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Sialolith Conservative and Surgical Management

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The sialolith is a calcified mass with laminated layers of inorganic material. It results from the crystallization of salivary solute. It is yellowish white in color, single multiple, may be rounded, ovoid or elongated having the size of 2cm or above or more in diameter the minerals are various forms of calcium phosphate like hydroxyapatite octacalcium phosphate etc. calcium and phosphorous ions are deposited on the organic nidus, which may be , desquamated epithelial cell , bacteria , foreign particles or products of bacterial deposition ,it is said that the sialoliths grow at the rate of 1mm per year, which may form in the parenchyma or the duct of the major or minor salivary gland about 90 percentage of sialolith forms in the submandibular salivary gland, its treatment part is too vast and can be treated conservatively and as well as by the surgical methods at the advanced stages of salivary diseases

Key words: Parenchymal cells, Salivary glands, warthin's tumor, Sialographs, Calcium phosphate, Excision of glands.

Sialoliths are calcified structures that develop within the ductal system of a major and minor salivary gland, it is both a cause and a consequence of chronic recurring sialadenitis, and it is frequently a cause of acute suppurative sialodenitis , the stone are commonly composed of organic calcium and sodium phosphate saltssthey are belived to arise from deposition of these salts around a nidus of debris within the duct lumen , the debris may include inspissated mucus , bacteria, ductal, epithelial cells or foreign bodies.

Patients with sialoliths most commonly present with a history of acute, painful and intermediate swelling of the affected major salivary gland, the degree of symptoms is dependent on the extent of salivary duct abstructions and the presence of secondary infection, typically eating will initiate the salivary gland swelling, the stones totally or partially blocks the flow of saliva, causing salivary pooling within the gland ductal system. Since the gland are encapsulated, there is little space foe expansion and enlargement causes pain and discomfort, then the swelling subsides when salivary stimulation ceases and output decreases[1, 2].

Salivary glands with obstructive sialoliths are frequently enlarged and tender , stasis of the saliva may lead to infection fibrosis and gland atrophy, fistulae , a sinus tract or ulceration may occur over the stone in chronic cases , an examination of the soft tissue surrounding the duct may show edema and inflammation , digital along the pathway of the duct may confirm the presence of the stone, suppurative or nonsuppurative retrograde bacterial infection can occur , particularly when

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the obstruction is chronic and other complications from sialoliths include acute sialadenitis , ductal stricture and ductal dilation, 98

These stones are very well identified with a help of radiographs , an occlusal radiograph is recommended for submandibular glands , stones in the parotid gland can be more difficult to visualize due to the superimposition of other anatomic structures, an AP view of the face is useful for visualization of the parotid stone, an occlusal film places as intra orally adjacent to the duct may also help, CT images may be used for the diagnosis of sialoliths calcified phelepholiths are some stones that lie within the blood vessels can therefore identified by sialograph. A small probe is attached to a specially designed endoscopic unit can explore primary and secondary ductal system [2, 3, 4, 5, 6]

A relative new technique for visualizing and subsequently removing sialoliths is sialoendoscopy; the endoscopic unit has a surgical tip that cab obtains soft tissue biopsies and help to remove calcified materials using a minimally invasive technique under general anesthesia [7, 10].

During acute phase of therapy is primarily supportive standard care includes analgesics, hydration, antibiotics and antipyretics are necessary. The stones that are near the orifice of the duct can often be removed Trans orally by milking the gland and but deeper stones require removal with surgery under endoscopy

Methods and procedure

Records of 22 patients with sialolithiasis in the submandibular and parotid and sublingual gland were reviewed. All the patients were treated between May 2012 – Dec 2013. No sex predilection was followed. All the cases were treated under local anesthesia. Pre anesthetic concern, neurology and ophthalmology opinions were obtained for all the cases. Clinical examination was correlated with radiographic and CT findings. Age range of patients for the study was between 20 -40.

Xylocaine with 1: 80,000 adrenaline was infiltrated in the surgical site to achieve haemostasis, local anaesthesia inferior alveolar nerve block and infiltrations was administered intra orally. Skin and intra oral preparation were done with Butadiene. The exact site of the stone is located by x-rays and palpation, following this a suture may be placed behind the stones to prevent its backward movement, the tongue is lifted and held with the help of a gauze.

