



ORIGINAL RESEARCH PAPER

Oral and Maxillofacial Surgery

BULGE IN THE FLOOR OF MOUTH

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ABSTRACT Sialolithiasis forms the most common etiological factor for salivary gland obstruction which leads to recurrent painful swelling of the involved gland that often exacerbates while eating. Stones may be encountered in any of the salivary glands but most frequently in the submandibular gland and its duct. Here is a case in which patient presented himself with a painful swelling in the floor of mouth which used to exacerbate while having food. The detailed clinical, etiopathogenesis, differential diagnosis and treatment aspect has been discussed.

INTRODUCTION

Sialolithiasis is a condition characterized by the obstruction of a salivary gland or its excretory duct due to the formation of calcareous concretions or sialoliths, resulting in salivary duct dilation and even subsequent dilation of salivary gland. Subsequently there can be the infection of the salivary gland which may progress to chronic sialadenitis.¹

It affects 12 in 1000 of the adult population and has a male predominance. Children are rarely affected but a review of the literature reveals 100 cases of submandibular calculi in children aging between 3 weeks to 15 years. It is more commonly seen in middle aged people, the age range being 42-58.4 years.²

Sialoliths are more commonly associated with submandibular glands followed by the parotid, sublingual and minor salivary glands,^{3,4} the main reason is its anatomic location, length, tortuous course, a narrow orifice compared to the main portion of duct as well as secretions flowing against the gravity. Along with these factors, alkaline nature of the saliva which is rich in mucin also contributes to the calculi formation.² Intraductal stones are more common when compared to intraglandular stones.

CASE REPORT

A 48 year old male patient, reported to our hospital with a chief complaint of pain and swelling in the floor of mouth since 6 days (Figure 1). Pain was insidious in onset, intermittent, moderate in intensity, throbbing in nature, localized, aggravates before having food and relieves sometime later after having food. Patient also gave history of presence of swelling in the mouth below the tongue region. The painful swelling was insidious in onset and used to increase in size while having food and used to decrease in size later. Upon eliciting history patient gave similar episode of pain and swelling 3 months back for which he has taken medication in a private clinic and got relief for the same. There was no history of fever or any salty discharge in the oral cavity. There were no other significant swellings in the left submandibular region except for the tender and soft left submandibular lymph node. Upon intraoral examination salivary secretion was found to be normal in both quantity and quality. There was a solitary sessile oblong shaped swelling

present in the left side floor of the mouth in the region of Wharton's duct measuring about 2×0.5 cms which was reddish in colour; surface appears smooth without any secondary changes (Figure 2). Swelling was tender, firm in consistency with scanty serous discharge from the right Wharton's duct orifice upon palpation. There were no significant hard tissue findings. Considering all these a provisional diagnosis of left submandibular ductal sialolithiasis was made since the swelling was on the course of Wharton's duct. The list of differential diagnosis included were fibroma and long standing pyogenic granuloma.

Later the patient was subjected to radiologic examination. The mandibular cross-sectional occlusal radiograph revealed a well defined elongated radio opacity (Figure 3) left to the medial side of mandible which was not attached to it. The radiographic differential diagnosis included was, left submandibular ductal sialolith, calcified lymph node and calcified atheroma in the carotid artery. Since it was a large sialolith we planned to surgically remove it. The postoperative period was uneventful and patient was symptom free. Histopathological examination of the surgically excised specimen helped us to arrive at a final diagnosis of left submandibular sialolithiasis.

DISCUSSION

Sialoliths are the most commonly encountered radiopacities in the oral region, usually noticed during routine dental or head and neck radiographic evaluations.⁵

Exact etiopathogenesis of salivary calculi is unknown. Formation of calculi is due to relative stagnation of calcium rich saliva. It occurs as a result of deposition of calcium salts around an initial organic nidus which consists of altered salivary mucins, bacteria and desquamated epithelial cells. For calculi formation there should be intermittent stasis, which causes a change in the mucoid element of saliva which forms a gel like substance. This gel forms a foundation for deposition of salts and organic substances creating a calculi. Existing theories states that there are two phases in the formation of calculi: a central core and a layered periphery. The central core occurs by salt precipitation, which is surrounded by organic substances. In the second phase there is layered deposition of organic and inorganic material.

Submandibular calculi are known to occur around a nidus of mucous, whereas parotid calculi arises around a nidus of inflammatory cells or a foreign body. One more theory proposes that some unknown metabolic event can raise the saliva bicarbonate level, which can alter the calcium phosphate solubility and can precipitate calcium and phosphate ions. There is a retrograde theory for sialolithiasis which states that aliments, substances or bacteria within the oral cavity can migrate into the salivary ducts to form nidus for calcification. Salivary stagnation, increase in alkalinity of saliva, infection or inflammation of the salivary gland or duct, and physical trauma to salivary duct or gland may lead to calculi formation.^{6,7}

Submandibular sialolithiasis is very common because saliva is (i) more alkaline, (ii) concentration of calcium and phosphate is high, and (iii) high mucous content compared to parotid and sublingual glands secretion and also the duct of submandibular gland is longer and the saliva has an antigravity flow.^{6,7}

Obstruction of a salivary gland or its duct by a sialolith is marked by a series of symptoms. At first there is salivary duct swelling, which can occur at meal time or it can be present without any obvious reason. These symptom lasts for a short time, less than 2 hours and then it disappears throughout the day. At times, the swelling is accompanied by pain and then the patient presents with an episode of salivary colic, where there is an acute, lacerating pain which disappears after 15 or 20 mins.

In our case, the patient experienced a characteristic pain with halitosis and rotten-tasting mouth.¹

Sialoliths are more or less organized hard concretions of a pale yellow colour and are porous. They can be oval, round or long in shape, although one can also find them in the cast form.^{1,3,4} In our case also the sialolith was large and oblong in shape.

Microscopically, the calcified mass had concentric laminations around a central core of amorphous debris. If the associated duct is removed with the calculi, it often shows squamous, oncocytic or mucous cell metaplasia. Periductal inflammation is also seen in most of the cases.^{3,4}

Smaller sialoliths of major glands can be treated without surgery by gentle massage of the gland to milk the stone towards the ductal orifice. Sialagogues, moist heat, and increased fluid intake can also promote passage of the stone through the duct. Larger sialoliths usually requires surgical intervention. If there is significant inflammatory damage which has occurred within the feeding gland then the gland excision might be required. Minor gland sialoliths are best treated by surgical removal along with the excision of the associated gland.^{3,4}

Salivary gland endoscopy is a recent advancement which is very useful in the removal of some major gland sialoliths. This technique may be combined with intracorporeal lithotripsy which will help to break the calculi in to smaller fragment. Extracorporeal shock wave lithotripsy also has been used successfully in Europe and Japan for the management of such patients.⁴

CONCLUSION

Even though the submandibular sialolithiasis is the most commonly occurring salivary gland disease and has a classic features, it has to be distinguished from other entities which mimics this disease. Hence a thorough knowledge of this disease is very much essential for the better management of the patient.

Figure 1 – Extraoral Photograph



Figure 2 – Intraoral Photograph



Figure 3 – Occlusal Radiograph



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