SURGICAL MANAGEMENT OF SUBMANDIBULAR SALIVARY GLAND SIALOLITHS

التدبير والعلاج الجراحي لحصى الغدد اللعابية تحت الفك

DR. ZUHAIR AL-SHAIKH
FRCS(UK),DGS,MBChB(Bag.)
CONSULTANT G. SURGEON
AL-YUC-BAGHDAD
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Abstrac

Calculus precipitation (sialoliths) with ductal stricture formation in the salivary gland is a common dento-surgical problem associated painful and tender glandular swelling in the neck that might be complicated by cystic changes (sialoductesia) and even abscess formation necessitating urgent surgical drainage to be followed by total surgical excision under GA.

The commonest salivary gland inflicted by these pathological sequelae is the submandibular salivary gland and usually unilaterally involved.

Sialoductesia and stricture formation are absolute indication of urgent Surgical excision.

Key words: Sialoliths, Salivary glands, Sialoductesia

خلاصة البحث :-

تكون وترسب حصى الغدد اللعابية من الامراض التي تعالج ضمن نطاق جراحة طب الاسنان والجراحة العامة وتعتبر من الامراض الشائعة وخاصة حدوثها في الغدد اللعابية تحت الفك حيث تؤدي الى تضيق قنوات الغدة وحدوث حالة التكيس فيها مع احتمال حدوث التقيح كذلك مما يضطرنا الى التداخل الجراحي السريع لبزل الخراج ومن ثم استئصال الغدة اللعابية تحت الفكية جراحيا وتحت التخدير العام .

كلمات البحث المهمة :-

حصى الغدد اللعابية ، الغدد اللعابية ، توسع قنوات الغدد اللعابية .

Introduction

Sialolithiasis is a common medical problem in the salivary glands and occurs mostly in the Submandibular salivary gland due to its high mucus content, its dependent position and its long curved duct, three factors that strongly stand behind salivary calculi formation. Here we report 12 cases of Submandibular Salivary Gland Multiple and Solitary Calculi obstructing the Glandular Duct Which led to swelling, Infection and AbscessFormation

where all the cases were managed by surgical approach in Al-Hilla Surgical Teaching Hospital in a period of 10 year from (1990-2000 inclusive), with emphasis on the importance

of imaging tools in the Rapid and Correct Diagnosis that in turn Enhances a fast and Safer Surgical Intervention.

Materials / Subjects

This Study was a Single Institution Series of 223 patients presented with Lateral Cervical Swellings, managed over 10 years, who underwent Surgical Intervention for a variety of different pathologies. Amongst these cervical lesions there are 33 (14.8 %) Submandibular salivary gland Lumps and among which only 12 (36.4%) cases where due Sialolithiasis. All patients were Older than 21 years (range 21–45 years) and were Predominantly Male (Eight of Twelve). All patients presented to us with a swelling in the Submandibular Triangle of the neck. Fine Needle Aspiration (FNA) Cytology detected neoplastic masses in (16) cases, and the remaining (5) cases were Submandibular Abscesses Two of them were proved to be Cold Abscesses (TB) Secondary to Pulmonary TB. One patient had lung metastasis at presentation.

All patients underwent A total Excision of the Submandibular gland Under (GA).

Sialolithiasis

Is the Second most common disease of the salivary glands after mumps [(1)]. It is also the most common disease of Submandibular Glands in Middle-aged adults. Sialolithiasis is estimated to affect 12 in 1000 of Adults with Males being affected almost **twice as** much as females. Children are very rarely affected .More than 80% of the Sialoliths occur in the Submandibular gland or its Duct 6% in the Parotid gland and 2% in the Sublingual gland or Minor salivary glands. Simultaneous lithiasis in more than one salivary gland is Rare, occurring in fewer than 3% of cases. Also, 70 to 80% of cases feature Solitary stones only about 5% of patients have 3 or more stones .There is no left or right predominance. The stones themselves are composed of Calcium Phosphate or Calcium Carbonate in association with other salts and Organic material such as Glycoproteins, Desquamated Cellular Residue, and Mucopolysaccharides .

Bacterial elements have not been identified at the Core ofa sialolith. Some Factors Inherent to the Submandibular Gland tend to Favor Stone Formation there like Longer and larger caliber Duct, Flow Against Gravity, Slower Flow Rates and Higher Alkalinity Along with Higher Mucin and Calcium content of the saliva .The Submandibular gland hosts the Largest Stones with the Largest reported Most one being 6cm in length.

Submandibular Stones are found in the Salivary Duct [(2)] (75 to 85% of cases).Hilar stones tend to become Very Large before becoming Symptomatic. Ductal stones are elongated in shape whereas hilar stones tend to be oval.

