

**Unusually Sized Sialolith: A Case Report and Review of Literature**

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**Citation of this Article:** Dr. Jitendra Kumar, Dr. Pankaj Goel, Dr. Arif Merchant, “Unusually Sized Sialolith: A Case Report and Review of Literature”, IJDSIR- September - 2021, Vol. – 4, Issue - 5, P. No. 203 – 206.

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**Type of Publication:** Case Report

**Conflicts of Interest:** Nil

**Abstract**

Sialoliths are considered to be the second most common anomalies of the salivary glands. They are most frequently seen in submandibular glands due to various anatomic and physiologic reasons. Its estimated frequency is 1.2% (12 in 1000) in the adult population every year, with a slight male predominance (2:1). Commonly, sialoliths measure from 5 to 10 mm in size, sialolith measuring more than 10 mm are extremely rare. Here we present a case with an unusually sized sialolith in Wharton’s duct of right submandibular gland in an 30 years old female patient and a review of the literature about the unusually sized sialoliths and various anatomical and physiological consideration of the duct which contribute to the higher incidence of sialolith in the duct.

**Keywords:** Sialolithiasis, Wharton’s duct, Sialolithotomy, Sialolith.

**Introduction**

Sialolithiasis is a condition in which calcific concretions are formed within the salivary gland parenchyma or its duct<sup>1</sup>. The sialoliths has crystalline structure, and primarily comprise of hydroxyapatite. Its chemical composition comprises of calcium phosphate and carbon, with traces of magnesium, potassium chloride, and ammonium<sup>2</sup>. The colour may vary depending upon their organic matrix from chalky white to pale yellow or even orange. They easily disintegrate like a chalk, if manipulated with force<sup>1</sup>.

Sialolithiasis is second most common salivary gland disorder which accounts for about 1.2% of major salivary gland swelling. Submandibular gland has got highest predilection for sialolithiasis, followed by parotid gland and rarely in the sublingual glands. Sialolithiasis more frequently appears between 3<sup>rd</sup> to 6<sup>th</sup> decade of life and it is uncommon in pediatric population with only 3% of

occurrence rate until to date. Males are affected twice as much as females<sup>3</sup>.

Commonly, sialoliths are less than 10 mm in size. They are rarely larger than 10 mm<sup>4</sup>. The aim of this article is to report a case of a salivary duct stone of unusual dimension and discuss its surgical management.

### Case report

A 28-year-old female patient reported with chief complaint of pain in the right side under the tongue from last 10 years. Pain was dull, continuous and radiating to temporal region which aggravated during meals and subsided in few hours after meals. Even the pain subsided by taking medications. The patient also reported with history of 4-5 episodes of bleeding from floor of the mouth in last 2-3 months after which patient reported to our department. Clinical examination revealed a hard swelling at the floor of the mouth about 2 cm over right across midline. The swelling was tender on palpation. Intraorally, palpation revealed induration along the right Wharton's duct with purulent discharge from the duct orifice. On occlusal radiograph an oval elongated radiopaque mass of 13mm located within the right side of wharton's duct (Figure 1). Right submandibular lymph node was palpable single in no, mobile and tender. On assessment of physical and radiographic findings, a diagnosis of sialolithi as is of the right Wharton's duct was made.

After administer in glingual nerve block with 2% lignocaine local anaesthetic, sialolithotomy was performed via intraoral approach. Posterior to the sialolith a stay suture was given around warthog's duct with 2-0 silk suture to prevent posterior slippage of sialolith in gland. The ends of the suture were left long to aid in traction of the duct (Figure 2). Upward and medial pressure was applied to the submandibular gland to make the sialolith prominent at the floor of mouth and was stabilized. An

incision of 2 cm length was placed directly over the sialolith for its exposure (Figure 3). The sialolith was carefully dissected and a hard, spherical shape, rough surface and yellow colour mass was extirpated. It measured 13.5x11 mm. Along with this a small 3x2.5 mm of sialolith was also retrieved from same site (Figure 4). The stay suture was removed and confirmatory radiograph was done. Then mucosa was sutured with 3-0 silk suture (Figure 5). Patient was instructed to maintain hydration and apply 3-4 drops of lemon drop on her tongue for 3-4 times per day. Medication prescribed for 5 days was tablet amoxicillin 500 mg+ clavulanic acid 125 mg bd, tablet metronidazole 400 mg tds, tablet aceclofen + paracetamol bd, capsule pantoprazole + domperidone od. Advised to come after 1 week for suture removal. After 1 month of follow up, healing was found satisfactory and salivary flow as normal and patient was relieved of symptoms.

