Case Report

Submandibular gland sialolith

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Abstract

Sialolithiasis is the most common salivary gland disease, occurs most commonly in middle aged patient. There is a slight male predominance. More than 80% of salivary calculi occur in the submandibular glands or its duct. It is estimated that sialolithiasis affect 12 of every 1000 patients in the adult population. It is believed that deposition of mineral salts around a nidus of bacteria, mucous, or desquamated cells develops a salivary calculi. The possible aetiological factors for salivary calculi formation are salivary stagnation, increased alkalinity of the saliva, increased calcium content of the saliva, infection or inflammation, or physical trauma of the salivary duct or gland. The submandibular gland is most susceptible for sialolith formation because its saliva is more alkaline,has a higher mucus content,has a greater concentration of calcium and phosphate, has a longer and irregular duct, has antigravity flow. Here report a case of middle aged female patient with sialolith in right submandibular gland successfully treated with surgical removal of the gland containing sialolith.

INTRODUCTION:

Sialolithiasis accounts for more than 50% of the diseases of the large salivary glands in the head and neck.12 per 1000 adult population are reported to suffer from the condition each year. Males are affected more than females.[1] More than 80% of all sialoliths are localized within the duct system of the submandibular gland and only 20% within the parotid gland.[2] Approximately 90% of submandibular stones are situated in the distal portion of the Wharton duct or at the hilum.[3] We report the case of a female middle age patient with calculi in right submandibular gland.

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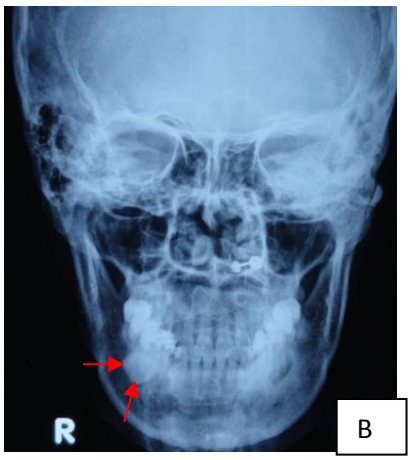
CASE REPORT:

A 45 year old female reported with the 4 years history of intermittent swelling at right side of lower jaw. The swelling occurred during meal time and then subsided. She had the history of pus discharge from inner right side of oral cavity after a few months of the swelling. On intraoral examination there is a mass felt on bimanual palpation at right side of the floor of the mouth. The mass was nontender, 1x1cm^2 size, free from surrounding structures, hard in consistency.

On radiological evaluation by Orthopentomogram (OPG) and Posterior-anterior view of skull [Fig:1(A&B)]had shown a radio-opaque mass at right submandibular region. Sialography [Fig: 1(C)] of right submandibular gland also shown calculus in the right submandibular gland.



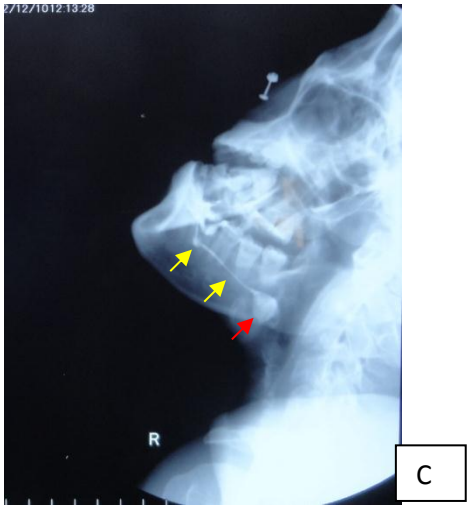


Figure 1: Preoperative radiograph of OPG (A), P/A view of skull(B), sialograph(C) show the sialolith (red arrow) and salivary duct (yellow arrow).

The sialolith was surgically removed along with the right submandibular gland by extraoral (submandibular) approach [Fig:4 (A&B)]. No clinical signs of marginal mandibular nerve injury was noted after operation.

