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Case Report

A CASE REPORT OF SUBMANDIBULAR DUCT CALCULUS

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ABSTRACT

Sialolithiasis is most commonly found in the submandibular gland and in its duct (Wharton's duct). This report describes the case of a patient who had a pain in the right side of due to obstruction of right wartons duct by sialolith. The sialolith was excised intra orally under local anaesthesia.

Key Words:

Sialolith; Sialolithiasis;
Submandibular duct; Calculi.

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INTRODUCTION

Sialolithiasis is a common problem of salivary gland that represents formation of calculi within the gland or in the excretory duct of the gland. It is one of the major cause of salivary gland dysfunction[1].

The obstruction to the flow of saliva caused due to sialolith may lead to sialadenitis, atrophy and fibrosis of the gland[2]. The clinical presentation depends upon degree of obstruction. The patients present with swelling of the gland, pain, pus discharge and other signs due to secondary infection. There is usually increase in pain and swelling upon eating. The gland may be tender and firm. Occasionally, the calculus may be extruded through the opening of the duct otherwise it may be surgically removed.

Case report

A 30 year old male came to our department with a complaint of pain in the mouth. Pain increased on taking food. Medical history was unremarkable. On extra oral examination left submandibular region was mildly tender and firm, intra oral examination revealed hard deposit within the wartons duct. There was absence of salivary flow from the duct. Cone beam computed tomography sections revealed hyperdense structure in the right floor of mouth [Fig 1][Fig 2]. On the basis of

clinical and radiographic findings diagnosis of sialolithiasis of the right wartons duct was made. The sialolith was removed surgically intra orally. [Fig 3][Fig 4] [Fig5]

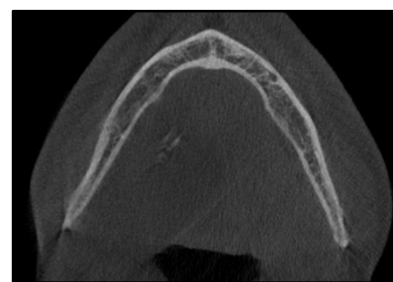


Fig 1



Fig 2 cone beam CT shows hyperdense structure in the right floor of mouth.

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Fig 3 calculus excised intraorally.

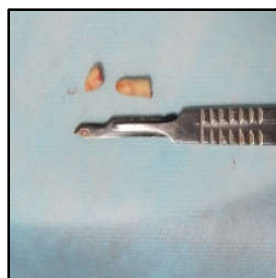


Fig 4 excised calculus in fragments



Fig 5 post operative 1months showing complete healing

After administration of local anaesthesia, extra oral upward pressure with non dominant hand was applied in the right submandibular region so as to raise the floor of mouth. With index finger of dominant hand the calculus was constantly palpated to ensure its location. Direct incision was placed over the sialolith and after careful dissection the sialolith was removed in two fragments. Duct repair was not done. No sutures were placed in the floor of mouth.

DISCUSSION

Sialolith can form in any salivary gland. Sub mandibular gland is the most common one (80-92 %) followed by sublingual and minor salivary glands [2]. Majority of stones are single 70- 80 % where as in 5 % of patients may have multiple stones [3]. Sub mandibular Salivary gland stones are calcified and radiopaque and are composed of calcium carbonate, calcium phosphate and calcium oxalate. The thicker consistency of salivary secretions, anti gravity drainage makes submandibular salivary secretions prone to stasis, calculus formation and retrograde infections. The presence of sphincter system in the warts duct was observed Marchal *et al* and variation of sphincter like mechanism within the warts duct can lead to sialolithiasis. [4] Degree of obstruction is also important for pathogenesis of calculi. Completely obstructed glands are less prone to calculi than patial obstruction. In completely obstructed glands the calcium secretory glands in the acini become depleted and this secretion is less lithogenic. [5] Though small concretions are found within the intraglandular ducts of salivary glands but these donot appear to be related to

stone formation. Parotid stones are found to be in hilum or in parenchyma of the gland whereas submandibular stones most of the times are found in the duct. Stones in the hilum part of the submandibular gland are oval and in the ductal portion they are elongated. [6]

Stone formation is not associated with any system abnormalities. Gout is the only condition that predisposes to sialolithiasis. [7] Though rare, one study has suggested relationship between nephrolithiasis and sialolithiasis. [3] Antidepressants, anti histamines, diuretics hypertensive, and antipsychotic medication decrease salivary flow but no obvious links between these medications and sialolithiasis has been reported.

Demographically sialolithiasis shows male predominance with majority of cases in third to sixth decade of their life. Due to obstruction of the salivary system of the gland pain and swelling of the gland results. Fever and pus discharge from the duct is typically due to retrograde infection. Intraductal sialolith is more symptomatic than intra glandular sialolith. [8][9]

Parotid sialoliths are predominantly radiolucent and thus requires sialography or ultrasound modalities for their detection whereas submandibular sialoliths are predominantly radiopaque and are easily visualized on plain radiographs. [10] The main goal of treatment is to restore normal salivary flow by maintaining the patency of the salivary gland system. The calculus can be removed invasive or minimally invasive procedures. Conservative approaches that include massaging of gland and use of sialogogues are reserved for small sialoliths. [11] Other modalities include transoral sialolithotomy, extracorporeal shock wave lithotripsy and resection of the gland. In our case we surgically removed the calculus with minimal intra oral incision and left the duct for healing by secondary intention. The patient was asymptomatic following one year after surgery. Transoral sialolithotomy has less complication rate than extra oral approach. Stones which are more posteriorly located, more than 2 cm from hilum are better managed by sialadenectomy [12].

Ninety percent of saliva is secreted by three paired major salivary glands. The sub mandibular gland produces almost 70 percent of the resting salivary flow [13]. After submandibular sialadenectomy baseline salivary flow decreases and xerostomia after removing of salivary gland has been reported also [14]. After removal of sialolith the gland returns to its functional state 75 percent of the time. It has been shown experimentally that significant acinar regeneration occurs after removal of duct al obstruction [15].

CONCLUSION

This case report highlights the subamndibular salivary stone can be removed intraorally by placing a small incision over the duct. cone beam CT proves to be useful in the proper identification and location of the calculus and has definite advantage over plain radiography in determining the correct position of the calculus within the duct.

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