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Submandibular Duct Sialolithiasis- A Case Series

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ABSTRACT

Sialolithiasis is considered to be the most common salivary gland disorder and it accounts for about 1.2% of unilateral major salivary gland swellings. Submandibular gland has the highest predilection for sialolithiasis with 80% occurrence rate. This case series presents two cases of submandibular sialolithiasis which was treated via transoral sialolithotomy.

Keywords- Sialolithiasis,Wharton's duct,Submandibular gland.

I. INTRODUCTION

Sialolithiasis is considered to be the most common salivary gland disorder and it accounts for about 1.2% of unilateral major salivary gland swellings. Submandibular gland has the highest predilection for sialolithiasis with 80% occurrence rate, followed by the parotid (19%) and the sublingual (1%) glands. Sialolithiasis is usually seen between the age of 30 and 60 years. It is uncommon in children as only 3% of all sialolithiasis cases has been reported in the pediatric population. Males are affected twice as much as females.The actual etiology of sialolithiasis is unknown.The clinical symptoms include swelling and pain in the affected gland. If the blockage of the duct is complete, the symptoms will be severe. Pain and swelling, may be recurrent and most pronounced during meals. In this paper we present a cases series of two sialolith of the submandibular duct which was treated with transoral sialolithotomy .

CASE REPORT 1:

A 30 year old female patient reported to the department of Oral and Maxillofacial Surgery with a chief complaint of swelling below the tongue since 2 months which was associated with pain. No significant past Medical and Dental history was reported by the patient. Patient did not show any significant extra-oral finding [Fig 1]. Bimanual palpation revealed a superficial, 1cm hard swelling situated near the lingual frenum, which was extremely tender on palpation. There was no associated discharge or bleeding reported from the area [Figure 2]. For confirmation of the lesion orthopantomogram was done which revealed a radiopacity extending from right canine to the second premolar area [Figure 3]. To evaluate the depth and exact location 3 dimensional Cone Beam Computed tomography scan was done. It showed radiopaque mass of approximate 25mm in floor of mouth extending from right canine till second premolar region.[fig 4] Based on clinical and radiological examination initial diagnosis given was submandibular duct sialolithiasis. Patient was planned for surgical excision of the sialolith via intraoral approach under local anesthesia. Written informed consent was obtained from the patient before surgical procedure and for using the images for study purpose. Patient was posted for day care surgery under local anesthesia with 2% lignocaine with adrenaline 1:100000 ratios.Then stay suture was placed proximal to stone to prevent gliding of stone proximally. Then longitudinal incision to open the submandibular duct was placed over the stone . The calculi was exposed followed by its removal.[Fig 5]The sialolith was approximate 25 mm in size.[Fig 6]Then a cannula was placed in the duct to maintain patency of the duct and suturing was done around the cannula.[Fig 7] Post-operatively all instructions were given and patient was prescribed with Tab Amoxiclav 625mg (1 tab 6 hourly for 5 days) Tab Diclofenac sodium (1 tab 6 hourly for 5 days) Tab. Pantaprazole 40 mg 1 tab 6 hourly for 5 days and povidone iodine mouthwash (two times a day for 7 days) The patient experienced no post operative complications and cannula was removed on the third post operative day. The final histopathological report confirmed the diagnosis of sialoith .Patient was kept under follow up and did not report any recurrence till date.[fig 8]

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CASE REPORT 2:

Another case of 45 year old female patient with chief complaint of occasional discomfort below right side of tongue since 5-6 months.Patient had no significant past medical and dental history.There was no extraoral swelling,intraoral palpation revelaed a hard swelling on right side of floor of mouth.Patient's Cone beam computed tomography (CBCT) revealed a well defined radiopaque mass of size 20mm in right side floor of mouth [Fig 9,10]. Based on clinical and radiographic findings,we came to final diagnosis of right submandibular duct sialolithiasis which was also treated by the same surgical procedure.Sialolith of 2cm size was removed [Fig 11] and sent for histopathological examination which confirmed the diagnosis of sialolith .[Fig 12]

