ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 4, Issue – 2, March - 2021, Page No. : 80 - 84

Management of an unusual size of sialolith by submandibular salivary gland exicion: a case report

[1]Dr.Sunil Vasudev, Professor and HOD, DAPM RV Dental College, Oral and Maxillofacial Surgery, Bangalore, Karnataka, India

[2]Dr.Partha Pratim Debnath, MDS, DAPM RV Dental College, Oral and Maxillofacial Surgery, Bangalore, Karnataka, India

[3]Dr.Sahana M S, MDS, DAPM RV Dental College, Oral and Maxillofacial Surgery, Bangalore, Karnataka, India

[4]Dr.Jehan Koshy Jacob, MDS, DAPM RV Dental College, Oral and Maxillofacial Surgery, Bangalore, Karnataka, India

Corresponding Author: Dr. Sunil Vasudev, Professor and HOD, DAPM RV Dental College, Oral and Maxillofacial Surgery, Bangalore, Karnataka, India

Citation of this Article: Dr.Sunil Vasudev, Dr.Partha Pratim Debnath ,Dr.Sahana M S, Dr. Jehan Koshy Jacob, "Odontogenic keratocyst in maxillary sinus associated with an ectopically placed maxillary third molar: a rare clinical sighting", IJDSIR- March - 2021, Vol. – 4, Issue - 2, P. No. 80 – 84.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Sialolithiasis is considered as the most common salivary gland disorder and which accounts for about 1.2% of unilateral major salivary gland swelling and most commonly affects the Submandibular salivary gland. Etiopathogenesis for formation of a sialolith in submandibular gland that play a significant role includes stasis of salivary flow, alteration in viscosity of saliva, complex anatomy of the submandibular gland ductal structure. Here in this case report we present case of sialadenitis secondary to sialolith in the deep part of the hilum of Wharton's duct of the submandibular gland, which was treated by the removal of the sialolith followed by excision of submandibular gland under general anaesthesia. In case of unusual size of sialolith located deep to the duct, surgical excision of the involved gland should be considered as the choice of treatment to minimise the risk of recurrence by not leaving the small nidus behind.

Keywords: excision, Sialolith, submandibular salivary gland, Wharton's duct,

Introduction

Sialolithiasis is considered as one of the most common salivary gland disorder and which accounts for about 1.2% of unilateral major salivary gland swelling. Most commonly affects the Submandibular gland with 80% occurrence rate, followed-by the parotid gland (19%) and sublingual glands (1%)[1]. Sialolithiasis commonly seen in the age group between 30 to 60 years, and rarely seen in children as only 3% reported in the paediatric population

till date. Male predilection is noted compared to females with a ratio of 2:1[2]. Sialoliths are commonly located in the distal portion of the duct or at the hilum with a very few in parenchyma of the submandibular gland[3]. The commonly seen symptoms include swelling and pain in the affected gland. Severe symptoms will be seen in case of complete blockage the duct. Pain and swelling, may be frequent in nature and increase in intensity noted during meals. In the literature proposed etiopathogenesis for formation of sialolith in submandibular gland which play a significant role includes stasis of salivary flow, alteration in viscosity of saliva, complex anatomy of the submandibular gland ductal structure. Here in this case report we present a case of sialadenitis secondary to sialolith in the deep part of the hilum of Wharton's duct which was treated by the removal of the sialolith followed by surgical excision of the submandibular salivary gland.

