International Journal of Oral and Facial Surgery

Clinical approach to Megaliths of Salivary glands-Our Experience

Anmol Agarwal*[1], Abhishek Rathi[1], Gaurav Mittal[1], RiteshGarg[1], Vidhi Chhabra Rathi[2], Vaibhav Shukla[3]

[1]Department of Oral and Maxillofacial Surgery, Institute of Dental Studies and Technologies, Modinagar, Uttar Pradesh, India
[2]Department of Oral and Maxillofacial Surgery, ITSCDSR, Meerut Road, Muradnagar, Uttar Pradesh, India
[3]Consultant Oral and Maxillofacial Surgeon, Savitri Dental Hospital and Maxillofacial Center, Allahabad, Uttar Pradesh, India.

ABSTRACT

Sialolithiasis is commonly found in middle age patients though to some extent have been reported in children also. It is the most common disease of salivary gland, the symptoms of which develop as a consequence of obstruction of the duct secreting the saliva. It involves the submandibular gland predominantly though other major gland involvement has been reported. Management of the sialolithiasis usually entails exfoliation via milking, invasion of the duct of the associated gland or complete excision of the involved gland.

Keywords: exfoliation; parotid; submandibular; sialolith.

ISSN: Awaiting
Research Article

Corresponding Author

Name: Dr. Anmol Agarwal
Email: dranmolag@yahoo.com
Contact: +91-9704560372

Article Info

Received on: 04-04-2019
Revised on: 07-04-2019
Accepted on: 27-04-2019

INTRODUCTION

Sialolithiasis is a formation of calcific concretions in the salivary duct or glands, most frequently associated with the submandibular gland. In most cases diagnosis is made following an acute obstructive or inflammatory episode, which must be treated appropriately[1]. Once the acute stage subsides, definitive treatment can be instituted. Generally, symptomatic stones are removed surgically. However, some noninvasive techniques have been used in selected cases such as shock wave lithotripsy and endoscopic laser lithotripsy[2, 3]. Occasionally, spontaneous exfoliation of the stone through the ductal orifice may occur, but uncommon paths of exfoliation have also been reported[4]. If these treatments fail, especially if the calculus is located in the gland itself, extirpation of the gland is the treatment of choice[5].

Case Reports

Case 1

A 69 year old male reported to the department of Oral and Maxillofacial Surgery with chief complaint of dull, intermittent aching pain since 10 to 12 months. The phenomenon occurred 7-8 times per week, during meals. He also complained of dry mouth and swelling on the left side of the neck occurring with meals. On extra oral examination there was no palpable mass found. Intraoral examination revealed presence of soft, edematous, tender swelling, bimanual palpation revealed a hard mass in floor of the mouth on the left side. Exudation of pus from the orifice of the duct was also appreciated.

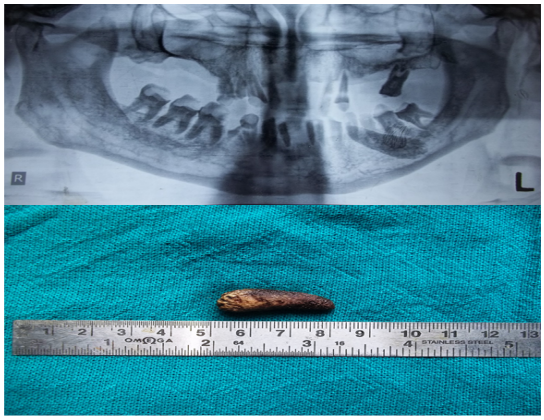

Figure 1: Case 1

Radiographic examination included a panorex view which revealed an oval shaped radiopacity extending

from premolar region to the body of mandible on left side (Figure 1). On clinical co relation a diagnosis of intraductal sialolithiasis was made.

