

Sialolithiasis perforating the floor of mouth: a case report

Ağız tabanını perforare eden tükürük bezi taşı: Olgu sunumu

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Abstract

Sialolithiasis is the most common disease of the salivary gland. It is most commonly found in the submandibular gland, but less frequently in the parotid and sublingual glands. The submandibular gland is more prone to sialolithiasis than the parotid gland, because Wharton's canal is wider and longer, it angulates against gravity at the posterior border of the mylohyoid muscle and submandibular gland secretion is more alkaline, mucinous, richer in calcium and phosphate and slower flow rate. In this case report, a patient whose floor of the mouth mucosa was perforated by a sialolith was presented. Although sialoliths are infrequently seen, they cause severe recurrent infections and pain in patients and adversely affect the quality of life. Therefore, the clinician should consider submandibular sialolithiasis in case of foreign body sensation in the floor of the mouth or swelling under the chin associated with a meal.

Key words: sialolithiasis, submandibular gland, sialolithotomy

Öz

Sialolithiasis, tükürük bezinin en sık görülen hastalığıdır. En sık submandibular bezde bulunur, ancak daha az sıklıkla parotis ve sublingual bezlerde ortaya çıkar. Submandibular bez parotis bezine göre sialolitiazise daha yatkındır. Çünkü Wharton kanalı daha geniş ve daha uzundur, milohyoid kasın arka sınırında yerçekimine karşı açılma yapar ve submandibular bez sekresyonu daha alkali, müsinöz, kalsiyum ve fosfattan daha zengin ve daha yavaş akış hızına sahiptir. Bu olgu sunumunda ağız tabanı mukozası bir sialolit tarafından perforare edilmiş bir hasta sunuldu. Sialolitler nadiren görülmekle birlikte tekrarlayan ciddi enfeksiyonlara ve hastalarda ağrıya neden olarak yaşam kalitesini olumsuz etkiler. Bu nedenle klinisyen ağız tabanında yabancı cisim hissi veya çene altında yemekle ilişkili şişlik olması durumunda submandibular tükürük bezi taşını aklına getirmelidir.

Anahtar kelimeler: sialolithiasis, submandibular bez, sialolitler

Introduction

Sialolithiasis, the most common salivary gland disease affects 1.2% of the population.¹ Sialolithiasis is mainly seen in the submandibular gland (94%) and less often in the parotid and sublingual glands.² The submandibular gland is

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Received: 12 September 2022 **Accepted:** 25 September 2022

Conflicts of Interest: None

Funding: None

How to cite this article: Erdogan O. Sialolithiasis perforating the floor of the mouth: a case report. Mucosa 2022;2:59-62.



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more prone to sialolithiasis than the parotid gland, because Wharton's canal is wider and longer, it angulates against gravity at the posterior border of the mylohyoid muscle and submandibular gland secretion is more alkaline, mucinous, richer in calcium and phosphate and slower flow rate.^{3,4} Submandibular gland sialoliths tend to be more in the duct (70%), whereas parotid gland sialoliths are usually located in the hilum or intraglandular ducts.^{1,2} Depending on the localization and size of the sialolith, surgical methods such as salivary gland excision, intraoral sialolithotomy, or papillotomy have traditionally been used in the treatment. Sialendoscopy, a minimally invasive method, has recently been used for diagnostic and interventional purposes alone or assisted in extracorporeal or intracorporeal lithotriptic procedures.⁵

Case report

A 28-year-old male patient was admitted to the ENT outpatient clinic because of a foreign body he had noticed under his tongue for a week. He had complaints

of swelling and pain in the right under-chin area after meals for six months. He received antibiotic treatment for salivary gland infection twice. Physical examination revealed a sialolith perforating the canal at the floor of the mouth where the anterior part of the right Wharton canal is. (Fig. 1) Posterior extension of the sialolith was noticed with intraoral bimanual palpation.

Under local anesthesia, an incision was made over the canal overlying the sialolith in the mucosa of the floor of the mouth and the elongated sialolith into the canal was removed. The extracted sialolith was 25x7 mm in size. (Fig. 2) In order to investigate the obstruction in the distal from the sialolith for the etiology of sialolithiasis, the right Wharton canal caruncula was found and the examination with a lacrimal probe revealed that the distal canal was obstructed. Intravenous catheter stent placement was performed into the perforated localization of the duct to ensure normal salivary flow and prevent the recurrence of sialolithiasis due to canal obstruction.