Case Report

A 40 years old female patient reported to the Department of Oral and Maxillofacial Surgery at DAPM RV Dental College and Hospital, with the chief complaint of pain and swelling in the left lower back teeth region since last one month. Patient gave a history of sporadic increase in the swelling and pain during eating meal which subsided on its own. The pain was moderate in nature with variety with no history of any fever, malaise, or burning sensation in the oral cavity. On extraoral examination, a diffuse swelling was noted measuring about 3x2cm over the left submandibular region. (Figure-1) On bimanual palpation of the submandibular gland, it appeared as firm in consistency and tender in nature, and submandibular lymph node was non palpable. Intraoral examination revealed a swelling of size 2×1 cm extending antero-posteriorly and mediolaterally on the left side of the floor of the mouth from the first molar region extending to distal region of second molar. Overlying mucosa was normal in appearance and no obstruction of saliva noted for the same. CT scan revealed a well-defined radiopacity in the floor of the mouth extending approximately from the medial surface of the first molar to the distal surface of the second molar region. (Figure-2) Sialography of the submandibular gland appeared as normal. (Figure-3) After thorough clinical and radiographical examination the diagnosis was made as sialadenitis secondary to sialolith in the deep part of the hilum of Wharton's duct of the left submandibular gland. Considering the size and difficulty in removal of the sialolith from the affected region the excision of the left submandibular gland under general anaesthesia was planned under general anaesthesia.

General anaesthesia was achieved with right nasotracheal intubation. The patient was placed in supine position with the neck extended to the opposite side. Skin marking placed for the incision approximately 3 cm below the inferior border of the mandible, extending anteriorly from the anterior border of sternocleidomastoid muscle. The incision carried through skin, subcutaneous tissue, and platysma to expose the capsule of the submandibular gland, facial vein. Facial vein was ligated and divided followed by capsule of the submandibular gland incised and submandibular salivary gland exposed. Subcapsular dissection done by applying an inferiorly directed traction to the submandibular gland. Blunt dissection was done in the fatty tissue above the gland followed by ligation of facial artery which was performed close to submandibular gland. Then dissection was carried out to free the anterior margin of the submandibular gland from the anterior belly of digastric followed by which the gland was detached from the lateral surface of the mylohyoid muscle. Posterior free margin retracted anteriorly and finger dissection done to identify lingual nerve and submandibular ganglion which were preserved and the sialolith in the duct was identified and a clamp was placed

on the duct anterior to the sialolith. Submandibular gland was reflected inferiorly and proximal facial artery was identified and ligated followed by which the gland was freed from the tendon and posterior belly of digastric and removed distal to the clamped duct. The sialolith was identified, removed from the excised gland and sent for the histopathological examination which was grey brown in colour measuring about 3.5X3.5X1.5 cm. (Figure-4,5) Closure done in layer with 3-0 Vicryl to platysma and subcuticular suture to skin, suction drain was left in-situ for 48 hours. The patient was followed up for one year and post -operative healing was uneventful.

The histopathology report revealed a portion of salivary gland tissue diffusely infiltrated by lymphatic and few plasma cells. Areas of aggregation of lymphocytes with prominent germinal centres noted along with acinar atrophy and dilated duct. There was no evidence of atypia or malignancy in the section noted. After through clinical, radiographical, intra operative identification and histopathological examination diagnosis of chronic sialadenitis secondary to sialolith of the left submandibular duct was made.

Discussion

Sialoliths are condensed masses of calcified structures that develop within the salivary gland or the ductal system which are primarily made up of calcium phosphate in the form of hydroxyapatite, magnesium carbonate and ammonium. Most of those are usually of 5 mm in maximum diameter and the sialolith over 10 mm should be considered as a sialolith of unusual size. Males are two times more affected than females. Most commonly affects the Submandibular gland with 80% occurrence rate, followed-by the parotid gland (19%) and sublingual glands (1%). The submandibular gland is most commonly affected because of the composition of saliva, higher mucous levels, a superior concentration of phosphate and calcium, an increased alkaline pH and due the long torturous course of the duct over the posterior border of the mylohyoid muscle which leads an antigravity salivary flow[4]. There are various theories that have been postulated in the literature for the etiopathogenesis of sialolith formation. Some of them believe that sialolith formation caused as a failure of the process of void intracellular micro calculi through the duct system, acting as a nidus for sialolith formation[5]. Others believed in a theory of deposition of calcium salts around an organic nidus like altered salivary mucins, bacteria and desquamated epithelial cells or around elements, substances in the duct[6]. Two stages of sialolith formation have been explained in the literature i.e a) formation of central core and b) formation of layered periphery. At first, mineral salts formed by specific organic substances precipitate and attribute to the formation of the central core followed by in the second phase, deposition of organic and inorganic compounds around the central core in various layers[7]. The symptoms of Submandibular gland sialolithiasis include pain and swelling of the involved gland caused by the accumulation of saliva and blockage of the lumen of duct by calculus, the intensity of which increases during the meal while having citric products. Recurring incident of infections may be seen due to increasing number of bacteria into the parenchyma of the gland. To diagnose the salivary gland sialoliths a proper clinical history, thorough clinical examination are the keys along with various imaging procedure such as OPG, occlusal radiograph, sialography, ultrasonography, computed tomography, magnetic resonance imaging and sialoendoscopy can be considered as diagnostic tool. The choice of treatment for the sialoliths varies according to the size, location and the number of sialolith[8]. Various treatment modalities available are milking the gland duct, trans-oral sialolithotomy, interventional sialoendoscopy,

