

## Non-surgical extraction of a massive sialolith in the Wharton's duct of a Nigerian

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### Abstract

**Background:** Sialolithiasis is the most common salivary gland disorder characterized by calculi formation within the gland and/or its duct. The submandibular gland is most frequently affected due to the peculiar anatomy of the duct and the nature of its secretion. Varying sizes have been described for salivary calculi and unusually large sialoliths measuring above 3.5cm have been reported. Similarly, a few giant sialoliths have been reported in Africans. We therefore report the case of a large sialolith in the Wharton's duct of a Nigerian male.

**Case presentation and management:** A 54 year old Nigerian man presented with a hard, painless, left floor of mouth swelling of one year duration. There were recurrent episodes of moderate pain at meal times. Intraoral examination revealed a hard, mobile, non tender, creamy mass on the left side of the floor of the mouth protruding out of the Wharton's duct orifice. A lower occlusal radiograph revealed a large radio-opacity in the floor of the mouth and a diagnosis of left submandibular sialolithiasis was made. The sialolith was removed non-surgically and measured 4.4cm by 1.8cm. The patient was discharged and follow up period was uneventful.

**Conclusion:** Large sialoliths are rarely reported in Africans, non-surgical extraction can be attempted for accessible and mobile sialoliths after full evaluation. Complex cases should be referred to the oral and maxillofacial surgeon.

**Keywords:** Submandibular duct; sialolith; massive; non-surgical; Nigerian

### Résumé

**Contexte:** Le sialolithiase est le trouble des glandes salivaires le plus courant caractérisé par la formation de calculs à l'intérieur de la glande et / ou sa conduite. La glande sous-maxillaire est le plus souvent affectée en raison de l'anatomie particulière de la conduite et de la nature de sa sécrétion. Différentes tailles ont été décrites pour des calculs salivaires et sialoliths

inhabituellement grandes mesurant au delà de 3.5cm ont été rapportés. De même, quelques sialoliths géants ont été signalées chez les Africains. Nous rapportons donc le cas d'un grand sialoliths dans le conduit de Wharton d'un homme nigérian.

**Présentation de cas et gestion:** Un homme nigérian âgé de 54 ans présenté avec un disque indolore, palier gauche de la bouche enflure d'une durée d'un an. Il y avait des épisodes récurrents de douleur modérée au moment de repas. L'examen intra buccal a révélé un disque, mobile, non tendre, de masse crémeuse sur le côté gauche du palier de la bouche saillissant hors de l'orifice du conduit de Wharton. Une radiographie occlusale inférieure a révélé une grande radio opacité dans le palier de la bouche et un diagnostic de sialolithiase sous-maxillaire gauche a été fait. Le sialoliths a été retiré non-chirurgicalement et mesurait 4,4cm par 1,8cm. Le patient a été libéré et la période de suivi était sans incidents.

**Conclusion:** Les grands sialoliths sont rarement signalés chez les Africains, l'extraction non-chirurgicale peut être tentée pour sialoliths accessibles et mobiles après une évaluation complète. Les cas complexes doivent être renvoyés à la chirurgie buccale et maxillo-faciale.

**Mots-clés:** Conduit sous-mandibulaire; sialoliths; massif; non-chirurgicale; Nigériane

### Introduction

Sialolithiasis is the formation of a calcified mass within the salivary gland and/or its duct. It is most commonly seen in relation to the submandibular gland duct system [1, 2] because of its peculiar anatomy and viscid secretion [3, 4]. It usually affects young adults and middle aged persons [5, 6] with different reports showing varied gender affectation [1, 7, 8].

Sialoliths are composed of mainly inorganic (calcium phosphate 82%) and organic materials (consisting of proteins, glycoproteins, mucopolysaccharides, and lipids 18%) [9]. Clinically, sialolithiasis presents as a recurrent painful swelling of the affected gland at meal times due to ductal obstruction and stasis of saliva which can be complicated by infection and purulent discharge from the duct orifice [10].

Varied sizes of salivary calculi have been reported [4, 8, 9, 11], with majority having a mean



size less than 1cm [8, 12]. Nevertheless, unusually large sialoliths measuring above 3.5cm have been reported. [8, 11, 13], including a few reports of giant sialoliths in Africans [14, 15]. We therefore report a 4.4 x 1.8 cm sialolith in the Wharton's duct of a Nigerian male.

### Case Report

A 54 year old male automobile repairer presented to the Oral Diagnosis Clinic, University College Hospital, Ibadan on account of one year history of a hard painless floor of mouth swelling. There were recurrent episodes of moderate pain at meal times radiating to the left TMJ region. He also complained of occasional dislodgement of stony particles into his mouth along with pus. He gave a history of occasional alcohol intake but no tobacco use. His medical history was unremarkable. Intraoral examination revealed a hard, mobile, non tender, creamy mass on the left side of the floor of the mouth protruding out of the Wharton's duct orifice. A lower occlusal radiograph revealed a large discreet cylindrical radio-opacity in the floor of the mouth. A diagnosis of left submandibular sialolithiasis was made. After verbal consent was obtained from the patient, the sialolith was removed non-surgically using sinus forceps since it was accessible through the papillae. It measured 4.4cm by 1.8cm and weighed 23grams. Minimal bleeding occurred and saliva was expressed on gentle massage of the gland. The patient was discharged and placed on amoxicillin capsules 500mg eight hourly for five days, metronidazole tablets 200mg eight hourly for five days, paracetamol tablets 1g eight hourly for three days and warm saline mouth rinse. The follow up period was uneventful.