METHODS/SURGICALAPPROACH

All the Twelve cases of Submandibular (SM) Sialolithiasis were simply and both Oral/Dental Diagnosed by Proper and Close Hx-taking and General Clinical Examination assisted by Bimanual Examination of the SM Glands and Wharton's Ducts. All the Cases Showed Sialoliths on Ultrasonographic (USG) Exam. Only 2 Cases were **S**ubjected to Sialography (SG) and One Proved to have Stricture at the middle of the Duct Proximal Course In Two Cases a Solitary Calculus in the Distal part (Intra-oral) of the Duct was found and Both were Successfully Excised (Extracted)Transorally Under Local Anesthesia (LA) The remaining TEN Cases were Multiple Sialoliths in the Glandular Part of the Duct (Hilar duct) with elements of Chronic Sialoadenitis All The 12 Cases Were Subjected To FNAC Where 3 Cases Proved To Be SM Calculi Secondary To Pleomorphic Adenoma With Stricture Formation at the Hilar Site of Wharton's Duct Those 3 cases were meticulously checked by CT-SCAN-CXR-LFTS / CBC-SCR-BU AND FBS

Therefore The Fate Of The 12 SMGs with SIALOLITHS was as follows:

A-Trans-Oral Extraction for Those With Proximal Duct Stone andNormalSMGs

B-Trans-Cervical Excision of The SMGs With Their Ducts For Those With Multiple Stones And Chronic Sialadenitis or Pleomorphic Adenoma

SURGICAL APPROACH
ANATOMY OF SM GLAND

SMG is the Salivary Gland which lies in the SM Triangle Formed by Anterior and Posterior Bellies of Digastric Muscle and Inferior Margin of Mandible. Weighs 50% of Parotid Gland (7-15g). Has Its Own Capsule, Which Is Continuous With Superficial Layer of Deep Cervical Fascia Of the The neck the SMG lies in Submandibular triangle of the neck Submandibular triangle (Submaxillary/Digastric triangle) It is the region of the neck immediately beneath the body of the mandible and it is bounded: Above By the lower border of the body of the mandible, and a line drawn from its angle to the mastoid process Below By the Posterior belly of the Digastric muscle In front By the anterior belly of the Digastric muscle. It is covered By the Skin, Superficial Fascia, Platysma, and Deep Fascia, Ramifying in which are branches of the CN VII

Its floor Is formed by the Mylohyoid muscle.

THEWHARTON'SDUCT/ SUBMANDIBULAR DUCT

The SMG Salivary duct It Is about 5 cm. long, and Its Wall Is Much Thinner than that of the Parotid Duct. It Begins by numerous branches From the Deep Surface of the Gland, and Runs forward between the Mylohyoid, Hyoglossus and Genioglossus, then between the Sublingual gland and the Genioglossus and Opens by a Narrow Orifice on the Summit of a Small Papilla at the side of the Frenulum linguæ

THE LINGUAL NERVE

On the hyoglossus SM duct lies between the lingual and CN XII, but at the anterior border of the muscle the lingual n passes inferior and medial to the SM duct. The terminal branches of the lingual n ascend on its medial side. SM duct drains saliva from the SMG & sublingual glands to the sublingual caruncle at the Base of The Tongue.

RECENT ADVANCES

FIBREOPTIC SIALENDOSCOPY

SIALENDOSCOPY Is One of The Most Fascinating Innovations Introduced in The Last Few Years in the Field of Head and Neck surgery. SIALOLITHIASIS and SIALADENITIS are the most frequently presenting disorders of the SMG.The diagnosis can be confirmed by Radiology [(3)].

TREATMENTOFSIALOLITHIASIS

Treatment of Sialolithiasis can be by:

SURGERY

1- INTRA-ORAL EXTRACTION or EXTERNAL LITHOTRIPSY

2- The more Frequent EXTERNAL EXCISION OF THE GLAND**.**

3-SIALENDOSCOPY uses Minimal Invasive Surgical Techniques Which Allows for Optical Exploration of the Salivary Ductal System and Extraction of the Stones by A BASKET Under Endoscopic View. This Technique of Sialendoscopy Incorporates Diagnostic with Therapeutic Procedures, As The Clinical Findings Dictates [(4)]

RESULTS

All the twelve cases were done by open operative technique through a Submandibular incision and the outcome went un- eventfully and without early or late complications.

Only early mild dryness of the mouth in three patient all of them Completely cured within about six months post operative.

DISCUSSION

The three main complications [5] that might inflict the procedure of Total submmadibular salivary gland excision though might be real and actual they are still very rare in the good surgical hand and therefore this procedure is to be preferred[6] over the minor procedures of removing the Sialoliths via intraoral ductal approach or via the submandibular route and this is particularly true when the condition is one gland. The complications are:

1- Injury of the mandibular branch of the facial nerve with Lower facial palsy.
2- Injury of the hypoglossal nerve
3- Injury of the lingual nerve

Otherwise the procedure is easy and minimally deforming and Of no late important sequelae. [7]

Multiple sialoliths with multiple ductal strictures are absolute indications for total excision to end suffering and enhance the Operative successful results. [8]

CONCLUSION

From what already mentioned above and lastly discussed we can come out with the conclusion that salivary calculi are not a rare condition[9] Especially in the Submandibular salivary gland and its best treatment is the total surgical excision via the Submandibular approach[10] and under GA for better results and fast ending of patients Suffering

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