sialolithotripsy could be of extracorporal shock wave sialo lithotripsy or intracorporal shock wave sialo lithotripsy, submandibular gland removal. Total removal of gland is indicated in situations such as small sialoliths are present in the vertical portion of the ductal area to the hilus or within the parenchyma itself which are not accessible through transoral procedure and cause obstruction in the duct, unusual size of the calculi. In our case surgical approach for unusual size of sialolith through the submandibular gland removal was planned to allow direct access and a good visualization of the pathology and complete removal of it which in turn reduces the chances of recurrence by further obstruction or leaving a small nidus behind. While performing the surgery the surgeons must be aware of the vital structures such as the marginal mandibular nerve, the lingual nerve and the hypoglossal nerve, twelfth cranial nerve, facial artery and vein.

Conclusion

While treating the submandibular gland sialolith, a systematic approach should be used to diagnose and locate the pathology which includes, proper clinical history and gold standard imaging techniques. In case of unusual size of sialolith located near the deep portion of hilum which cannot be removed completely with the conservative treatment options available, surgical excision of the involved gland should be considered as the choice of treatment to minimise the risk of recurrence by not leaving the small nidus behind.

References

1. Batori M, Mariotta G, Chatelou H, Casella G, Casella MC. Diagnostic and surgical management of submandibular gland sialolithiasis: Report of a stone of unusual size. Eur Rev 2.Med Pharmacol Sci 2005;9:67-8. 2. Siddiqui SJ. Sialolithiasis: An unusually large submandibular salivary stone. Br Dent J 2002;193:89-91. 3. Nahlieli O, Eliav E, Hasson O, 3.Zagury A, Baruchin AM. Pediatric sialolithiasis. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2000;90:709-12.
2. Hazarika P, Punnoose SE, Singh R, Arora S. Deep and unusual sialolithiasis of submandibular duct and gland: A surgical dilemma. Indian J Otolaryngol Head Neck Surg 2013;65:309-13.
3. Iqbal A, Gupta AK, Natu SS, Gupta AK. Unusually large sialolith of Wharton's duct. Ann Maxillofac Surg 2012;2:70-3
4. El Gehani R, Krishnan B, Shehoumi MI. Submandibular giant sialoliths: Report of two cases and review of the literature. Ear Nose Throat J 2010;89:E1-4.
5. Marchal F, Kurt AM, Dulguerov P, Lehmann W. Retrograde theory in sialolithiasis formation. Arch Otolaryngol Head Neck Surg 2001;127: 66-8.
6. Beahm DD, Peleaz L, Nuss DW, Schaitkin B, Sedlmayr JC, RiveraSerrano CM, et al. Surgical approaches to the submandibular gland: A review of literature. Int J Surg 2009;7:503-9

