



HUGE SUBMANDIBULAR GLAND CALCULUS IN PORTHARCOURT: A CASE REPORT

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ABSTRACT

Introduction: Sialolithiasis is one of the common diseases of the salivary glands most commonly affecting the submandibular gland. This report describes the case of a patient with an unusually large submandibular gland calculus (approximately 40mm x 25mm) and the management challenges encountered.

Case summary: A 45 year old male who presented to the Accident and Emergency department of the University of Port Harcourt Teaching Hospital with a history of swelling in the right submandibular region of 9 years duration, severe pains of 5 days duration and purulent discharge of 1 day duration. Swelling was said to intermittently wax and wane over the past 9 years usually following meals. A clinical diagnosis of Right Submandibular Abscess secondary to Right Submandibular

Sialolithiasis was made, incision and drainage of the abscess done, oral antibiotics and analgesics prescribed. Following resolution of the abscess, radiological investigations were done which confirmed the diagnosis of a Right Submandibular Sialolithiasis. He had a right submandibular gland excision done 3 weeks later with delivery of a calculus measuring 40mmx25mm following difficult dissection.

Conclusion: Surgical dissection of a huge submandibular gland with the stone en-bloc can be challenging and puts the surrounding structures at risk. An alternative technique as presented in this report is to first deliver the stone from within the gland and subsequently dissect out the gland.

Keywords: Sialolithiasis, Huge Submandibular Calculus.

INTRODUCTION

Sialolithiasis is the formation of a calculus within the ductal system of a gland. It is one of the common disorders of the salivary glands. The submandibular gland is most affected (83%) followed by the parotid (10%) and sublingual gland (7%).¹ Salivary gland calculi are much more common in adults than in children and usually present within the fifth to eighth decade of life, with more males being affected than females. Although the exact aetiology of sialolithiasis is unknown, it

has been associated with salivary stasis, ductal inflammation and ductal injury with formation of mucous plugs which eventually become calcified. The propensity of sialolithiasis towards the submandibular gland has been attributed to the longer length, larger caliber and anti-gravity angulation of the Wharton's duct around the mylohyoid muscle, resulting in slower salivary flow rate.²

Salivary calculi are composed mainly of



calcium phosphate with an organic matrix of mucopolysaccharides and glycoproteins. Salivary gland calculi of greater than 30 mm size are not common. This report describes the case of a patient with an unusually large submandibular gland calculus (approximately 40mm x 25mm) and the management challenges encountered.

Case report

A 45 year old male presented to the Accident and Emergency department of the University of Port Harcourt Teaching Hospital with a history of swelling in the right submandibular region of 9 years duration, severe pains of 5 days duration and purulent discharge of 1 day duration. Swelling was said to intermittently wax and wane over the past 9 years following meals.

Physical examination revealed a middle aged man in painful distress with a tender, fluctuant swelling in the right submandibular region measuring 7cmx5cm in its widest diameters with purulent discharge. A clinical diagnosis of Right Submandibular Abscess secondary to Right Submandibular Sialolithiasis was made, incision and drainage of the abscess done, oral antibiotics and analgesics prescribed.

He was seen a week later in the out-patient clinic and following resolution of the abscess, a plain radiograph of the right submandibular region was done, which showed a spherical radio-opacity in the right submandibular region. An ultrasonography of the right submandibular region was also requested and it reported an enlarged submandibular gland with heterogenous echotexture, irregular margins and an echogenic foci within the gland measuring

3.57x2.03 cm.

He had a right submandibular gland excision done 3 weeks later via a right submandibular incision, a finger breadth below the lower border of the mandible. Intra-operatively, the inferior aspect of the gland was difficult to dissect as the enlarged gland extended deep to the floor of the mouth which was inadvertently breached in the course of dissection. The gland was opened up and a huge submandibular calculus delivered which measured 40mmx25mm. The gland was then excised, the Wharton's duct ligated and the oral mucosal breach repaired. A Naso-gastric tube was passed in the immediate post-operative period and was retained for 10 days after which patient commenced oral feeding following a negative dye test. There was also a transient paralysis of the right hypoglossal nerve evidenced by deviation of the protruded tongue to the left in the post-operative period. This however resolved within the following weeks after the surgery. There was no evidence of marginal mandibular nerve injury.