Incision is made in the mucosa parallel to the duct taking care not to injure the structures like lingual nerve and sub lingual glands .after this, blunt dissection is carried out , the tissues are displaced to locate the duct , once part of the duct lodging the stone is identified , a longitudinal incision is made over the stone, the stone is removed using small forceps, incise stone is large it is crushed with a help of the forceps, following this is a cannula ,may be passed to aspirate the pieces of stones , mucin etc. , the patency of the duct anterior to the surgical area should be ensured by passing a probe. A 3.0 silk suture is placed at the level of the mucosa. After the procedure patient should be reviewed post operatively after 3 days, the following parameters should be checked. Tongue movement, speech, paraesthesia, wound healing etc.

RESULTS

End results in the study of 22 patients treated with Trans oral sialolithotomy were reviewed. None of the patients experienced secondary infections. No slurring of speech was recorded. Three patients had paresthesia of mental nerve. Wound healing was uneventful in all the cases. Tongue movement was good in all the cases. Post-operative radiographs were taken for all the patients. Since layered suturing was done, scar was non prominent and was not visible. The results claim Trans oral sialolithotomy approach is a meticulous technique in surgical removal of the submandibular salivary stones, than the other various techniques.

DISCUSSIONS

These sialolitha are calcified organic matter that forms with in the secretory system of the major and minor salivary glands, it is difficult to determine since many cases are asymptomatic and very painful, due to its severity in pain and swelling characteristics clinicians may tend to confuse with odontogenic infections and diseases and find difficult in diagnosing ,and so various radiographs that includes AP views , occlusal radiographs ,sialoendo scopes are done,its etiology and recurrence rates are well explained by grasas

Fig. 1. Pre operative radiograph

Fig. 2. L.a infiltration

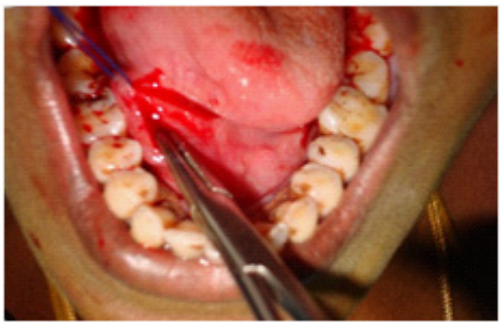

Fig. 3. Iincision placed

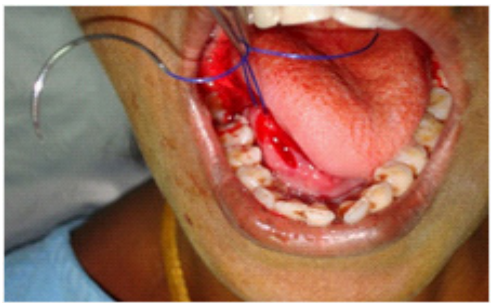

Fig. 4. Retaction with suture

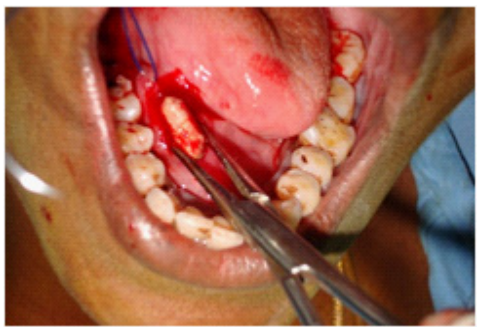

Fig. 5. Calculi removed

Fig. 6. Specimen

F,Santiago c,simonet BM,costa –beuza[13]. if stone can be removed from the duct without damaging the body of the gland , nearly completesalivary cann occur[8]. Lithotripsy and sialoendoscopy can be helpful as non invasive or minimally invasive treatments for sialolitha[11,7]. ultrasonography will detect stones and extracorporeal lithotripsy procedures may be needed, it has been reptorted that more effective for parotid versus submandibular calculi with a 68% success rate after 10 years[12] .Reported complications from lithitripsy include transient hearing changes , hematoma, and pain. Sialoendoscopyis anendoscopic technique useful for soft tissue biopsies , explorative procedures and removal of stones[4 ,10].

Visualization helps the practitioner to establish a diagnosis and determine the least invasive treatment of choice , with few complications encountered[4].

CONCLUSION

The authors conclude that Transoral sialolithotomy is a versatile technique for the surgical management of Sialolithiasis . Transoral

sialolithotomy is a meticulous technique as it involves short duration of local anaesthesia, decreased possibility of facial nerve and inferior alveolar damage. The scar is non visible. At the end of this study, Transoral sialolithotomy approach is found to be an excellent method for the surgical removal of salivary stones from major salivary glands.

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