

Sialolithiasis Disease: Clinical Observations of Large Salivary Stones of The Submandibular Salivary Gland

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Annotation. This article presents clinical observations related to large salivary stones that occur in the submandibular salivary gland in salivary stone disease. The author describes several clinical cases in which salivary concretions of unusually large sizes were discovered and studied. The article presents data on the localization of stones, sizes, as well as complications resulting from their presence. The analysis of the presented clinical observations allows us to draw conclusions about the unusual and rare nature of this type of salivary stone disease. A detailed description of clinical cases, including the results of multispiral tomography and orthopantomogram, allows us to better understand the features of the formation and development of large salivary stones in the submandibular salivary gland. This article has practical value for dentists and medical specialists involved in the diagnosis and treatment of salivary stone disease. It provides additional knowledge about possible complications associated with large salivary stones, and also emphasizes the importance of timely detection and removal of such stones to prevent possible complications and improve the quality of life of patients.

Keywords:

Salivary stone disease (SCB) is a fairly common disease of the salivary glands and accounts for 30 to 78% of all cases of pathology of the salivary glands. Stones, i.e. salivary stones, are usually more often formed in the submandibular salivary glands (90-95%), and less often in the parotid glands (5-8%) [1]. The formation of salivary stones in the small salivary glands is extremely rare.

Salivary stone disease is a polyetiological disease characterized by the formation of stones in the salivary glands. Along with disorders of mineral metabolism and secretory function, the pathogenesis of SCB is associated with the presence of congenital changes in the salivary glands, such as local expansion of ducts of various calibers (ectasia) and features of the topography of the main duct, which has bends and a broken line in which stones can form. In these enlarged areas of the ducts, in violation of the secretory activity of the gland, saliva accumulates, which creates favorable conditions for the formation of salivary stones.

Often, patients with salivary stone disease are misdiagnosed, such as tonsillitis, lymphadenitis and other diseases. There are cases when patients were prescribed radiation treatment on the recommendation of oncologists or a course of treatment for tuberculosis of the submandibular lymph nodes, while the correct diagnosis of saliva stone disease was made much later. This is partly due to a lack of information among physicians about the clinical signs of SCB. In addition, detecting salivary stone in the gland is often challenging.

According to the data presented, the clinical course and treatment tactics for salivary stone disease depend on the location of the salivary stone. If the stone is in the duct of the gland, patients usually see a doctor in the early stages of the disease, which simplifies diagnosis, and stone removal can be performed on an outpatient basis. However, when the calculus is located in the parenchyma (tissue) of the submandibular salivary gland, clinical manifestations develop slowly and gradually, which can lead to later diagnosis, and stone removal usually requires removal of the entire gland.

The size of salivary stones can vary from 1 mm to 1.0 cm. Large stones larger than 1.5 cm are rare, and giant stones larger than 3 cm are extremely rare. A total of 16 clinical cases with stones larger than 3.5 cm have been described in the literature.

This paper describes clinical observations of the formation of a large calculus in the submandibular salivary gland.

Clinical case No. 1.

In this clinical case, patient M.A. went to the clinic of surgical dentistry with complaints of swelling in the submandibular region on the right, pain when eating, swallowing and inability to eat due to increased pain. From the anamnesis, it can be seen that the patient fell ill about 5-6 days ago and received treatment from an otorhinolaryngologist for a sore throat, but the treatment was ineffective.

On objective examination, the patient had a suffering facial expression and facial asymmetry due to an enlargement of the submandibular salivary gland on the right. On palpation, the iron was dense and painful. A picture of an abscess of the maxillolingual groove was found in the oral cavity, the mouth of the excretory duct was hyperemic, and no secret was found on palpation of the gland. Due to infiltration in the posterior part of the sublingual region on the right, it was not possible to palpate the stone.

The patient underwent drainage of the abscess under local anesthesia, as a result of which a large amount of purulent discharge was removed. He was also prescribed antibacterial and detoxification treatments to fight the infection and relieve inflammation.

Further treatment depends on the circumstances and diagnosis. It may be recommended that the patient perform an X-ray examination to determine the presence and location of salivary stone. If a stone is found, it may be necessary to remove it, possibly along with the submandibular salivary gland.

