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Surgical management of Sialolithiasiswith minimal incisionby extraoral push method: A case report.

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Abstract:
Salivary gland calculi account for the most common disease of the salivary glands. The majorities of sialoliths occurs in the submandibular gland or its duct and are a common cause of acute and chronic infections. As in our case the patient reported to us after taking all the conservative management but patient could not get relief so we plan for the removal of stone. As the size submandibular gland sialolith was not very big it was removed intraoral with small nick incision by pushing submandibular gland extra orally.

Key word:*Gland,Salivary,sialolith,*

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I. Introduction

Salivary calculi form when chemicals in the saliva accumulate in the duct or gland. Salivary calculi are usually unilateral and are not a cause of dry mouth.[1]They consist of mainly calcium phosphate with smaller amounts of carbonates in the form of hydroxyapatite, with smaller amounts of magnesium, potassium and ammonia[2,3]. The various factors which are contributing to less saliva production and/or thickened saliva may be risk factors for salivary calculi. Multiple calculi in the submandibular gland are rare.[4] There is a male predilection, [5] and are affected twice as much as females.[6] Children are rarely affected but a review of the literature reveals 100 cases of submandibular calculi in children aged 3 weeks to 15 years old.[7]

The surgical removal of stone depends on the gland affected, stone location and availability and affordability of the management.

II. Case Report

A 35-year-old male patient reported to us at King George's Medical University, Lucknow, following referral by general dental practitioner (GDP) for an opinion as he was taking lot of medication but there was no relief in swelling and pain over lower jaw on eating.

In the department it was properly examined and observed extra oral palpable right submandibular gland and intra-oral examination revealed a firm mass in the posterior part of the right side of the floor of the mouth only by palpation on lifting the submandibular gland extraoraly, the firm mass was, non-tender. A lower occlusal radiograph was advised but in this view stone was not visible, then OPG and CT scan advised that reveal the clear picture.SIn OPG and CT scan it was clear that a 5mm sialolith was present in submandimular gland. (figure 1,2,)

As there was single small stone in gland and it was not infected so under local anesthesia a small nick incision given on floor of mouth posterierly beside second lower molar region minimal blunt dissection was done, sialolith present in duct was pushed extra-orally in the superior direction. The protuberance of stone with in the duct was felt and palpated, a small nick incision was given over the duct and stone was grasped with an artery forcep and retrieved haemostasis achieved ,wound irrigated and left to heal by secondary intention. Due to holding with artery forcep it was broken but removed completely with less invasive surgery. (figure3,4)

The patient was reviewed two weeks post operatively to check salivary function of the gland. On review the right submandibular gland was palpable but clear saliva could be expressed from the duct on massage, and there was no any pain on eating, no sign of neuropraxia of lingual nerve was observed as a complication.

III. Discussion

Careful history and examination are important in the diagnosis of sialolithiasis. Pain and swelling of the associated gland at especially at the time of eating and in response to other salivary stimuli are especially important. Complete obstruction causes constant pain and swelling, pus may be seen draining from the duct and

signs of systemic infection may be present.[8]In our case we observed swelling over right submandibular region but pain was present only on eating.

Bimanual palpation of the floor of the mouth, in a posterior to anterior direction, reveals a palpable stone in a large number of cases of submandibular calculi formation[9] as we also observed firm palpation at posterior region beside second molar palpation was more prominent on extraoral pushing the submandibular gland.

Patients presenting with sialolithiasis may benefit from a trial of conservative management, especially if the stone is small.[10] The patient must be well hydrated and the clinician must apply moist warm heat and gland massage, while sialogogues are used to promote saliva production and flush the stone out of the duct. For sialolithiasis, a penicillinase resistant anti - staphylococcal antibiotic is usually prescribed. Most stones will respond to such a regimen, combined with simple sialolithotomy when required.[8,-11]

As in our case the patient reported to us after taking all the conservative management but patient could not get relief so we plan for the removal of stone.Previous study suggested that almost half of the submandibular calculi lie in the distal third of the duct and are amenable to simple surgical release through an incision in the floor of the mouth, which is relatively simple to perform and not usually associated with complications.[12] In our case anintraoral incision is made directly over the duct by pushing whole gland and duct extra orally so that the stone become superficial in intraoral aproach. In this way more posterior stones of 5mm grasp with artery forcep and removed completely but due to firm holding with artery it was broken. Careful blunt dissection was done as the lingual nerve lies deep, but in close association with the submandibular duct posteriorly. No closure was done leaving open for drainage.

If the gland has been damaged by recurrent infection and fibrosis, or calculi have formed within the gland, it may require removal.[9] As in our case we confirm the size and number of calculi that was single and of 5mm diameter and noninfected so we did not removed gland but we inform the patient that if there is recurrent sialolithiasis occur in future then we will plan for gland removal but not in first surgery.

Although alternative methods of treatment have emerged such as the use of extracorporeal shock wave lithotripsy and more recently the use of endoscopic intracorporeal shockwave lithotripsy, in which shockwaves are delivered directly to the surface of the stone lodged within the duct without damaging adjacent tissue (piezoelectric principle).[13] Salivary lithotripsy carries fewer risks than surgical removal of the affected gland, such as the risks of facial nerve damage, surgical scar, Frey's syndrome, and causes little discomfort to the patient whilst preserving the gland,[13] but any method is not so good to completely avoid these complications. In our department this advance method of treatment was not available, so the surgical management was very helpful to patient at initial level and no sign of neuropraxia of lingual nerve was observed.