II. DISCUSSION

The submandibular gland (a major salivary gland) is a mixed,predominantly mucous gland with a large superficial section and small ,deep lobes that connect around the posterior border of the mylohyoid muscle at the angle of the jaw. Wharton's duct arises from the deep part of the gland from the floor of the mouth along the lateral side of the frenulum linguae. Sialolithiasis is the formation of calcific concretions in the major or minor salivary glands. Sialolithiasis is more prevelant in men than in women . It is uncommon in children as only 3% of all sialolithiasis cases has been reported in the pediatric population.[1]The gland gland most commonly affected is submandibular gland 80% followed by parotid gland 19% and sublingual 1% . The exact etiology is unknown .However reports suggest that percipitation in supersaturated solution of mucous plugs or membrane phospholipids within redundant secretory vesicles which leads to calculi formation. A retrograde theory suggested that any substance or bacteria of the oral cavity, that had migrated into the salivary ducts, can act as a nidus for further calcification. Reasons for high rate of sialolith in submandibular gland is due to its longest salivary duct and Tortousity of duct,Highest Calcium concentration of submandibular gland and Mixed secretion from submandibular gland.

Submandibular gland sialolithiasis is generally asymptomatic in nature. The symptoms include pain and swelling of the involved gland caused by the accumulation of saliva due to blockage of the lumen of Wharton's duct by a salivary calculus. Recurrent infections may occur due to the ascent of bacteria into the parenchyma of the gland. [1]

Differntial diagnosis includes calcific cervical lymph node, foregin body, phlebolith in hemangioma, fractured lingual cortical plate . Proper history taking, radiographic evaluation and then histopathologiacl examination of the pathology will confirm the final diagnosis.

Submandibular gland calculi are mostly radiopaque (80% to 94.7%). X ray imaging like occlusal radiographs can help in diagnosis but other modalities like Computed tomography(CT), Magnetic resonance imaging (MRI),Scintigraphy,Sialography and Sialoendoscopy can help to find small or hypomineralized calculi. Treatment modalities such as extracorpeal short wave lithotripsy and sialoendoscopy are effective alternatives to conventional surgical excision for smaller sialoliths.For large sialoliths,transoral sialolithotomy with sialodochoplasty or sialadenectomy remains the main method of management.Once removed patients are advised to adopt a high proten diet,liquids and acid foods to prevent the formation of new sialoliths in salivary gland.

III. CONCLUSION

Sialoliths should be always considered in submandibular and facial pain particularly when it is related to mealtime. A careful history and correct imaging techniques are required to confirm the clinical diagnosis
and treatment protocol.

CASE REPORT 1

Fig. 1- Extra-oral photograph

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Fig. 2- Intra-oral photograph

Fig. 3- Pre-operative OPG

Fig. 4- CBCT Axial section

Fig. 5- Transoral sialodochotomy with exposure of sialolith

Fig. 6- Sialolith

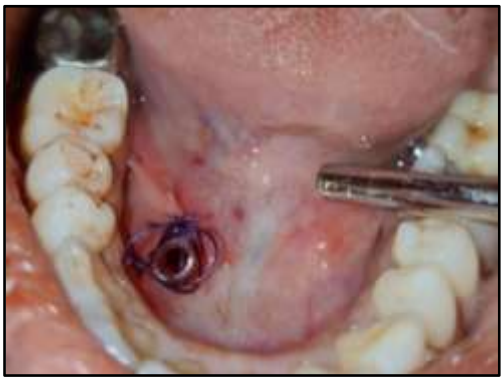

Fig. 7 – Patency of duct maintained by cannula insertion

Fig 8-Post -op Follow up after 1 month

CASE REPORT 2:

Fig 09:CBCT OCCLUSAL VIEW

Fig 10: CBCT LINGUAL VIEW

Fig 11: Sialolith after removal.

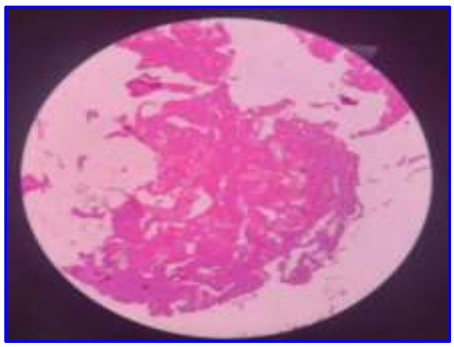

Fig 12: Histopathological Photograph of specimen

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