CLINICAL CASE

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Salivary Stone in Sublingual Duct – Case Report

Kamica przewodu ślinianki podjęzykowej – opis przypadku

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Abstract

Sialolithiasis, also reffered to as salivary stones, may cause obstructions in salivary glands. The appearance of the stones may result from disorders in calcium-phosphate metabolism that accompany parathyroid diseases or it may be affected by enzymatic defects characterized with a peculiar disposition to develop stones and lithiasis (renal lithiasis, liver stones). The number of male patients diagnosed with the salivary stones is twice as frequent, childern being particularly the rare case, with the greatest number of cases that aged 30–50. The salivary stones develop through stadiums of initial disorders of calcium metabolism, salts precipitation and the focus creation, which in the course collects organic and inorganic compounds producing a stone. The frequency of stones appearance depends on the type of salivary gland. The submandibular glands are impounded in 80–90% cases, the parotid glands in 8–19%, whereas the sublingual glands in 1%. In small salivary glands the salivary stones hardly ever appear. The authors described a case of a salivary stone located in the duct of the sublingual gland. Surgery was used to remove the stone by cutting along the salivary duct (**Dent. Med. Probl. 2011, 48, 4, 586-589**).

Key words: diseases of the salivary glands, salivary stone.

Streszczenie

Sialolitiazy, czyli kamice ślinianek, mogą być przyczyną niedrożności w gruczołach ślinowych. Kamienie mogą tworzyć się na tle zaburzeń gospodarki wapniowo-fosforanowej w przebiegu chorób przytarczyc oraz w wyniku wad enzymatycznych predysponujących skłonność osobniczą do powstawania kamieni i kamic (nerkowa, wątrobowa). Kamienie ślinowe spotyka się dwukrotnie częściej u mężczyzn, rzadko występują u dzieci, najwięcej przypadków jest w wieku 30–50 lat. Kamienie ślinowe powstają stopniowo przez stadia początkowych zaburzeń metabolizmu wapnia, wytrącania się soli oraz powstanie ogniska, które w dalszym przebiegu nawarstwia się substancjami organicznymi i nieorganicznymi, tworząc kamień. Częstość występowania kamieni zależy od rodzaju gruczołu ślinowego. Ślinianka podżuchwowa jest zajęta w 80–90% przypadków, ślinianka przyuszna w 8–19%, a podjęzykowa w 1%. Kamienie ślinowe występują rzadko w małych gruczołach ślinowych. W pracy opisano przypadek kamienia ślinowego, umiejscowionego w przewodzie wyprowadzającym ślinianki podjęzykowej. Zastosowano leczenie chirurgiczne polegające na wyłuszczeniu kamienia w całości przez nacięcie przewodu ślinianki (**Dent. Med. Probl. 2011, 48, 4, 586-589**).

Słowa kluczowe: choroby ślinianek, kamica ślinowa.

Diseases of the salivary glands may be the initial disorders of glands or they may also be the symptoms of many other systemic diseases. Many of them result from disorders in glands functioning. There are distinguished the following groups of diseases [1]:

1) Congenital disorders.
2) Noninflammatory diseases:
   – Sialolithiasis (salivary stones),
   – Sialoadenosis (sialosis),
   – Sjögren's syndrome,
   – Radiation damage to salivary glands.
3) Inflammatory diseases:
   – Initial inflammation of the salivary glands,
   – Secondary inflammation of the salivary glands.
4) Tumours.
5) Cysts.
6) Injuries.

Among above enumerated diseases of the salivary glands the most frequently diagnosed in clinical practice is sialolithiasis. Taking its anatomy

into account there are distinguished two types of sialolithiasis, namely intraductal calculi and calculus situated inside the salivary gland [2].

The sialolithiasis of sublingual salivary gland canal is diagnosed on the basis of subjective test, history taking, and radiological examination which provides the conclusive results. The study of the sublingual salivary glans involves observation and two-handed palpation of the floor of the mouth [3].

Stones shown in the X-ray image are composed of inorganic compounds and are referred to as "shading", the other in order to reflect require sialographic testing, due to the presence of organic compounds. In the diagnosis of these diseases radiographs or sialography are used – involving the administration of contrast to the carrying off cable. Currently, in the diagnostic radiology of salivary glands magnetic resonance imaging, computered tomography, ultrasound or sialography using magnetic resonance imaging also are used [3, 4]. Stones of the submandibular salivary glands can be visualized on orthopantomograms, X-ray images in occlusal and oblique lateral mandibular projection. Less commonly, it is necessary to perform CT. In the case of shadowless stones an ultrasound or sialography is performed [5–7].

Pain that occurs during stimulation of the salivary glands when eating (salivary colic), mostly acidic and hard foods is frequently a characteristic symptom [8]. Also, salivary gland swelling, trismus and recurring inflammation of the gland against the obstruction of the canal may indicate the presence of stone [1].

