CASE REPORT

SIALOLITHIASIS IN REMNANT OF WHARTON’S DUCT- A CASE REPORT WITH RADIOLOGICAL REVIEW

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Abstract

Sialolithiasis in remnant of Wharton's duct after removal of submandibular salivary gland is a rare condition. Stones may become symptomatic in remnant of Wharton's duct. It may be due to remnant from original surgery or via de novo formation. Patients undergoing submandibular gland excision for sialolithiasis should be made aware of this condition. Even the surgeon operating for sialolithiasis should be aware of this condition and should take necessary precautions while performing the surgery. We present a case of 30 years old male patient presenting with sialolithiasis in a remnant of Wharton’s duct, two years after the removal of submandibular salivary gland.

Discussion

Majority of calculi in submandibular gland are located in Wharton’s duct, with the ratio of 7:3 compared to intra-glandular stones. Sialolithiasis are usually found in distal portion of the duct or at the hilum of submandibular gland. It may be due to remnant from original surgery or via de novo formation.
F i g u r e  1: Ultrasound in longitudinal (LS) axis of right submandibular region showing dilated Wharton’s duct with echoreflective calculus (marked by arrow) in medial portion of remains of Wharton’s duct. (Previous history of removal of right submandibular salivary gland).

F i g u r e  2: Ultrasound in longitudinal (LS) and transverse (TS) axis of right submandibular region showing dilated Wharton’s duct with echoreflective calculus (marked by arrow) in medial portion of remains of Wharton’s duct. (Previous history of removal of right submandibular salivary gland).

Pathogenesis of calculus in remnants of Wharton’s duct is difficult to assess. One possibility is that a smaller sized calculus would have been present at time of initial surgery for removal of submandibular salivary gland which later on can grow. The patient must have retrograde flow of saliva from mouth into Wharton’s duct to allow increase in size of the calculus. 90% of salivary ducts in distal duct have a sphincter like mechanism which can allow retrograde migration of oral material. Another possibility is stone can develop in the Wharton’s duct de novo after excision of submandibular gland. The nucleus may be present before or can develop secondary to subclinical infection in the duct with subsequent layering of nucleus added by retrograde flow of saliva into the duct. Further research and studies are needed to understand pathogenesis of formation of sialolith in remnant of Wharton’s duct after removal of submandibular salivary gland.

Sialolithiasis can be diagnosed radiographically, sialography, ultrasonography (US),computed tomography (CT), magnetic resonance imaging (MRI) and MRI sialography. Sialolith can be diagnosed radio-
graphically as a radiopaque structure which may be homogenous or with a laminated structure. Few calculi may be radiolucent. On USG, calculus is seen as well-defined echoreflective round or oval structure causing posterior acoustic shadowing. It is diagnostic method for detecting non-opaque calculi. US can show dilatation of proximal salivary duct. Calculi smaller than 2 mm may not produce acoustic shadowing. Small calculi in intraparenchymal ducts with no duct distension may be missed on US. Hyperechogenic air bubbles with saliva may simulate stones. Unenhanced CT is the best method for detection of radiopaque sialolithiasis within gland or along course of duct. It is useful in differentiating a cluster of fine stones from a large calculus. It cannot detect radiolucent calculi. It has disadvantage of poor visualization of salivary ducts with exposure of patient to ionizing radiation and high cost of examination. Magnetic Resonance Sialography is a non-invasive method with no exposure of patients to ionizing radiation or iodine contrast administration. It can be carried out in acute inflammation of the salivary gland. It is an alternative of digital subtraction sialography, especially in cases of acute sialoadenitis or failure of salivary opening cannulation. It allows precise evaluation of salivary ducts and its branches up to tertiary level. It is performed before and after stimulation with lemon juice. It allows visualization of intraglandular duct dilatation, co-existing stenosis, visualization of tiny calculi not found with USG.  

Conclusion

This case emphasizes that even after removal of submandibular salivary gland, sialolith can develop in remnants of Wharton’s duct and cause symptoms even after initial surgery.

References