Legend Figure

Figur1: pre operative extraoral swelling

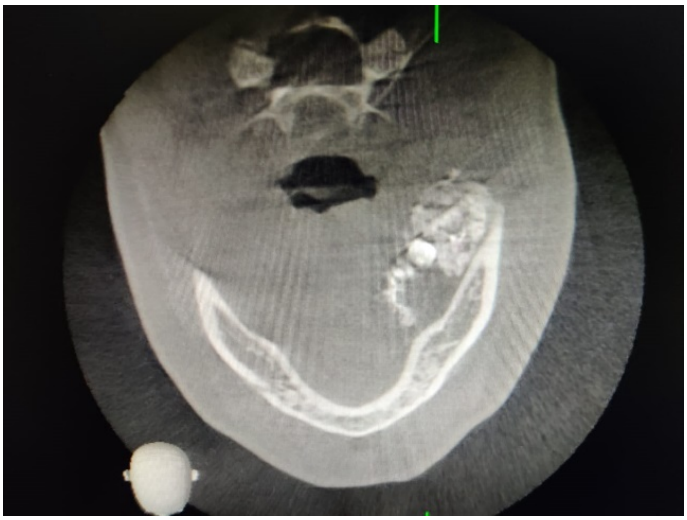

Figure 2: CT shows the unusual size of sialolith in the duct

Figure 3: Normal sialo graphic appearance in sialography

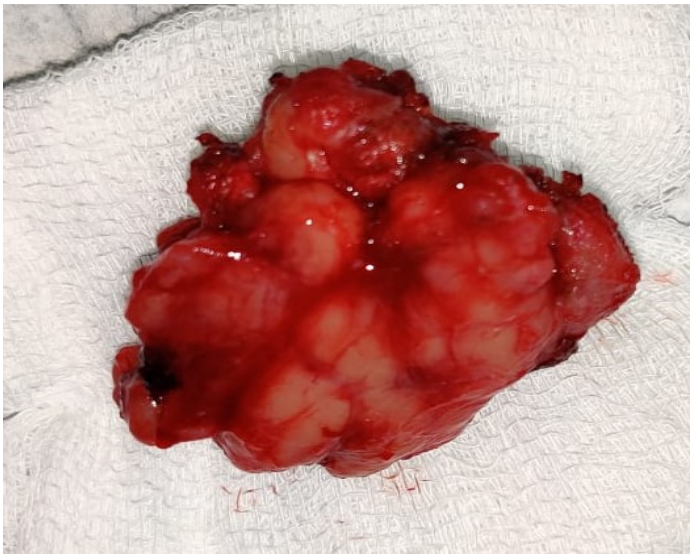

Figure 4: excised submandibular salivary gland

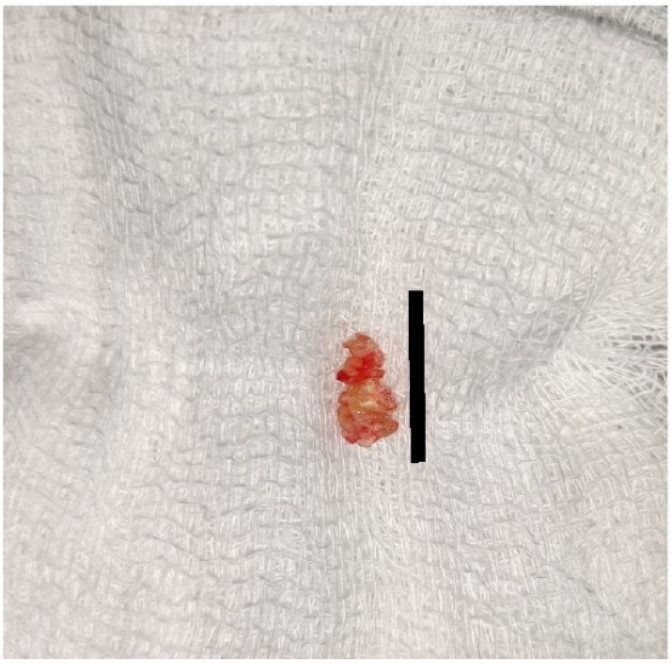

Figure 5: unusual size of sialolith