Under local anesthesia, the calculus was excised via a transoral approach where an incision was made directly onto the stone parallel to the Wharton's duct. Two stay sutures were tied and the floor of the mouth was raised. No closure was done and the duct was left open for drainage. A cylindrical, hard, dark yellowish in colour, about 3.5 cm in length and around 1 cm across was obtained (Figure 2). It was also grainy in appearance as well as rough on palpation. The specimen was sent for histopathological examination which on decalcification revealed concentric lamellar arrangement with varying thickness and diagnosis of sialolith was confirmed.

Case 2

Patient aged 39 years reported to the department of oral and maxillofacial surgery with a chief complaint of feeling of hardness below the tongue and mild pain during eating since 3 months. Examination of the area revealed, what appeared to be a calcification perforating the floor of the mouth on the right side along with inflammation in the perilesional area (Figure 2) which was tender on palpation and the calcification was stony hard. Milking of the region revealed obstructed salivary flow along with mild pain. OPG revealed well defined radiodensification extending from the lateral incisor up to the first molar region which was decayed. The size of the lesion was approximated to be around 3x2 cms. The megalith was forcefully milked out of the Wharton's duct without any undue complication and the patient was put under pharmacotherapy to manage appropriate post op symptoms. 3 month follow up revealed no effect on salivary function or remission of reported symptoms.

Figure 2: Case 2

Case 3

A 40 year old male patient reported to us complaining of severe pain and pus discharge in relation to buccal mucosa adjacent to the right upper 1st & 2nd molar region. History reveled that pain usually increases during meal time and lasts for a short duration and subsides on its own after meals. On examination there was acute inflammation with suppuration in the region of right parotid duct, intraorally there was a swelling around the parotid duct which was firm and tender on palpation & there was also marked halitosis with generalized periodontitis, OPG revealed no positive findings, however posterior-anterior (PA) view of skull revealed a well circumscribed round radiopaque mass measuring 10 mm diameter located in the excretory duct (Figure 3). Under Local anesthesia, and preoperative medication for management of infection the sialolith was identified and was immobilized with a suture just behind it in order to prevent it from slipping posteriorly. Following this a C shaped incision was made around the duct in order to dilate the duct and with simultaneous counter pressure the delivery of the sialolith measuring 1 x 1.5 cms was done. The margins were managed to prevent obliteration of the duct. Patient is been followed up till date with complete remission and an effective salivary discharge and normal function of the parotid gland.

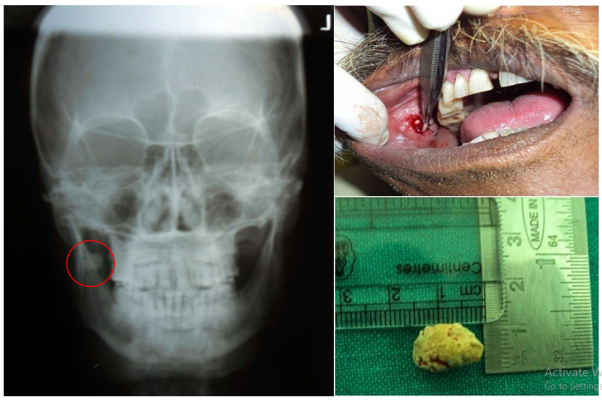

Figure 3: Case 3

Case 4

A 44 year old male patient reported to us with a chief complaint of pain & swelling during meal time along with pus discharge from below the tongue. He also complained of dryness of mouth with tendency to drink more water.

