



An Unusual Large Submandibular Salivary Gland Calculus - A Case Report

KEYWORDS

Sialolith, Submandibular duct, calculi, giant salivary gland stones.

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ABSTRACT This paper presents an unusually large calculus present in the duct of right submandibular salivary gland. It was oval, irregular in surface measuring 3.1cm.X1.5cm

Introduction-

Sialolithiasis is most common disease of salivary glands. It is estimated that it affects 12 in 1000 of the adult population. [1] The great majority of calculi (80%) occur in submandibular gland and in the duct, 10% occur in parotid gland and remaining 10% in the sublingual gland and minor salivary glands. [2] Males are affected twice as much as female. [3]

Sialolithiasis accounts for more than 50% of disease of large salivary glands and is thus common cause of acute and chronic infection. [4] Bilateral or multiple gland sialolithiasis is occurring in fewer than 3% of cases. [5] Commonly, sialolithiasis measure from 1mm to less than 1cm. Giant salivary gland stones are those measuring over 1.5cm and have been rarely reported in medical literature. Giant salivary gland stones measuring over 3cm are extremely rare, with only scanty reported cases. [6,7]

Case report-

A 45 year old male patient came to Surgery department in Galaxy Hospital, Kolhapur. He complained of a large, firm mass in the floor of the mouth.

On examination-. The floor of mouth was swollen. On bimanual palpation of the swollen area corresponding to anatomic location of the duct of right submandibular gland, the mass was large, firm and tender.

Extra-oral examination revealed palpable tender mass in the region of right submandibular gland duct.

On investigation it was diagnosed as calculus blocking the duct of right submandibular gland.

The stone was removed under local anaesthesia with sharp dissection. It was via incision in the floor of mouth directly over palpable mass. The calculus was yellowish, oval and had irregular and rough surface.



Fig. 1 shows calculus in the duct of right submandibular gland.



Fig.2 It was measured to be 3.1cmx1.5cm .

Discussion-

Although large sialolith have been reported in the body of salivary glands, they have been rarely reported in salivary gland ducts. [8,9] Brusati and Flammighi removed a sialolith from the left submandibular duct of 55 year old man measuring 27x31 mm [10]. Leung et al removed a sialolith 14x9mm from right submandibular duct. [1] The sialolith removed in our case was comparable to these. The exact etiology and pathogenesis of salivary calculi is largely unknown. Flow of saliva against gravity, its more alkaline pH and the high mucin and Ca++ content can explain the preferential stone formation in the submandibular gland. [11]

Genesis of calculi lies in the relative stagnation of calcium rich saliva. They are thought to occur as a result of deposition of calcium salts around an initial organic nidus consisting of altered salivary mucins, bacteria and desquamated epithelial cells. [3,12] Salivary stagnation, increased alkalinity of saliva, infection or inflammation of the salivary duct or gland may predispose to calculus formation. [1] Submandibular sialolithiasis is more common as its saliva is more alkaline, has an increased concentration of calcium and phosphate, and a higher mucous content than saliva of the parotid and sublingual salivary glands [1,8]. In addition, the submandibular duct is longer and the gland has antigravity flow. [1] Some calculi may be asymptomatic until the stone passes forward and can be palpated in the duct or seen at the duct orifice. It may be possible that obstruction by large calculi is sometimes asymptomatic as obstruction is not complete and some saliva manages to seep through or around calculus. [1] Long term obstruction in the absence of infection can lead to atrophy of the gland with resultant lack of secretory function and ultimately fibrosis. [13]

Diagnosis- Careful history and examination is important.

Occlusal radiographs are useful in showing radio-opaque stones. 40% parotid stones may be radiolucent. Sialography is thus useful in patients showing signs of sialoadenitis related to radiolucent stones or deep submandibular and parotid stones. Sialography is, however contraindicated in acute infection or in significant patient contrast allergy [13]. Submandibular gland calculus reported to be radio-opaque in 80%-94.7% of cases. [8, 13]. In small and radiolucent calculi radiographic findings may be negative and sialography can be the examination of choice.

USG is as widely reported as being very useful in detecting salivary stones. [14]

CT is highly diagnostic. [15]

Treatment- Patients presenting with sialolithiasis may benefit

from a trial of conservative management especially if stone is small. [13]. Submandibular stones are removed either by intra-oral or external approach. [16, 17]. Surgical removal of calculi is performed when stone located in excretory duct near opening. If the calculi located in gland itself, fragmentation can be performed by extracorporeal or endoscopic laser lithotripsy. There are some non-surgical, non-invasive techniques developed such as, shock wave lithotripsy, basket retrieval and endoscopic laser lithotripsy. [18, 19]. In a non-functioning gland surgical removal would be indicated to avoid recurrent disease. In many cases removal of gland may be first choice of treatment. [20]. Almost half of submandibular calculi lie in distal 1/3rd of duct and are amenable to simple surgical release through an incision in the floor of mouth which is relatively simple and not usually associated with complication [21]. If the stone is sufficiently forward it can be milked and manipulated through the duct orifice. This can be done with the aid of lacrimal probes and dilators to open the duct. [14]

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