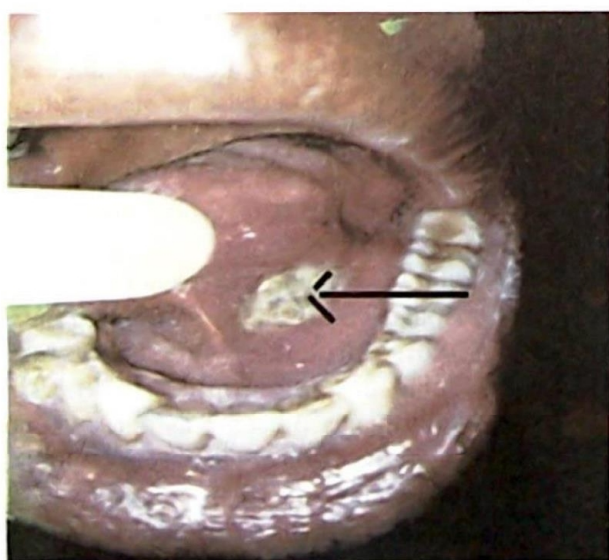


Fig 1. Intraoral view showing sialolith protruding from the Wharton's duct orifice



Fig.2: A lower occlusal radiograph showing a radio-opacity in the Wharton's duct

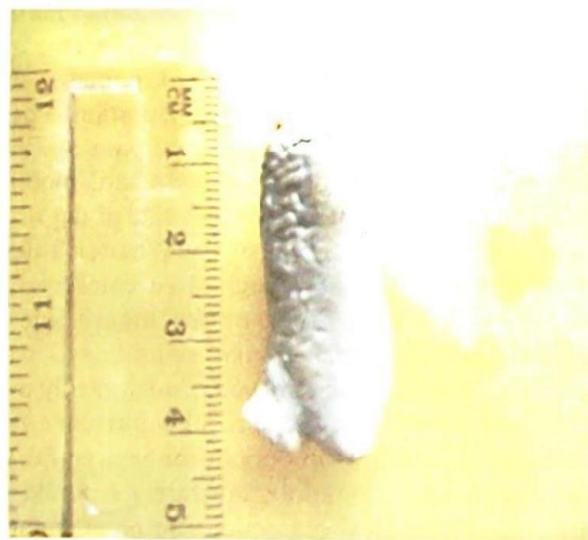


Fig.3: Morphometric analysis of extracted sialolith

### Discussion

Salivary gland sialoliths are commonly reported worldwide [4, 8, 9, 11], however, African reports describing large sialoliths are few. In literature, several accounts exist on the pathogenesis of sialolith [8, 9]. Increased salivary calcium and phosphate concentration, dehydration, xerostomia, increased alkalinity of saliva, disturbance of glycoprotein synthesis, and a structural defect of the cell membranes of the salivary glands have been suggested as conditions that predispose to sialolithiasis [16, 17]. The age of 54 years in this report agrees with literature describing the occurrence of sialoliths as being more common between 30-60 years [8, 9, 13], but it has also been reported in children [6]. The male gender of our case supports most other reports that have reported huge sialoliths as predominant in males [4, 8, 9, 11]. Thus, the assertion



that increasing age and the male gender being predisposing factors to sialolith formation is strengthened.

Concerning the pathogenesis of sialoliths, a commonly discussed theory is the formation of a nidus around which concentric layers of organic and inorganic materials are laid, resulting in a calcified mass identifiable on radiographs [18, 19]. Food debris or bacteria may be trapped within the duct and this may initiate sialoliths. A report has documented facial hair entrapment as being the nidus for sialolith formation in a 66-year-old male [20].

Reports of unusually large sialoliths are rare in the English literature. Megaliths form in salivary ducts very slowly, such that gradual expansion of the duct occurs, thus still allowing the flow of saliva, so that the sialolith remains undetected for a long period. Also, they conform to the anatomy of the duct and are elongated [21]. These factors along with others, best suit the formation of megaliths in the Wharton's duct. Our patient presented with a sialolith measuring  $4.4 \times 1.8$  cm which is similar in size to a giant sialolith spontaneously expelled from the Wharton's duct of a 40 year old Nigerian male [15]. Despite this large size, fistula formation and perforation of the floor of the mouth did not occur in our patient, as documented in some cases [13, 22].

The treatment of sialoliths depends on size and location. Anteriorly placed sialoliths can be removed from the duct trans-orally [9, 20] while submandibular gland excision is recommended for posterior and intra-glandular sialoliths [10]. Other therapies include shock-wave lithotripsy and interventional sialendoscopy used for smaller stones [23, 24]. We extracted this sialolith non-surgically because of its anterior location, protrusion from the duct orifice and its relative mobility.

### Conclusion

Large sialoliths are rarely reported in Africans, we advise that a non-surgical extraction be attempted for large, accessible and relatively mobile salivary duct sialoliths after complete clinical and radiological evaluation. Large sialoliths associated with fistula formation or perforation of the duct or floor of mouth should be referred to the oral and maxillofacial surgeon.

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