IV. Conclusion

There are various methods available for the management of salivary stones, depending on the gland affected, stone location and availability and affordability of the management.

Relatively complications are associated with all the treatment options, but complicationsare not so serious. So if advance management of sialolithiasis is not available the surgical management with minimal incision is better option. However well-known complication of lingual nerve injury may be possible so this should be previously informed to the patients, to avoid any legal litigation.

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Legends:
1. Figure 1 OPG showing 5mm calculus.
2. Figure 2 CT scan showing 5mm calculi.
3. Figure 3 and 4.Showing removed calculi.
4. Figure 5 Showing incision beside 1st Molar.

Figure 1 OPG showing 5mm calculus.

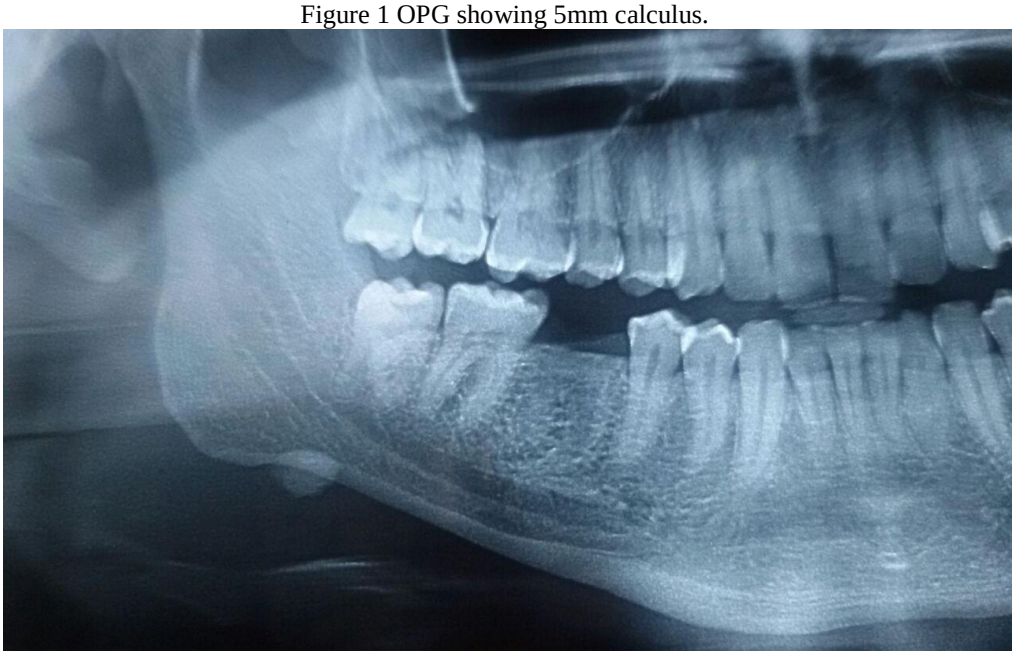

Figure 2.CT scan showing 5mm calculi.

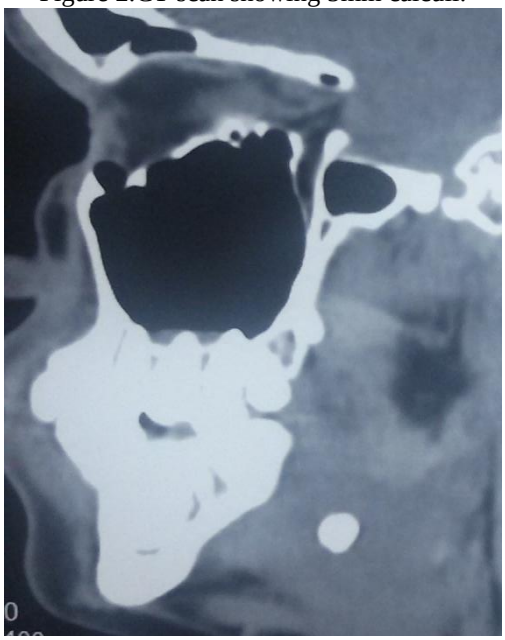

Figure 3 and 4.Showing removed calculi.

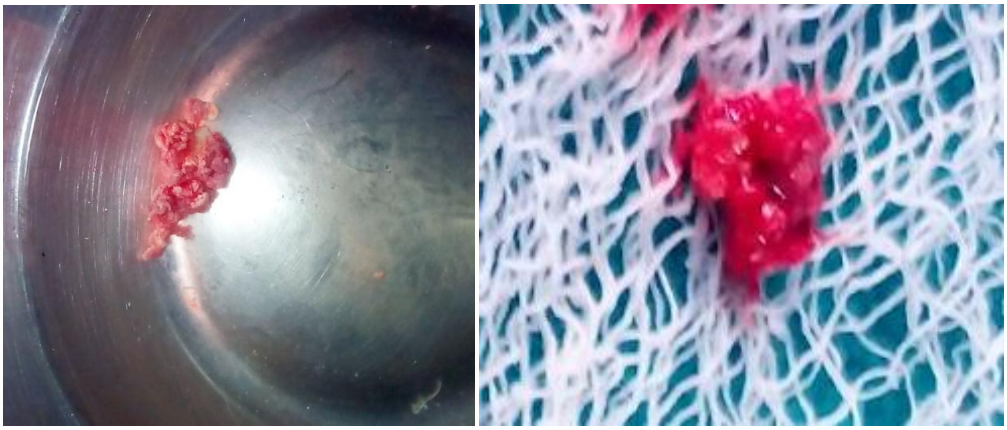

Figure 5.Showing incision beside 1st Molar

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