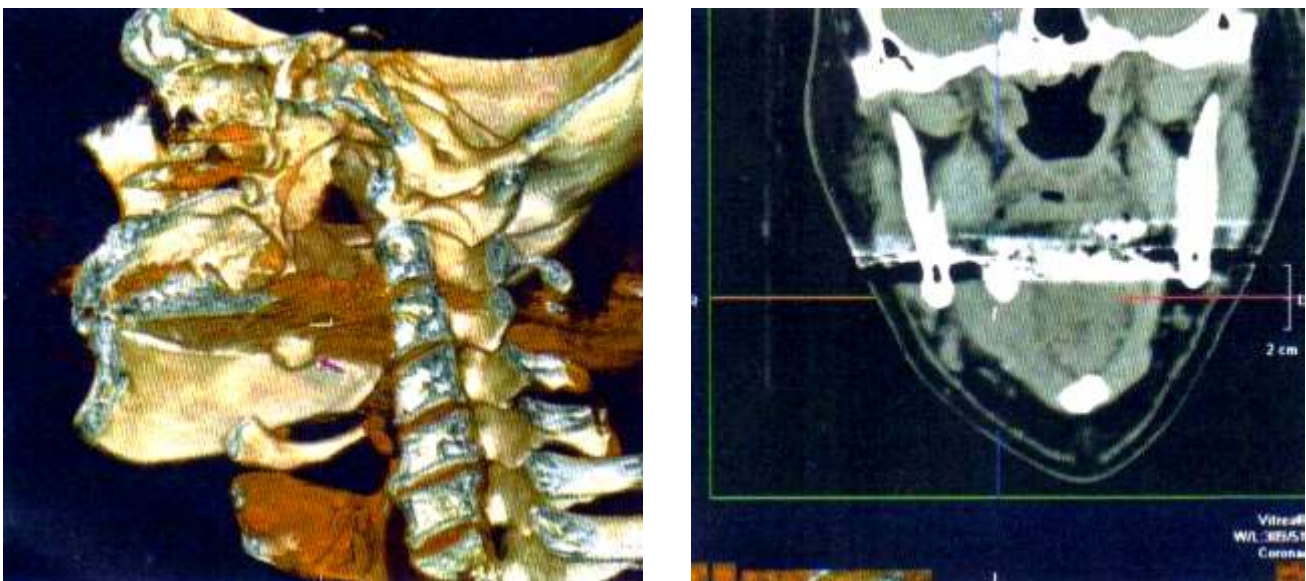


Figure 1: Multislice tomogram of patient M.A., 54 years old, showing a calculus measuring 3.8 x 2.2 x 1.1 cm in the area of the duct and anterior part of the submandibular salivary gland on the right.

Based on a multispiral computed tomogram dated 06/18/2023, the presence of a salivary stone measuring 15x16 mm in the upper part of the parenchyma of the submandibular salivary gland on the right was revealed. After reducing the inflammatory manifestations, the patient was offered surgical treatment – removal of salivary stone through oral access with preservation of the salivary gland under general anesthesia. However, the patient did not dare to undergo surgery due to the presence of concomitant chronic diseases, such as arterial hypertension and coronary heart disease.

A year later, there was a perforation of the mucous membrane in the posterior part of the hyoid region, and the salivary stone was removed. Probably, the perforation occurred due to the prolonged stay of the stone and the increase in pressure inside the salivary gland. After perforation, the stone removal procedure was carried out.

It is important to note that surgical treatment of salivary stone disease is recommended as soon as possible after diagnosis in order to prevent complications and preserve the function of the salivary gland. However, the decision to perform surgery should be balanced and take into account all concomitant diseases and risks for the patient.

Clinical case No. 2.

In this clinical case, patient K., 60 years old, came to the oral and maxillofacial surgery emergency room with complaints of swelling in the submandibular region on the right, pain when swallowing and

aggravated by eating. He has been suffering from these symptoms for 5-6 years and has repeatedly applied to the clinic at his place of residence. The last time he was referred to an oncologist with a suspected metastasis.

On objective examination, the patient showed facial asymmetry due to an increase in the submandibular salivary gland on the right. On palpation of the iron, it felt dense and caused pain. In the oral cavity in the posterior part of the sublingual region, a defect in the mucous membrane about 1.3 cm in diameter was found, at the bottom of which a dense foreign body was determined during probing. The orthopantomogram showed a «shadow» of the salivary stone at the level of the socket of the previously removed 4.7 tooth. Tooth 4.8 was in a distal-oblique position, did not erupt and was covered with a mucous membrane.



And



B

Figure 2: A) Orthopantomogram of patient K., illustrating the «shadow» of the salivary stone of the submandibular salivary gland on the right at the level of the previously extracted tooth 4.7. B) Visualization of the removed salivary stone.

Under local anesthesia, the salivary stone was removed through a defect in the mucous membrane. This procedure made it possible to remove the stone and restore normal drainage of the salivary gland.

It is important to note that a previously extracted tooth 4.7 could be a source of salivary stone formation in the submandibular salivary gland. After the removal of the stone, further observation of the patient is recommended and it is possible to decide on the need to remove the tooth 4.8 to prevent the re-formation of the stone and ensure the normal functioning of the salivary gland.

Clinical case No. 3.

In this clinical case, a 43-year-old man went to a dental surgery clinic complaining of pain and swelling in the sublingual and submandibular areas on the right, as well as difficulty eating due to increased swelling during meals. From the anamnesis, it became known that the patient periodically suffered from swelling in these areas for 5 years, but did not seek medical help, making his own attempts at antibiotic treatment.

