Sublingual Gland Sialolithiasis

ABSTRACT

Sublingual gland sialolithiasis is rare and may be misdiagnosed as submandibular gland sialolithiasis, which is more common. It is important to preoperatively determine which gland is involved, because they require different surgical approaches. Computed tomography is useful for distinguishing between sublingual gland and submandibular gland sialolithiasis. Here we present a case of sublingual sialolithiasis in a 40-year-old male patient.

Keywords: Floor of mouth swelling, Salivary duct stone, Salivary gland calculi, Salivary gland swelling, Sialolith.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

Sialolith is one of the most common diseases of salivary glands. It is estimated to have a frequency of 0.15% in the adult population with slight male predilection.1 Most stones develop in the Wharton’s duct of the submandibular gland, followed by the Stensen’s duct of the parotid gland. Only 1 to 6.5% of stones occur in the ductal system of the sublingual gland. The etiology underlying the formation of sialoliths remains unclear. The higher incidence of submandibular gland sialolithiasis than parotid gland sialolithiasis may be due to the composition of the saliva of the submandibular gland, which is more alkaline, viscous, and has higher concentrations of calcium and phosphate, and the angulated course of the Wharton’s duct, with an antigravity flow pattern.2

However, the saliva of the sublingual gland is more a pure mucus type and the viscosity of the secretion of the salivary gland is sixfold that of the submandibular gland. In addition, the saliva outflow of the sublingual gland is slower than that of the submandibular gland and also has an antigravity flow pattern.3

CASE REPORT

A 40-year-old male patient reported with a complaint of pain and swelling below the tongue since 6 months. Patient had no relevant family history and smoked four to five bidis per day. On general physical examination, no abnormality was detected and all vital signs were within the normal parameters. A solitary swelling was detected sublingually, lateral to the lingual frenum. The swelling was erythematous, oval in shape of size about 0.1 × 0.5 cm. The swelling was hard in consistency, had regular well-defined margins and showed no mobility, fluctuation, compressibility, or translucency (Fig. 1).

Radiographically, the mandibular topographic view revealed well-circumscribed, oval radiopacity in sublingual soft tissue space lateral to the midline (Fig. 2). Blood investigations of the patient were found to be normal. Provisionally, the lesion was diagnosed as salivary gland calculi. Surgical enucleation with curettage of the lesion was done. The excisional biopsy was sent for histopathological examination. Histopathological picture showed numerous elongated calcified bodies with debris in background (Fig. 3).

Under higher magnification, the calcified bodies are lamellated structures with irregular surface and in some areas show globular pattern of mineralization (Fig. 4). Numerous bacterial colonies are also seen in association with calcified bodies. Background comprises of amorphous debris along with chronic inflammatory infiltrate (predominantly lymphocytes) and extravasated red blood cells. With clinicopathologic correlation, the final
The diagnosis given was of salivary gland calculi. Excisional biopsy was performed and was curative for the patient. On follow-up, patient presented with no further symptoms.

**DISCUSSION**

The submandibular gland is the most common site for sialolithiasis, followed by the parotid gland. The sublingual gland and minor glands are very rare sites for sialolithiasis. The major complaints are pain and swelling. Sialolithiasis presents with painful swelling (59%), painless swelling (29%), and pain only (12%), and patients are afflicted with a recurrent salivary colic and spasmodic pain upon eating.4

Different etiological hypotheses have been proposed about salivary gland calculi: mechanical, inflammatory, chemical, neurogenic, infectious, foreign bodies, etc. However, it seems that the combination of a variety of these factors usually determines the precipitation of the amorphous tricalcic phosphate, which, once crystallized and transformed into hydroxyapatite, becomes the initial focus. Bacterial infections are important factors involved in calculus formation.5

Toxins produced by bacteria can produce a local environment with pH less than 5.5, which causes tissue damage. When tissue healing processes reestablish the 7.2 pH, crystallization of salivary ions, especially calcium phosphates, occurs. Poor oral hygiene and decayed teeth might also be the etiologic risk factors in our patient.6

Differential diagnosis includes viral sialadenitis, acute bacterial sialadenitis, Sjogren’s disease, sarcoidosis, and radiation sialadenitis. Sialolithiasis treatment depends on the localization of the salivary calculus; for those closer to the ostium, duct catheterization and dilatation facilitate and allow retrieval of the sialolith. For those located in the anterior half of the duct, surgical intervention is the best choice. Finally, the ones located in the posterior region of the duct or within the gland may require total gland removal.7

The location of the stone and the involved gland must be known preoperatively, because sublingual gland sialolithiasis is usually treated with resection of the sublingual gland with the stone via a transoral approach, in contrast to submandibular gland sialolithiasis, which is treated with transoral sialolithotomy or excision of the submandibular gland through an external approach.8

When an accompanying abscess develops, it is easier to identify which gland is involved and where the stone is located by physical examination, because a sublingual gland abscess usually presents with painful swelling over the unilateral mouth floor, whereas a submandibular gland abscess always presents with painful swelling over the submandibular area of the neck. However, when the abscess becomes larger, with the infection spreading widely into the adjacent tissue, it is somewhat difficult.
to distinguish between them by physical examination. A plain film cannot distinguish between a sublingual gland stone and a submandibular gland stone, except when a stone is located in the distal end of Wharton’s duct. In this condition, computed tomography (CT) is useful for determining which duct the stone is located in.9

The management of sialolith is based on its location and the symptoms associated with it. Moist warm heat application with administration of sialogogues and gland massage helps in flushing the stone out of the duct. Most stones will respond to antibiotics, combined with simple sialolithotomy. Under regional anesthesia, once the sialolith had been located, the orifice of the salivary duct has to be surgically enlarged with a long incision.10

A small pressure exerted at the level of the distal ligature will provoke the discharge of the sialolith through the incision. Risks of this procedure include infection and bleeding. More uniquely to this procedure is the risk of duct scarring resulting in recurrent gland swelling. There is also a small risk of numbness to the floor of mouth region. In cases of bigger stones, prior fragmentation is necessary using an external lithotripter, or laser can be used if necessary. Stenoses in the main duct are treated with metallic dilators although balloon catheters under endoscopic control is preferred when strictures are localized or situated in peripheral areas.11

CONCLUSION

In conclusion, sublingual gland sialolithiasis is uncommon and potentially misdiagnosed as submandibular gland sialolithiasis, which is more common. Preoperative differential diagnosis between them is important, because of their different surgical approaches. Coronal and axial views of the CT scan are helpful in making the correct diagnosis if physical findings are indeterminate.

REFERENCES