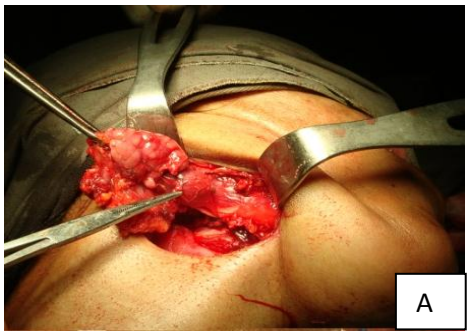


Figure 2: Surgical excision of gland (A) and Excised gland with stone (B).

After 6 months follow up, there was no complain of pain, swelling or pus discharge.

DISCUSSION:

Salivary calculi are usually unilateral in occurrence and round to oblong, have an irregular surface in most of the cases, vary in size from a small grain to the size of a peach pit, and are usually yellow.[4]The stones may occur in the duct or gland, with multiple stones not uncommon. They are found more often in adults, although they also occur in children.[5] The classic symptoms are that of obstruction manifested by pain and swelling of the involved gland during eating. Since obstruction is rarely complete, the gland swelling will subside to some degree during rest periods.

Stones apparently develop as a result of an initial organic nidus followed by the deposition of inorganic material, both of which are derived from the salivary fluid. The nidus or filamentous stroma is not bacterial in nature but rather precipitated mucoids and possibly salivary proteins.[6]

Submandibular sialoliths are more common because the duct of this gland is longer, has antigravity flow, and lesscaliber compared with that of the parotid gland. Another region is the "comma area" of the submandibular duct where it takes a radical turn inferiorly behind the posterior border of the mylohyoid muscle as it approaches the hilus of the gland. The submandibular saliva is two times more viscous than that of the parotid due to its mucous content.[7]

Submandibular gland sialolith may cause pain and swelling. The pain is experienced during salivary stimulation and is intensified at mealtimes, so called "meal time syndrome". The accumulation of saliva in the gland, duct or surrounding tissues produces swelling and the area becomes enlarged and firm. Sialoliths may present acutely as a result of acute bacterial infection secondary to stasis (sialadenitis). In such cases there is often facial asymmetry and the affected gland is painful, hot and swollen. The duct orifice may also be inflamed and pus may be expressed on milking the gland. Most commonly they present with a history of recurrent swelling. The submandibular sialolith may be detected by bimanual palpation.[8]

Diagnosis of submandibular sialolithiasis is often straightforward from a through history and examination. Plain radiographs such as occlusal view, OPG, lateral oblique view of mandible can detect opaque stones (80-95% of sialoliths). Although CT scan is expensive it is the most accurate noninvasive technique for defining the location of stones. Sialography helps to visualize the whole duct system, demonstrates calculi of all sizes and also glandular damage from chronic obstruction.[9]

Ultrasound provides an excellent, noninvasive method of detecting sialoliths as well as salivary flow after stone removal.[10]Magnetic resonance sialography is a new noninvasive technique for diagnosis of sialolith without the need of contrast or radiation.[11] In some cases, the sialoliths may not be identified radiographically because the low grade of calcification or by superimposition of other hard tissue. So in that cases of small or poorly calcified sialoliths, mucous plugs, ductal stenosis ,and polyps sialoendoscopy is the method of choice for the detection of the obstruction as well as removal. It was promoted in 1990 and now superior to plain film or even to magnetic resonance imaging particularly for the small and more distal stones.[12]

The treatment of sialolith depends on the duration of the symptoms, size and localization. Occasionally, spontaneous exfoliation of the sialolith might occur. Sialoliths are normally removed by manipulation of the gland, surgical

excision of the sialolith or with the associated gland, as well as sialoendoscopy and lithotripsy. Untreated sialoliths might lead to infections. It may cause damage to the parenchyma and produce a suppurativeprocess.[13]

CONCLUSION:

The sialolith may vary from one millimeter to several centimeters in size. Swelling and pain are often associated with sialolith. They occur in meal time due to elevated intraglandular pressure resulting from an increased salivary secretion in the obstructed gland or duct. Symptomatic sialolithiasis is still the most frequent indication for a submandibular gland resection despite new inventions in therapeutic procedures, such as sialendoscopy or lithotripsy.

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