### Discussion

It is difficult to assess the true prevalence of sialolithiasis as many cases are asymptomatic. The etiology of sialolith formation is still unknown, yet numerous factors causing pooling of saliva within the duct contribute to stone formation<sup>2</sup>. Various reasons for common involvement of submandibular gland have been proposed.

- A) Ph of saliva: The alkaline salivary pH in submandibular gland favour precipitation of calcium salts.
- B) Calcium content: A relatively higher concentration of calcium and phosphate salts in form of apatites is found in Submandibular gland.
- C) Viscosity: A higher mucous content expresses more viscous saliva from the submandibular gland in the oral cavity.
- d) Anatomic factors: The submandibular duct drains saliva against the gravity as the gland is situated lower than the ductal orifice, contributing to stagnation. Additionally, the course of the ducts is long and tortuous. Presence of

lingual nerve is also responsible for possible kinking of the duct in its due course. There is also a possible kinking/bend of the duct passes where it passes over the posterior border of mylohyoid.<sup>1</sup>

Giant sialoliths are rare occurrences with sizes varying from 1 to 7 cm, mostly in male patients<sup>5</sup> wherein the present case report observed it in female patient.

Salivary stones are single in 70 to 80% of cases, two in 20% of cases and seldom more than two in 5% of cases.<sup>6</sup> However; in present case we found that the right submandibular gland was affected with one small and one giant sialolith in its duct.

As submandibular stones are mostly radiopaque, standard mandibular occlusal radiograph and panoramic radiograph reveal calcification within the duct and submandibular gland respectively.<sup>7</sup> Even in our case, occlusal radiographs have been taken. Less mineralized calculi can be visualized by sialography or sialoendoscopy. Other imaging techniques include lateral oblique, submentovertex view, apart from this, ultrasonography, CT and MRI may also be used to detect calculi and to diagnose atrophy of the gland, and these are less invasive unlike sialography which requires an injection of contrast medium.<sup>6</sup>

Treatment depends upon the location and size of the sialolith. If it is small, conservative measures, such as effective hydration, use of heat, gland massage and sialogogues and a course of oral antibiotics will be helpful. In our case, the giant intra ductal sialolith was retrieved by Trans oral sialolithotomy procedure, which is the commonly used surgical procedure for palpable intraductal sialoliths. Advanced treatment modalities include CO2 laser, combined approach of sialoendoscopy plus open Sialolithotomy and sialolithotripsy in which calculus will be broken and washed down. However, if the

gland has been damaged by recurrent infection and fibrosis then excision of the gland becomes necessary.<sup>6</sup>

### **Conclusion**

This case report represents the Sialolith within the Wharton's duct of right submandibular gland which underwent Trans oral sialolithotomy procedure under local anaesthesia.

According to literature different treatment modalities has been discussed depending upon the size and location of sialolith which ranged from simple conservative management to advanced surgical procedures. So prompt attempt should be undertaken to prevent the inflammation of ductal system otherwise in recurrent cases gland removal should be done.

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**Legend Figures**



Fig. 1: Occlusal radiograph showing radiopacity in right side of floor of mouth.



Fig. 2: 2-0 Silk suture posterior to warthin's duct for traction of duct.

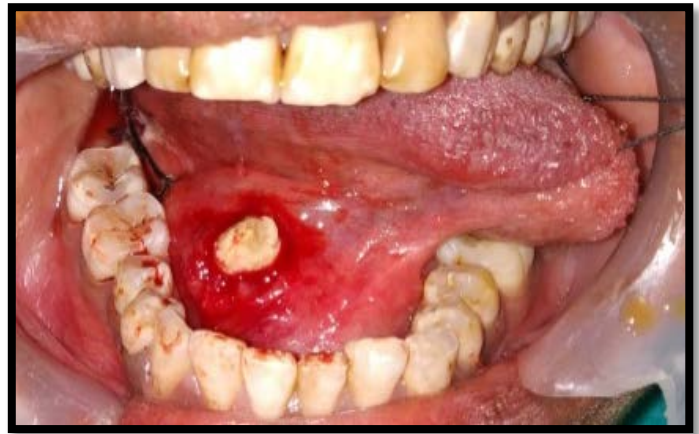


Fig. 3: Prominent sialolith on floor of mouth.



Fig. 4: Retrieved large sialolith of 13.5 x 11 mm size and a small Sialolith seen at left side of picture size 3 x 2.5 mm.



Fig. 5: Mucosa was sutured with 3-0 silk suture.