

Case report**Sialolith of Submandibular Salivary Gland: A Case Report**

Singh S, Garg K, Mehrotra V, Singh V

Abstract: Salivary gland stone is the most common disease of salivary glands. Submandibular gland or its duct is a major site of sialolithiasis and a common cause of acute and chronic infections. Sialolithiasis leads to recurrent painful swelling of the involved gland, which increase in size during meals. Sialolith occurs commonly in the submandibular gland in 80% of the cases. Pathogenesis of sialolithiasis is based on anatomical position of salivary duct and gland. This case report describes a 55 year old female patient with left submandibular gland sialolith.

Keywords: Submandibular; Salivary gland; Sialolithiasis; Sialolith.

INTRODUCTION

Sialolithiasis is the most common disease of salivary glands and is characterized by obstruction of salivary secretion by calculation inside the duct or even in the glandular parenchyma. It's more common in males with a male to female ratio of 2:1 and the incidence is high in the third to sixth decade of life. Sialoliths causes obstruction of salivary flow and episodes of local pain and edema, especially during meals.¹ More than 60% in the submandibular gland or it's duct, 6% in the parietal gland and 2% in the sublingual gland. Salivary gland disorders are relatively common. Sialolithiasis in the main cause of obstructive salivary disease being involved in 66% cause and accounting for about 50% of major salivary gland disease.^{1,2} Incidence peak occurs between the ages of 20 and 60 years.²

Sialoliths occur as a result of deposition of calcium salts around an organic material such as inspissated mucous, ductal epithelial cells, salivary proteins and foreign bodies.³ Stasis of saliva may lead to acute and chronic infections.³ Intraductal stones are comparatively common than intraglandular stones. Hilar stones tend to become very large and round in shape before becoming symptomatic unlike, ductal stones which show elongated form.³ Clinically they are round or ovoid, rough or smooth and of a yellowish colour. They consist of mainly calcium phosphate with smaller amounts of carbonates in the form of hydroxyapatite, with smaller amounts of magnesium, potassium and ammonia. This mix is distributed evenly throughout.⁴ Submandibular stones are 82% inorganic and 18% organic material.^{4,5,6} We report a case of left submandibular gland

sialolithiasis in a 55 year old female patient with its diagnostic imaging and treatment plan.

CASE REPORT

A 55 years old female patient presented with a chief complaint of pain & swelling in the lower left floor of mouth since 2 years. The pain is mild and intermittent and is associated with swelling in the floor of mouth. The pain and swelling use to appear during intake of food (mastication) and gradually disappears by itself after the meals. The swelling has gradually increased to the present size. On examination patient was afebrile and of normal gait. On bimanual palpation a large, solitary, firm and tender swelling of size 3x2 cm present in the left side of floor of mouth [Fig 1].



Figure 1: Intraoral swelling on the floor of mouth left side.

Based on history and clinical examination a provisional diagnosis of sialolith in submandibular salivary gland was made. On further imaging with mandibular occlusal radiograph showed a well defined radiopaque structure 1x1 cm lingual to the left side of the mandible [Fig 2]. Orthopantomograph revealed one radiopaque structure superimposed on the left side of mandible [Fig 3].



Figure 2: Occlusal view shows radiopaque present on mandible left side.



Figure 3: OPG shows superimposed radiopaque mass on left side of mandible.

Ultrasound showed one hypoechoic region present in the duct of the left submandibular gland region. Based on above investigations diagnosis of left side submandibular sialolithiasis was arrived. Surgical removal of sialolith was planned under LA and the patient was reviewed for one week under analgesic and antibiotics coverage.

DISCUSSION

Sialolithiasis also called as mealtime syndrome is the second most common disease of major salivary gland. Sialolithiasis is the formation of calcific concretions within the parenchyma or the ductal system of a major or minor salivary gland. Studies indicate that 92% of sialolithiasis occur in the submandibular gland, 6% in the parotid gland, and 2% in both the sublingual and minor salivary glands.^{1,3} Sialoliths are generally seen in small size and their sizes range from 1mm to 1cm. Large salivary gland sialoliths, which are larger than 15mm are considered rare.^{3,5,6}

Sialolithiasis usually presents with pain and inflammation, but in few cases, infection of the main gland may present. The exact etiology and pathogenesis of salivary calculi is unknown. The submandibular salivary glands are the most commonly related pair of glands in cases of sialolithiasis (around 80% of prevalence).^{2,3,4,6} It is explained by a tortuous structure of submandibular salivary duct. The most narrowed path of the referred duct is named “comma area,” which is located near to the duct’s outfall. It facilitates the deposition of minerals, such as calcium, creating a proper nidus for salivary stones. In addition, the submandibular salivary gland presents an alkaline environment with high phosphate concentration, which contributes to the formation of hydroxyapatite.^{3,5,6}

Careful history and examination are important in the diagnosis of sialolithiasis.⁴ Common symptoms vary from a painless swelling, moderate discomfort to severe pain with large glandular swelling accompanied by trismus and usually associated with swelling while eating. The Patient discussed here was having most of the symptoms.^{3,6} Complete obstruction causes constant pain and swelling, pus may be seen draining from the duct and signs of systemic infection may be present.⁴

The differential diagnosis of masses of lymph nodes or the submandibular salivary gland origin can be considered for such swelling in the submandibular region. A careful bimanual, intraoral, and extraoral palpation is the first step in diagnosing and distinguishing between the masses of the submandibular gland and the non-submandibular gland origin.^{3,4,6} Radiographs are a practical and simple way of investigating the ductal system.^{7,8} The traditional diagnostic methods include plain radiographs (occlusal radiograph), sialography, ultrasound, and scintigraphy.^{3,5,6,7}

The treatment methods for submandibular duct stones are conservative care, operative removal and the minimal invasive surgery such as extracorporeal shock wave lithotripsy, sialendoscopy, etc.^{5,9} The treatment of sialolithiasis is determined by

the location and size of the sialolith.^{3,5,10} Conservative management should be considered in the cases of small stones. Smaller stones often may be 'Milked out' through the ductal orifice using bimanual palpation.⁶ Intraglandular sialoliths require submandibular sialoadenectomy.^{3,10,11} CO₂ laser, because of its advantage of minimal bleeding, less scarring, clear vision and minimal post-operative complications, is gaining its popularity in the treatment of sialolithiasis.^{5,11,12}

Author affiliations: 1. Dr. Shiv Singh, PG Student, 2. Dr. Kriti Garg, MDS, Reader, 3. Dr. Vishal Mehrotra, MDS, Professor, 4. Dr. Vaibhav Singh, PG Student, Dept Of Oral Medicine & Radiology, Rama Dental College Hospital and Research Center, Kanpur-208024, U.P. India.

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Corresponding author:

Dr.Kriti Garg, Reader
117/k-68 Sarvodaya Nagar,Kanpur
Contact no : 9936434177
Email:drkritigarg@gmail.com

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