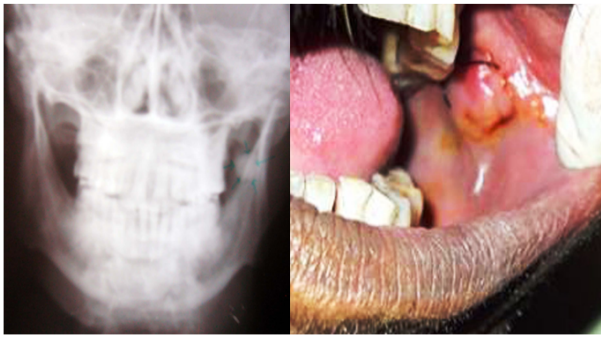

Figure 4: Case 4

Examination revealed inflammation in the left parotid duct region and a large swelling below the same side of the tongue extending from region of 36 to 41 involving the floor of mouth. On palpation there was tenderness over the left parotid duct and the floor of mouth. OPG revealed normal findings where as in PA skull radiograph round radiopaque mass measuring

around 8 mm diameter in the parotid duct was seen (Figure 4). Milking of the duct was done along with symptomatic treatment. After 10 days patient reported back with pain in the concerned region and the duct was dilated along with a c shape incision along the opening and the sialolith was exfoliated. This area was explored & debrided thoroughly & patient was started on antibiotics & analgesic for a period of 7 days following up for the last 4 months.

DISCUSSION

Sialolithiasis refers to existence of hardened intraluminal deposit in the ductal system of a salivary gland. Etymologically standing for salivary stone in Greek terminology, there presence can be within the salivary gland itself or the duct, and can either solitary or multiple in number most commonly affecting the submandibular gland or Wharton's Duct[6,16]. Salivary calculi are usually small and measure from 1 mm to less than 1 cm. They rarely measure more than 1.5 cm[7,8] Mean size is reported as 6 to 9 mm[9,10]. Tendency for salivary calculi or formation of salivary calculi is termed as sialolithiasis. Approximately 85% of sialoliths occur in submandibular gland, 10% in parotid & 5 % in sublingual gland. The long tortuous upward path of the submandibular duct and thicker mucoid secretion of this gland may be responsible for its greater tendency for formation of salivary calculi, where as in parotid gland the secretion is serous and path of the duct is almost straight with a slight bend at the anterior border of masseter and moreover there is advantage of gravity[11].

There are several theories about the origin of salivary calculi[13], which contain hydroxyapatite; carbohydrate; amino acids; and traces of magnesium, carbonate, and ammonia[14]. They are formed by precipitation of calcified structure around a nucleus that is made up of foreign bodies in the gland. These can range from desquamated epithelial cells to the degraded proteins of bacteria. Calcified structures include calcium carbonate and soluble salts present in stone in addition to organic element and water16. The formation of stones in the salivary glands has been attributed to slow salivary flow, salivary stagnation and unknown metabolic events[17]. At times sialolith can also be present in the substance of the gland which causes fibrosis and calcification of the entire salivary gland, warranting its removal[12].

Diagnostic tools vary from routine radiographs to direct visualization via sialoendoscopic technique. The "ball in hand" presentation of sialolithiasis is a classic presentation on routine radiograph post injection of a radiodense dye via the orifice of the associated gland duct. However, these methods were no indicated as the size of the lesion this case series dealt with is larger than reported by most of the literature. However a putting together a vivid clinical picture complemented with routine radiograph suffices to establish a definitive diagnosis as was the case in reported series.

Out of four cases 2 were in parotid while the other 2 involved submandibular gland in parotid. The location of the sialolith and its size determined the extent of invasion of the procedure which was selected for each case. In case 1 the duct was present midway to the orifice and the gland and hence the duct was exposed and the entity removed from the spot after tying the distal and the proximal ends with suture in vicinity of the sialolith. In case 2 the sialolith was clinically present at the orifice and milking of the gland resulted in smooth exfoliation. In cases where the sialoliths were present in vicinity to parotid glands the opening of duct was enlarged by giving a C shaped incision and subsequent milking resulted in exfoliation of the entities.

