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**A CASE REPORT ON SUBMANDIBULAR MEGALITH****Gaurav Solanki***Jodhpur National University, Jodhpur-324003, (Rajasthan) India***Corresponding author\*:** [dr\\_gaurav\\_solanki@yahoo.com](mailto:dr_gaurav_solanki@yahoo.com)**Abstracts**

Sialolithiasis stands for the most etiology of salivary gland obstruction which leads to recurrent painful swelling of the involved gland which often increases while eating. Stones may be seen in any of the salivary glands but mostly seen in submandibular gland and its ducts. Here is a case of 67 years old male patient who had a giant submandibular sialolith. Orthopantomograph was used to confirm the clinical diagnosis. The sialolith was removed with intraoral approach and no postoperative complications were noted. The article also reviews the various available diagnostic modalities and treatment options.

**Keywords:** Sialolithiasis, techniques, Magnetic resonance sialography, treatment**1. Introduction:**

Sialolithiasis is the most common disease of the salivary glands and is the major cause of salivary gland dysfunction. Many studies reveal that males are more commonly affected than females. Persons in their middle age are more affected (age range 42-58yrs). The submandibular gland is most commonly involved followed by parotid, sublingual and minor salivary glands. Intra-ductal stones are more common compared to intra-glandular stones<sup>1</sup>. The submandibular gland is more affected because of its anatomic location, long, tortuous duct with a narrow orifice compared to the main portion of duct. Along with these factors, alkaline saliva rich in mucin also contributes to the stone formation<sup>2,3</sup>.

**2. Case History:**

A 67 year old male patient reported with a chief complaint of a mass in left side floor of the mouth for one month duration. There was no significant history of associated pain or any other complaints. The patient's medical and dental history was also not significant. Clinical examination revealed a well defined hard mass in the left anterior region perforating the floor of the mouth. The mass was a yellowish-white, non tender, indentation being noted on the ventral surface of the tongue opposing the mass. Orthopantomograph (OPG) revealed a well defined radio-opaque mass extending from the left mandibular canine distally and apically beyond the first molar. On the basis of

clinical and radiological findings, a diagnosis of left submandibular duct sialolith was made. The sialolith was excised surgically with intraoral approach under local anaesthesia, the stone measured 28millimetres (mm) and was yellowish-white in colour. No postoperative complications were noted.

**3. Discussion:**

Most cases of submandibular sialoliths are asymptomatic. Pain and swelling may be the cardinal signs and symptoms which are more pronounced on anticipation of food due to obstruction of salivary flow<sup>4</sup>. Hypotheses regarding the pathogenesis suggest that, there is an initial organic nidus which progressively grows by the deposition of inorganic and organic substances or that intracellular micro-calculi are excreted in the canal and act as a nidus for further calcification. In some cases, the existence of mucosal plugs acting as a nidus in the ductal system was reported. A possibility of debris, bacteria or substances in the salivary ducts from oral cavity has also been suggested<sup>5</sup>.

Few is any systemic disorders are associated with sialolith formation, with the exception of gout which may predispose to sialolith formation. In the literature, sialoliths measuring more than 15 millimeters (mm) were considered rare; various reports of submandibular sialoliths measuring between 21mm and 32mm have been reported. The sialolith observed in the case was quite large, measuring approximately 28mm<sup>6</sup>.

For diagnosis of sialolith, thorough history and clinical examination are needed. Various clinical and imaging methods are available for diagnosing it; the clinical scenario with which the patient presents the clinician defines the algorithm for salivary gland imaging. Occlusal and panoramic views are the most common radiographic techniques used to diagnose sialolith. All salivary stones can be visualized through conventional radiograph because a few of them are hypo-mineralized and are super-imposed by other radio-dense tissues. In these cases other advanced imaging modality should be considered<sup>7</sup>. Ultrasonographic (US) examination is considered as a simple and non-invasive modality to evaluate sialoliths especially during acute infection. US examination is considered less accurate in comparison to computerized tomography (CT) in distinguishing multiple stones. It has also been reported that sialoliths smaller than 3mm may not be detected during US examination, as they will not produce acoustic shadows. Digital sialography and subtraction sialography have increased the sensitivity and specificity of conventional sialography techniques that were considered gold standard. The major advantage of these newer techniques is the production of an image without the superimposition of overlying anatomical structures. The disadvantage is the need to use contrast agents that stimulates conventional sialography. These agents may expose the patient to radiation hazards, can cause pain associated with the procedure, perforate the duct's wall and may be contraindicated during acute infection<sup>8</sup>.

CT sialography has been used to delineate the ductal system of submandibular gland; this technique demonstrates the soft tissue of gland and ductal system with 3D reconstruction that avoids superimposition of anatomic structures. This technique has similar disadvantages that are seen with other sialography techniques. Magnetic resonance sialography (MRS) is a new technique that is considered an excellent radiological modality for the diagnosis of sialolithiasis. MRS may be indicated in cases of acute infection where other sialography are contraindicated since MRS does not require cannulation of the duct. Other advantages of this technique are the low radiation doses and lack of pain associated with procedure. The disadvantages of this technique include

claustrophobia, cost factors, artifacts and contraindication in patients with cardiac pacemakers. Diagnostic sialadenoscopy is a newer technique in which the complete ductal system can be explored. It provides direct and reliable diagnostic information of ductal pathologies. The need for technical perfection is the only limitation of this technique<sup>9</sup>.

The algorithm for the treatment of sialolithiasis depends upon the size and location of sialolith. In cases of small sialoliths, conservative methods such as proper hydration of the patient, application of moist warm heat and massaging the gland in conjunction with sialogogues can be done. Small stones can also be milked out through ductal orifices by bimanual palpation. Transoral removal is the treatment of choice for submandibular sialoliths which can be bimanually palpated and localized by ultrasonography. Sialodochoplasty can be performed to remove submandibular sialoliths which are located close to the orifice of Warthin's duct. To remove the stones distal to the punctum, a transverse incision can be made distally on the stone taking care not to injure the lingual nerve, as performed in our case also. Surgical removal of the gland can also be done. For large sialoliths which are located in the close proximal duct, extracorporeal shock wave lithotripsy (ESWL) can be considered. ESWL is also gaining importance because of less damage to the adjacent tissues during procedure<sup>10</sup>. Sialadenoscopy, which is a non-invasive technique, can be used to manage large sialoliths as well as ductal obliteration. CO<sub>2</sub> lasers are also gaining its popularity in the treatment of sialolithiasis because of its advantages of minimal bleeding, less scarring, clear vision and minimal postoperative complications.

#### **Conclusion:**

Although various advanced diagnostic and treatment modalities have emerged in the management of sialoliths, the conventional techniques retain their popularity to date. A case of giant submandibular sialolith was reported which was diagnosed clinically and radiographically and treated with no postoperative complications.

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