Fluoroscopy-guided wire basket extraction in another new treatment approach³.Endoscopy is a minimally invasive technique for salivary calculi removal as well as a diagnostic tool. Sialodendoscopy was previously used for diagnosis, is now used as interventional technique². Some authors believe treating sialolithiasis by means of intraductal instillation of penicillin or saline. Parotidectomy should be considered as last treatment option and should only be employed in patients with multiple stones greater than 3mm, intraglandular calculi, recurrent episodes of sialadenitis, failure of medical management, shock wave lithotripsy and other minimal invasive techniques⁸.

CONCLUSION

Stenson's duct sialolithiasis is a rare salivary disorder. The exact etiology is still obscure, but the cause may be multifactorial. Proper clinical and radiographic examination makes it easier to diagnose this disease. Treatment management depends on the size of calculi and its location. If the calculi is small and located near to the orifice of the duct, then medical management should be the first line of treatment but if the stone is larger in size, located deep in the duct, intraglandular location, multiple sialolith, failure of other treatment modalities then surgical line of treatment should be planned.

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