On examination, it was found that the face was asymmetrical due to an increase in the size of the right submandibular salivary gland. On palpation of the iron, it feels dense and moderately painful, but mobile. The opening of the mouth is free. In the right sublingual region at the level of 4.3-4.7 teeth there is a defect of the mucous membrane with a length of about 3.4 cm. Mucous membrane in the area of the mouth of the main excretory The duct of the submandibular salivary gland is hyperemic and swollen. The mouth of the duct is widened and gaping, and during probing, an expansion of the anterior part of the duct is detected, behind which the probe rests on a dense formation. When massaging the submandibular gland through the described

defect, it is difficult to secrete cloudy saliva mixed with pus, and there is no discharge from the mouth of the duct.

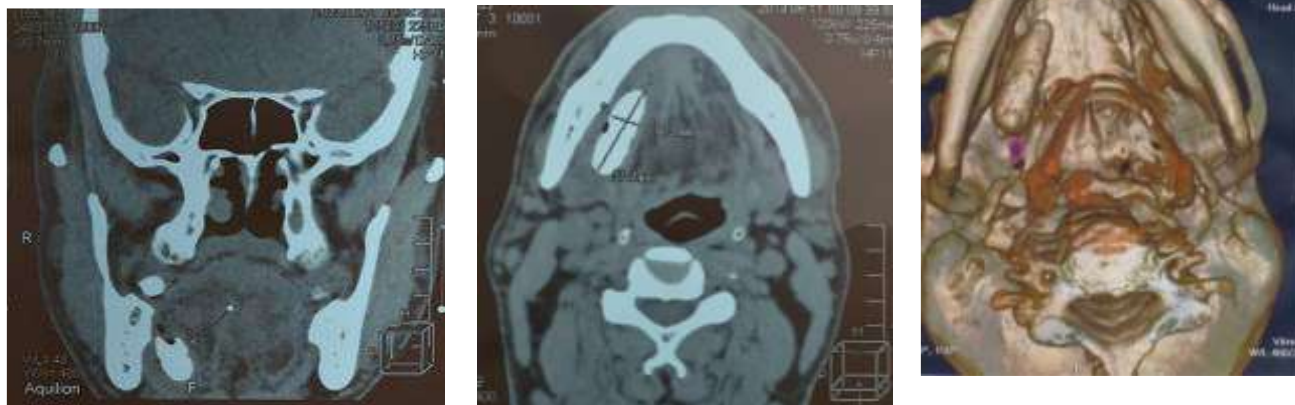


Figure 3: Multislice tomograms of patient K.S., 43 years old, showing a calculus measuring 3.8 x 2.2 x 1.1 cm in the area of the duct and anterior part of the submandibular salivary gland on the right.

After the examination, the patient was referred for multislice computed tomography, in which a large calculus was found, the dimensions of which were 3.8 x 2.2 x 1.1 cm.

Based on the data obtained, it can be concluded that there is an obstruction of the duct of the submandibular salivary gland on the right, caused by a large calculus. For the treatment of this case, it is recommended to carry out surgical removal of the calculus from the duct of the submandibular salivary gland, followed by washing and drainage of the duct.

After hospitalization in the maxillofacial department of the Bukhara Regional Multidisciplinary Medical Center, the patient underwent an additional examination. As a result of a general blood test, leukocytosis (leukocyte count – 8.1×10^9) and acceleration of ESR to 17 mm / h were detected. However, the indicators of the general urinalysis and biochemical analysis of blood were within the normal range.

Further, under local anesthesia, an operation was performed to remove the salivary stone through intraoral access. The removed calculus had a yellowish color, an irregular shape resembling a «galosh», and an uneven surface. It was flattened. The weight of the removed calculus was 6.85 g.



Figure 4: A) Illustration of the length of the calculus. B) Illustration of the size of the calculus in thickness.

Removal of salivary stone is an effective treatment for obstruction of the duct of the submandibular salivary gland. After successful removal of the calculus and restoration of normal outflow of saliva, the patient

is recommended follow-up and oral hygiene to prevent the occurrence of new formations and re-obstruction of the duct.

In the postoperative period, there were no complications, which is an important aspect of this clinical case. It is of particular practical interest in connection with the formation of a stone of gigantic size and unusual shape in the submandibular (Warton) duct, which led to perforation of its wall and mucous membrane of the hyoid region on the right.

In this case, large salivary stones were identified in the ducts of the submandibular salivary gland, which, for various reasons, were not removed in a timely manner and reached a significant size, and in one case – gigantic, leading to perforation of the duct wall and oral mucosa. It is interesting to note that usually when the stone is localized in the duct, the clinic manifests itself in the form of symptoms of «salivary colic» already with small stones (3-4 mm in diameter), while in the above examples the development of the disease occurred without a pronounced picture. This is probably due to the pronounced elasticity (extensibility) of the duct walls, which allowed saliva to find an outlet through the duct, despite the presence of large stones.

Thus, this clinical case emphasizes the importance of timely detection and removal of salivary stones, especially when they are localized in the ducts of the submandibular salivary gland. Regular examinations by the dentist and the use of appropriate diagnostic methods will identify problems at an early stage and prevent possible complications associated with obstruction of the ducts of the salivary glands. Further studies of the mechanisms of formation and development of such large salivary stones are also of scientific interest.

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