Fig. 1. Sialolith perforating the floor of the mouth on intraoral examination



Fig. 2. Macroscopic view of the extracted sialolith

Discussion

Sialolithiasis is slightly more common in males and usually occurs in the third to fifth decade of life.⁶ Although its etiology is not known exactly, it is thought to occur due to the deposition of mineral salts around a nucleus consisting of mucin, bacteria or desquamated epithelium. While the pH value, which falls below 5.5 due to the toxins produced by the bacteria, is increased to 7.2 with tissue healing, crystallization occurs in the salivary ions, especially calcium and phosphate. High alkalinity, slower salivary flow, and increased calcium content facilitate the formation of sialolith.^{3,7} The tendency for sialolithiasis to occur most commonly in the submandibular gland is generally due to slower salivary flow and more calcium phosphate-containing salivary secretion. The slowing of salivary flow in Wharton's canal is due to its long course, wide diameter, angulation against gravity posterior to the mylohyoid muscle, and the more mucinous secretion it carries.⁴

Although sialoliths in the canal may show symptoms such as dry mouth and foreign body sensation, they remain asymptomatic until they cause mechanical obstruction in the canal. Since the annual growth rate of the sialolith is about 1-1.5 mm, it can be asymptomatic for a long time.⁴ The canal widens in response to the slow growth of the sialolith. As the canal widens, it allows the formation of a sialolith with any dimension greater than 15 mm in size.^{3,7} Since the Wharton's canal diameter is 0.5-1.5 mm on average and its narrowest part is the ostium, sialolithiasis can not come out of the canal spontaneously.⁸ In the present case, it has been observed that the 25x7 mm in size sialolith perforated the floor of the mouth overlying the anterior part of the Wharton's canal instead of spontaneously exiting the ostium. Recurrent sialadenitis and mechanical compression on the canal wall may cause this perforation.

The main aim of the treatment of sialolithiasis is to maintain the continuity of salivary flow. Treatment options vary depending on the size, number, localization

of the sialolith and whether it is in the canal. Treatment options include conservative treatment, intra-oral sialolith removal interventional sialendoscopy or sialoadenectomy.^{6,7} With conservative treatment, small sialoliths can be spontaneously removed from the canal ostium by applying local heat, sialagogues and gland massage. Antibiotic therapy should be given when signs of infection are present and hydration should be provided in patients whose oral intake is limited due to pain.⁸ Sialendoscopy, which provides a minimally invasive, safe and effective diagnosis and treatment option, can be used for sialoliths with a size of 4-5 mm. Larger sialoliths (4-8 mm in size) require sialendoscopy-assisted laser, extracorporeal or intracorporeal lithotripsy. Interventional sialendoscopy is more effective in improving symptoms and removing sialoliths in patients with submandibular gland sialolithiasis than those with parotid gland sialolithiasis.^{5,8} Submandibular gland excision is indicated in sialoliths larger than 12 mm located in the gland or the hilum, or unsuccessful intraoral surgery.⁷ Sialoliths located in distal Wharton's canal can be removed from the canal ostium by milking along the canal at the floor of the mouth. The ostium can be enlarged using lacrimal probes and dilators for sialoliths that cannot pass through the canal ostium. Sialolithotomy is performed by making an intraoral incision on the canal for proximal sialoliths. For this procedure, local anesthesia is preferred for sialoliths located anterior part of the canal, and general anesthesia for those located posterior part of the canal.⁶ In the present case, the sialolith located in the anterior part of Wharton's canal spontaneously perforated the canal. To remove the sialolith, a posterior canal incision from the edge of the perforation was necessary because of the larger size of the sialolith than the perforation. The examination of Wharton's canal with a lacrimal probe revealed a canal obstruction, probably due to infection-related fibrosis. For this reason, the continuity of salivary flow was ensured by placing a stent in the area where the stone was removed.

Informed consent: The author certifies that he has obtained all appropriate consent forms from the patient.

Peer-review: Externally peer-reviewed

Authorship contributions:

Conception and design, or analysis and interpretation of data: OE

Drafting the manuscript or revising the content: OE

Final approval of the version to be published: OE

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