All cases were males between the ages of 30 -50 years. All patients were male, as well as both sides that is left and right side seem to be involved equally in context with the reported cases. Although rare, bilateral involvement of glands and also in young female has been reported[17]. In case the sialolith is present in or near the gland, or are multiple in no. the suggested course for treatment involves removal of the gland. The resort is such because retaining the afflicted gland or the sialolith may result in seemingly innocuous symptoms like mild pain or swelling which my exacerbate leading to acute presentation like pus exudation and subsequent necrosis of the floor of the mouth and even cutaneous involvement leading to formation of extraoral fistula which nonetheless are distressing to the patient[4,5].

CONCLUSION

The diagnosis and management of sialoliths of a remarkable size are challenging for the clinician. In most cases, the diagnosis is made following acute obstructive or inflammatory episode which must be treated appropriately. Clinical approaches in the management of such lesions should consider the extent of recurrence and extent of morbidity with a particular employed technique. Post op follow up is warranted in order to rule out complications e.g. stricture of the affected duct, alteration of salivary flow and subsequent involvement of the entire glandular parenchyma.

REFERENCES

1. Piette E. Pathologie des glandes salivaires. In: Trait6 de pathologies buccale et maxillo-faciale. 16re 6d. Bruxetles: De Boeck Universit6, 1991: 1083-160.
2. Arzoz E, Santiago A, Garatea J, Gorriaaran M. Removal of a stone in Stensen's duct with endoscopic laser lithotripsy: report of case. J Oral Maxiflofac Surg 1994: 52: 1329-30.
3. Walsh SS, Robson WJ. Spontaneous passage of submandibular salivary calculus in a child. J Laryngol Otol 1988: 102: 1052-3.

4. D. Karengera, A. Yousefpour, H. Reychler." Unusual elimination of a salivary calculus. Int. or. Oral Maxillofac. Surg. 1998; 27, 224-225.

5. Ellies M, Laskawi R, Arglebe C, Schott A. Surgical management of submandibular gland. A follow-up study. Int J Oral Maxillofac Surg 1996: 25: 28

6. Wilson KF, Meier JD, Ward PD. Salivary gland disorders. Am Fam Physician2014; 89:882-888.

7. Ledesma Montes C, Garces Ortiz M, Salcido Garcia JF, Hernandez Flores F, Hernandez Guerrero JC. Giant sialolith: Case report and review of the literature. J Oral Maxillofac Surg. 2007;65:128–130.

8. Sutay S, Erdag TK, Ikiz AO, Guneri EA. Large submandibular gland calculus with perforation of the floor of the mouth. Otolaryngol Head Neck Surg. 2003;128:587–588.

9. McGurk M, Escudier MP, Brown JE. Modern management of salivary calculi. Br J Surg. 2005;92:107–112.

10. Zenk J, Constantinidis J, AlKadah B, Iro H. Transoral removal of submandibular stones. Arch Otolaryngol Head Neck Surg. 2001;127:432–436

11. Bodner L. Parotid sialolithiasis. J Laryngol Otol.1999; 113:266-7a.

12. Lustran J, Regev E, Melamed Y. Sialolithiasis: A survey on 245 patients and review of the literature. Int J Oral Maxillofac Surg. 1990; 19:135-8.

13. Iro H, Zenk J, Benzel W. Minimally invasive therapy for sialolithiasis the state of the art. Advances in otolaryngology head, neck surgery, Vol. 9. EN Myers, Mosby; 1995 ,31—48.

14. Bodner L. Salivary gland calculi: diagnostic imaging and surgical management. Compendium 1993; 14:572-86.

15. Gokkulakrishnan, Singh S, Shukla V, Agarwal A. Parotid Sialolith: A report of 2 cases. J Oral Sign 2011, Vol 3, No 2,81-84.

16. Rathi A, Rathi VC. Large Intraductal Sialolith in Wharton's Duct. Int J Oral Health Med Res 2015;2(4):39-41.

17. B.A. Zeeshan Waseem, Vito Forte. An unusual case of bilateral submandibular sialolithiasis in a young female patient. Int J Pedia Otorhinolaryngol (2005) 69, 691-694