



Sialolithiasis: A Case Report of Giant Submandibular Gland Stone

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Abstract

Sialolithiasis is the most common pathology in salivary gland with submandibular gland being the most common one. Salivary gland calculi can either be single or multiple and vary in size. Occlusal radiograph is the most common investigation done followed by USG, sialography, sialendoscopy, CT or MRI. Sialolithiasis can be either managed conservatively, intraoral marsupialisation, surgical excision of submandibular gland, sialendoscopy and stone removal or ESWL or ISWL methods depending on size and location of stone.

Keywords: Sialolithiasis; Submandibular Gland; Large Stone; Excision

Introduction

Sialolithiasis is the most common condition affecting the salivary glands with submandibular gland being the commonest gland affected followed by Parotid gland and to lesser extent, the sublingual and the minor salivary glands [1]. Sialolithiasis of salivary gland can occur in any age with increased incidence in 30 - 60 years of age. Sialolithiasis has male preponderance and is rare in children.

There are multiple factors that contribute to development of salivary gland stones such as mechanical, neurogenic, chemical, inflammatory, infectious and foreign bodies, however, the exact etiology is still unknown [2].

Salivary gland stones can be either single or multiple, variable in size, unilateral or bilateral and can occur in salivary ductal system or in glandular parenchyma with occurrence in glandular parenchyma being 9% to 17% when affecting the submandibular gland especially [3].

Salivary calculi has been found to vary from one millimetre to few centimetres in size with less than 10 mm being more commonly found [4]. Any salivary calculi of more than 1.5 cm has been

referred as Giant salivary gland calculi [5]. A literature review was published by Ledesma-Montes, *et al.* in the year 2007 and found only 10 cases of salivary gland calculi with 5 cm or greater in size [6].

We report a rare case of submandibular gland parenchyma sialolith measuring 2.5 cm x 2 cm in size and weighing 4.26 grams and discuss the management of the salivary gland sialolithiasis.

Case Report

A 48 years female presented in ENT Out Patient Department with history of right upper neck swelling since 10 years. The swelling was associated with occasional mild pain during food intake since 6 months. The swelling increased in size during painful episode and gradually decreased in size after 7 - 10 days on its own.

On local examination of neck, swelling of nearly 4cm X 4cm was present in right Level Ib which was firm, non tender, mobile on lateral movement. The swelling was palpable on bimanual palpation from oral cavity and the neck. Other oral cavity examination revealed no abnormal findings.

Patient underwent ultrasonography of neck which revealed mildly bulky right submandibular gland with large hyperechoic le-

sion with posterior acoustic shadowing measuring 21.2 mm suggestive of calculus or calcification with sialadenitis.

Patient underwent right submandibular gland excision under general anaesthesia with diagnosis of right submandibular gland sialolithiasis. The operative findings were 5 cm X 3 cm right submandibular gland and 2.5 X 2 cm hard stone filling whole of submandibular gland parenchyma and weighing 4.26 gms.

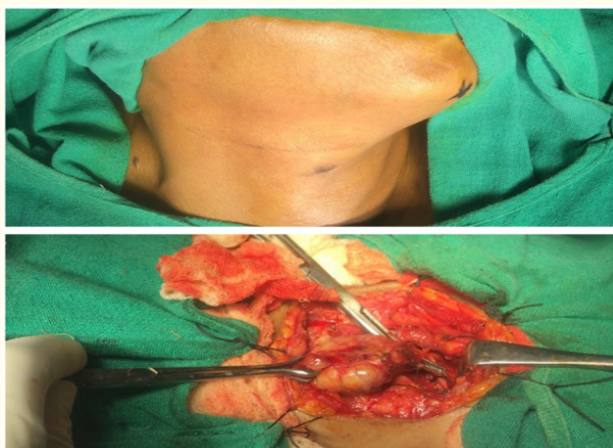


Figure 1: (Top) Right Level IB of neck and (Bottom) excision of right submandibular gland.

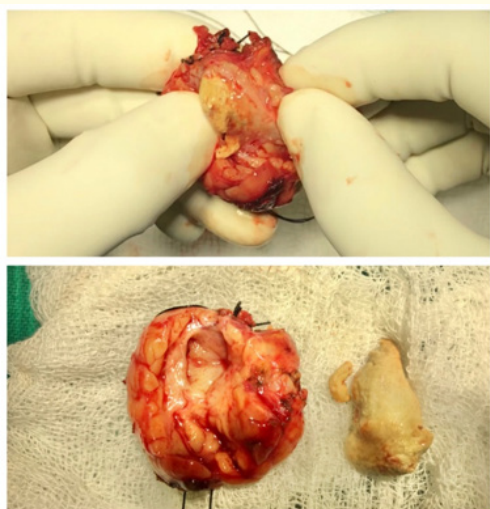


Figure 2: Stone inside SMG.

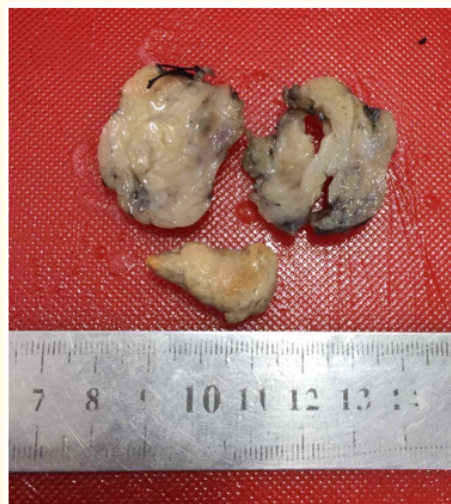


Figure 3: Size of stone: 2.5 cm X 2 cm.

Discussion and Conclusion

Salivary gland calculi being one of the prime pathologies in salivary gland consists of different entities such as calcium phosphate, carbonate hydroxyapatite along with organic matrix of glycoproteins and mucopolysaccharides. Magnesium, ammonium, potassium are also others salts which are involved in formation of calculus [7].

Submandibular gland is the most common salivary gland for sialolithiasis. There are multiple causes that make submandibular gland and its duct more prone such as the saliva secreted is more viscous, more alkaline and has higher content of calcium and phosphate. The Wharton's duct is longer, tortuous with larger calibre and the salivary course being against gravity adds up to its proneness for stone formation [8].

The stones are not radiopaque in 20% of submandibular stones and 40% of parotid stones; so in such cases ultrasonography, sialography, sialendoscopy, radionuclide imaging, computed tomography, and magnetic resonance imaging may be alternative investigation modules to locate the stones. The most reliable however is the occlusal radiograph to view submandibular sialolith. CT and MRI are not economical however can provide excellent soft tissue details [9].

Sialolithiasis can be treated based on their size and the location of calculi. Small calculi can be managed conservatively. Sialogogues, moist heat, hydration, gentle massage of the gland along the duct towards the opening may help in expulsion of calculi spontaneously [10]. Submandibular calculi close to the opening of Wharton duct can be removed intraorally by marsupialisation wherein incision is given just over the calculus to allow removal of stone. Interventional sialendoscopy with wire basket extraction can be used for more proximally located submandibular stone. Surgical excision of the gland along with stone need to be done if there is presence of larger calculi present in the gland. Other treatment options include ESWL (extracorporeal shock wave lithotripsy) and ISWL (intracorporeal shock wave lithotripsy) [11].

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