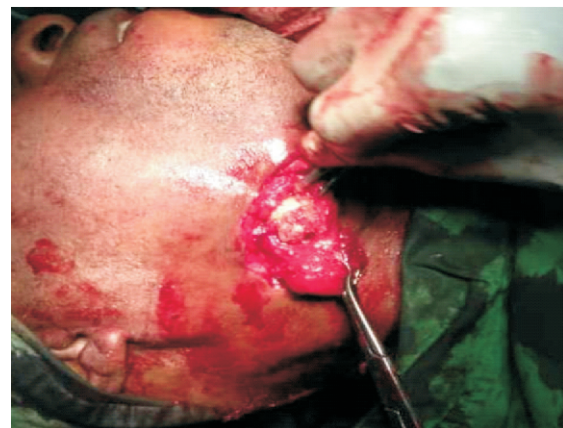


Figure 1: Intraoperative view of cut right submandibular gland exposing part of the calculus in-situ

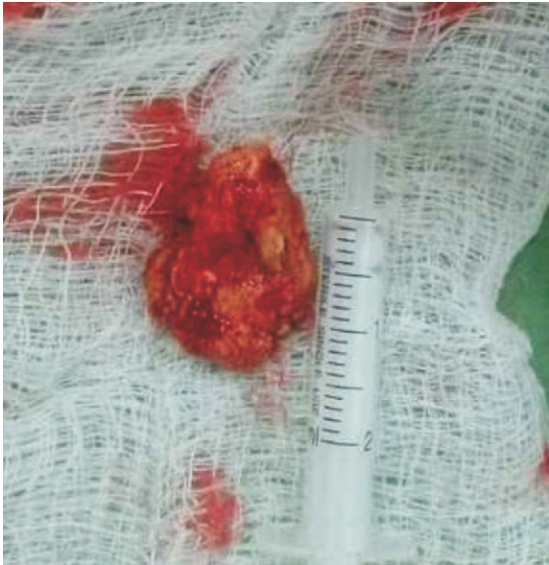


Figure 2: Giant submandibular calculus delivered from the gland.

DISCUSSION

Salivary gland calculi of greater than 30 mm size are not common.^{3,4} A survey of 245 patients with sialolithiasis by Lustman *et al* reported 88% of salivary calculi to be less than 10mm in diameter. Sialoliths of more than 15mm in any one dimension is considered large, while those measuring 25mm or more are termed giant sialoliths. A recent publication by Novendra BP and Rahojoe PS identified 22 reported cases of giant sialoliths (>35mm) between the years 1942 and 2017. In this case report, the sialolith measured 40mmx25mm.

The common presentation of submandibular sialolithiasis is with recurrent episodes of painful swelling of the submandibular region following meals,² the so called “mealtime syndrome”. Patients may also present with acute suppurative sialadenitis and abscess as in the index case.

Whereas the diagnosis of submandibular sialolithiasis can be made clinically, imaging studies are helpful in confirming the diagnosis. Plain radiographs and ultrasonography scan of the submandibular regions are among the commonest investigations done. While plain radiographs can easily identify radio-opaque stones, radiolucent stones may be missed. Ultrasonography scan on the other hand can identify both radio-opaque and radiolucent stones. Though sialography may be helpful, it is invasive and technically difficult.¹ Computed tomography scanning with fine cuts are overtly precise at detecting sialoliths.²

Treatment options for submandibular sialoliths depend on their location within the Wharton's duct.² Submandibular stones within 2cm of the duct orifice may be removed intraorally by manually milking it through the duct opening or by incising the duct directly over the stone. Stones located at the posterior aspect of the duct and those within the gland will require a submandibular sialadenectomy as done in the index case. Other treatment options for submandibular sialolithiasis include the use of extracorporeal shock wave lithotripsy and sialoendoscopy.” In the index case, the submandibular gland was assessed extraorally via a submandibular incision. Whereas the standard procedure is to excise the submandibular gland with the stone in-situ, it was difficult dissecting out the enlarged gland en-bloc with the stone due to the extension of its inferior aspect to the floor of the mouth. In the course of dissecting the gland, the floor of the mouth was inadvertently breached. In order to avoid injury to the surrounding structures due to



the difficulty in dissection, the gland was opened up and the calculus delivered, making it easier for the rest of the gland to be excised. The floor of the mouth was repaired and a nasogastric tube passed and retained for 10 days which allowed for healing of the oral mucosal breach.

The commonest complication reported following submandibular gland excision is injury to the marginal mandibular branch, lingual or hypoglossal nerves. Our patient had paralysis of the right hypoglossal nerve which resolved in the following weeks following the surgery. The iatrogenic oral mucosal breach also healed satisfactory.

CONCLUSION

The occurrence of huge submandibular gland stones is uncommon. Surgical dissection of such huge gland with the stone en-bloc can be challenging and puts the surrounding structures at risk. An alternative technique as presented in this report is to first deliver the stone from within the gland and subsequently excise the gland.

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