ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

# Sialolith: A Hindrance to Flow.

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**ABSTRACT**

Sialolithiasis is the major etiology of salivary gland obstruction which leads to recurrent, painful swelling. The swelling often exacerbates while eating. Sialoliths may be encountered in any of the salivary glands but most frequently in the submandibular gland and its duct. Sialolithiasis commonly occurs in submandibular salivary gland and duct leading to infection and inflammation. Presented here is a case report of a 37-year-old female patient who had a submandibular sialolith.

**Keywords:** Sialolith, Sialolithiasis, Submandibular gland.

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ISSN: 0975-8585

## INTRODUCTION

Sialolithiasis is the presence of a calculus (Sialolith) inside the duct or parenchyma of salivary gland. The predisposing factors to calculus formation are salivary stagnation, infection or inflammation, trauma, increased alkalinity of saliva of the salivary gland or duct. Sialoliths can vary in size, shape, texture, and consistency; they may be solitary or multiple. It is estimated that sialolithiasis affects 12 of every 1000 patients in the adult population.

In this paper, we present a case of a 37-year-old female patient who reported with swelling on the left side of the lower jaw since 3 months.

**Case report**

A 37-year-old female patient reported to our dental OP with a chief complaint of swelling on the left lower jaw since 3 months. She gave a history of frequent, self reducing and painless swelling which occurred 3 months back in the same place after having food. No relevant of history of trauma or fever in recent times.

The patient was afebrile, and her vital signs were normal. The rest of the findings of the physical examination were unremarkable.

On inspection a single, diffuse swelling was present below the angle of mandible on the left side (Fig 1). Skin over the swelling was normal and pinchable and no sinus opening was evident. On palpation the swelling was soft in consistency and tender. Intraoral examination revealed a decayed tooth in relation to 48.

**Figure 1: Extra-oral swelling inferior to lower border of mandible on left side**

Differential diagnosis considered were viral sialadenitis, buccal node lymphadenopathy, pleomorphic adenoma and tuberculous lymphadenitis.

Orthopantamograph (OPG) revealed the presence of a radiopaque mass near the lower border of the left angle of the mandible, decayed right mandibular third molar involving the pulp (Fig 2). Computed tomography (CT) revealed presence of a calculus measuring 6 X 3 mm in the left submandibular duct. The left submandiular gland appeared atrophied with fatty infiltration. CT scan was done with correlative Magnetic Resonance Imaging. Scan revealed a calculus measuring 6 X 3.3 mm in left submandibular duct. Left submandibular duct appeared atrophied with fatty infiltration (Fig 3).

Considering the positive findings of history and investigations we conclude with the final diagnosis of left submandiblar sialolithiasis associated with chronic bacterial sialadenitis.

ISSN: 0975-8585

**Figure 2: OPG revealed a single, well-defined radiopaque mass on left inferior border of Mandible**

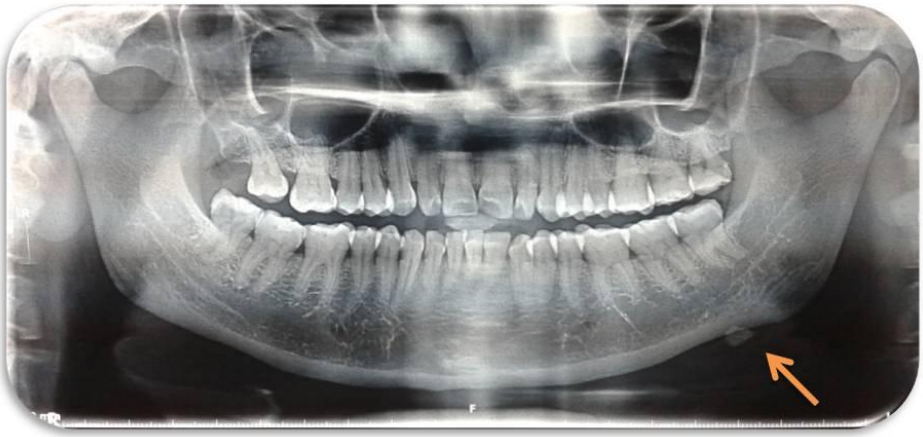

**Figure 3: CT scan revealed presence of a calculus measuring 6 X 3 mm in the left submandibular duct.**

## DISCUSSION

Sialolithiasis is associated with a common disease of salivary glands characterized by the obstruction of the salivary secretion by a calculus leading to pain, infection and inflammation of the affected gland.

Sialolithiasis is estimated that it affects 12 in 1000 of adults [1]. Males are affected twice more than the females [2]. The disease most commonly affects middle aged patients, the age range being 42-58.4 years [3]. This disease corresponds to 30% of the salivary pathologies and is more frequent in adults (0.1–1.0% of

population) than in children [4]. These calculi generally consist of mixtures of different calcium phosphates (mainly hydroxyapatite and carbonate–apatite) together with an organic matrix [5].

Sialolith occurs commonly in submandibular gland due to the following reasons. First, saliva is more alkaline with increased concentration of calcium and phosphate. Second, mucous content is higher than the saliva of parotid and sublingual glands. Third, tortuous course of submandibuar duct. Fourth, dependant position of the submandibular duct.

Hypotheses regarding the pathogenesis suggest an initial organic nidus which grows progressively by the deposition of inorganic and organic substances or that intracellular microcalculi are excreted in the canal and act as a nidus for further calcification. The existence of mucosal plugs acting as a nidus in the ductal system was also reported. A possibility of bacteria, debris or substances migrating in the salivary ducts from oral cavity has also been suggested [6].

The key step in diagnosis of sialolithiasis is the elucidation of a thorough history and clinical examination. Various radiographic techniques are available for identification of sialoliths. Occlusal films and orthopantamograms are commonly radiographic techniques used to diagnose a sialolith [6]. Ultrasonographic (US) examination is considered as a simple and non invasive modality to evaluate sialoliths especially during the acute infection. Digital sialography and subtraction sialography have increased the sensitivity and specificity of conventional sialographic technique which are considered the gold standard [7].

The major advantage of these newer techniques is the production of an image without the superimposition of overlying anatomical structures. The major disadvantage is the need to use contrast agents that simulates conventional sialography [8]. These agents may expose the patient to radiation, because procedure associated pain, contraindicated during acute infections and perforate wall of the duct [7].

The treatment of sialolithiasis depends upon the size and location of the sialolith. Conservative management can be done for small stones [9]. The patient must be well hydrated and the clinician must apply moist warm heat and gland massage. Sialogogues promote saliva production and flush the stone off the duct. Salivary gland swelling and sialolithiasis when present, infection should be suspected and a penicillinase resistant anti – staphylococcal antibiotic can be prescribed. Most stones will respond to this regimen combined with simple sialolithotomy when required [10].

## CONCLUSION

Sialolithiasis is common in submandibular gland and duct and thus should be considered in the differential diagnosis in patients who present with swelling and pain in submandibular region. Establishing a diagnosis of sialolithiasis requires a thorough history and physical examination along with routine radiographs. The accepted treatment of sialolithiasis is surgical, either removal of the sialolith or complete excision of the gland.

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