The choice of treatment of salivary stones is dependent on clinical status, size and location of the stone. Surgical treatment, consisting of intraoral removal of a lodgment is the treatment of choice [1, 3]. Small deposits can be treated conservatively, i.e. by means of saliva stimulants [9]. In the lithiasis of the submandibular gland cable, in the case of small-sized stone, the treatment consists of canal widening with a gavage with increasing diameter and the administration of sialagogue measures, which can lead to spontaneous stone expulsion. Pharmacological measures used are: Tincture inches (20 drops in half cup water, 3 times daily mouthwash) or 1% pilocarpine solution (5 drops in half cup water, 3 times daily orally). If necessary, analgesic and spasmolytic drugs are applied. Surgical treatment is necessary in the case of larger scale and the failure of conservative treatment [8–10].

Case Report

The patient, aged 31, not reporting any co-existing systemic diseases reported to the Department of Oral Surgery, Medical University of Lublin due to domed in the right sublingual area. The patient was referred by his GP. In the study of subjective presence the patient reported the hard bumps under the tongue, in front part of the floor of the mouth, which created discomfort during food intake. The patient reported that these symptoms persisted for about a year, and escalated every few months. This was accompanied by pain in the area and burning.

Physical examination found the extension of the right cord, carrying off the right sublingual salivary glands. Palpation of this area allowed to feel the hard solution inside the cable (Fig. 1). There were no obvious features of inflammation of the soft tissue in the floor of the mouth. The test result of salivary gland ultrasonography, conducted year before, did not showed any salivary stone. On the day of the visit to the Oral Surgery Clinic

Fig. 1. Swelling inside the canal carrying off the sublingual salivary glands

Ryc. 1. Zgrubienie wewnątrz przewodu wyprowadzającego ślinianki podjęzykowej

Fig. 2. Bite mandibular photo patient P.W. Oblong shadow on the bottom of the mouth

Ryc. 2. Zdjęcie zgryzowe żuchwy pacjenta P.W. Podłużny cień w dnie jamy ustnej

Fig. 3. Cord ligation, carrying off the sublingual salivary gland during surgery

Ryc. 3. Podwiązanie przewodu wyprowadzającego ślinianki podjęzykowej podczas zabiegu

Fig. 4. Visible stone in cord carrying off the sublingual salivary gland

Ryc. 4. Widoczny kamień w przewodzie wyprowadzającym ślinianki podjęzykowej

Fig. 5. Enucleation of salivary stone in its entirety

Ryc. 5. Wyłuszczenie kamienia ślinowego w całości

the patient was commissioned to take a bite-wing picture, which showed the presence of longitudinal lodgment, located in the cord carrying off the sublingual salivary gland (Fig. 2).

Surgery was performed under local anesthesia in an outpatient setting. Under the regional anesthesia to the lingual nerve and infiltration, there was a stone located in the duct of the sublingual salivary glands and there were established shoeing and reins before and after the stone. After ligation of the cable, carrying off the salivary glands, mucous membranes and the wall of the duct were incised, which revealed a large stone with a length of about 1 cm and a diameter of 4–5 mm, which was entirely enucleated (Figs. 3–6). In control tests taken 4 and 8 weeks after surgery a normal salivation and satisfactory clinical condition of the patient were found.

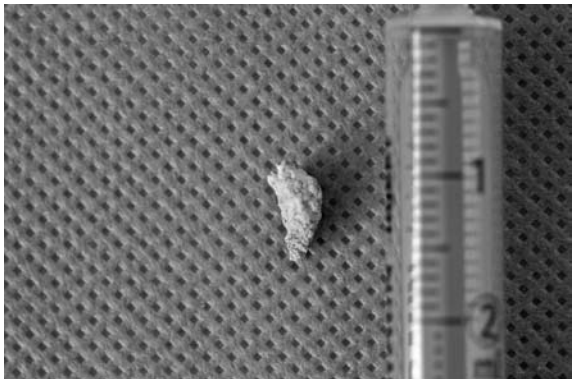

Fig. 6. Enucleated salivary stone

Ryc. 6. Wyłuszczony kamień ślinowy

Discussion

Salivary stones, such as that presented in the case described, are rare in the sublingual salivary gland ducts, occur mainly intraglandularly [11, 12]. Parotid and submaxillary glands is the most common location of salivary stones, in contrast to the sublingual gland [3, 13].

Stone in the duct carring off salivary glands can cause the characteristic symptoms. Initially obstruction of saliva occurs, and eventually the entire lumen obstruction. This causes pain while eating, defined as the salivary colic. It may be accompanied by a transient swelling of glands [5]. Stones of the granular surface, and with sharp edges can injure the soft tissues and cause perforation of floor of the mouth [14].

Conclusion

Removal of salivary stone and method of treatment largely depends on its location and accessibility in the study. Careful clinical and radiological evaluation of the patient ensures the correct diagnosis and minimal risk of complications.

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