Journal of Dental Sciences 20 (2025) 1958–1959

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jds.com

Correspondence

Migration of submandibular gland sialolith into the subcutaneous tissue

KEYWORDS
Migration;
Sialolith;
Subcutaneous tissue;
Submandibular gland

Generally, sialoliths occur in the duct or parenchyma of the submandibular gland (SMG), and migration of sialoliths may be caused by abscess formations and fistulae.[1–3] SMG sialoliths are rarely expelled into the oral cavity with pus discharge, but migration of SMG sialoliths into the adjacent tissues is extremely rare.[1–5] We reported a SMG sialolith which migrated into the subcutaneous tissue.

A 64-year-old male with pain and swelling of the left SMG visited another hospital. Although the patient was diagnosed with a SMG sialolith and was offered SMG removal, the surgery was refused because the symptoms subsequently disappeared. As the patient had severe pain and swelling of the left SMG two months after the first symptoms, the patient was referred to our hospital for minimally invasive surgery. Local examination showed redness, induration and swelling of the left submandibular skin and left oral floor, and there was no salivary flow from Wharton's duct on digital submandibular pressure. Computed tomography (CT) showed a small sialolith ($3.5 \times 3.3 \times 2.7$ mm) in the left SMG, and the inflammation had spread to the left SMG and surrounding soft tissues (Fig. 1A and B). Based on the clinical diagnosis of SMG sialolith and sialadenitis, intravenous and oral antibiotics were administered. Two months after the first visit, CT revealed that the small sialolith had migrated into the subcutaneous tissues (Fig. 1C and D). Extraoral sialolith removal with a small skin incision was refused due to no symptoms, and the patient was observed.

Sialolithiasis is diagnosed following an acute obstructive or inflammatory episode.[1] Untreated or remained sialoliths may lead to infections, when sialoliths are located in the posterior portion of Wharton's duct or are multiple and/or particularly large.[1] Sialolithiasis with infection may cause severe damage to the parenchyma, and this suppurative process and increased pressure from salivary backflow caused by the obstruction of the duct may lead to a fistula and pus drainage via the mucosa or skin.[1,2,4] The intraoral fistulae are more common in the submandibular duct than the parotid duct,[3,4] especially in the distal half of the duct where the overlying tissues are thinner.[3] However, migration of SMG sialoliths into subcutaneous tissues of the neck is extremely rarer.[1–5] To our knowledge, only several cases with migration of SMG sialoliths (5–20 mm in size) were reported,[1–5] and the present case had the smallest migrated sialolith ($3.5 \times 3.3 \times 2.7$ mm). In the present case, it was considered that the sialolith was forced through the SMG by abscess formation, penetrated the platysma muscle, and migrated into the subcutaneous tissue.

As treatment of SMG sialoliths, removal of sialolith with/without the SMG is commonly performed, while conservative management may be selected in patients who wish to avoid surgery. Although many sialoliths may remain asymptomatic, recurrent obstruction and sialadenitis are potential risks of conservative management.[3] Migration of sialoliths from the duct or parenchyma into the adjacent tissues is a rare complication of conservative management, but patients should be informed about the possibility of migration of sialoliths. Some migrated sialoliths were removed under local anesthesia with/without intravenous

https://doi.org/10.1016/j.jds.2025.05.006

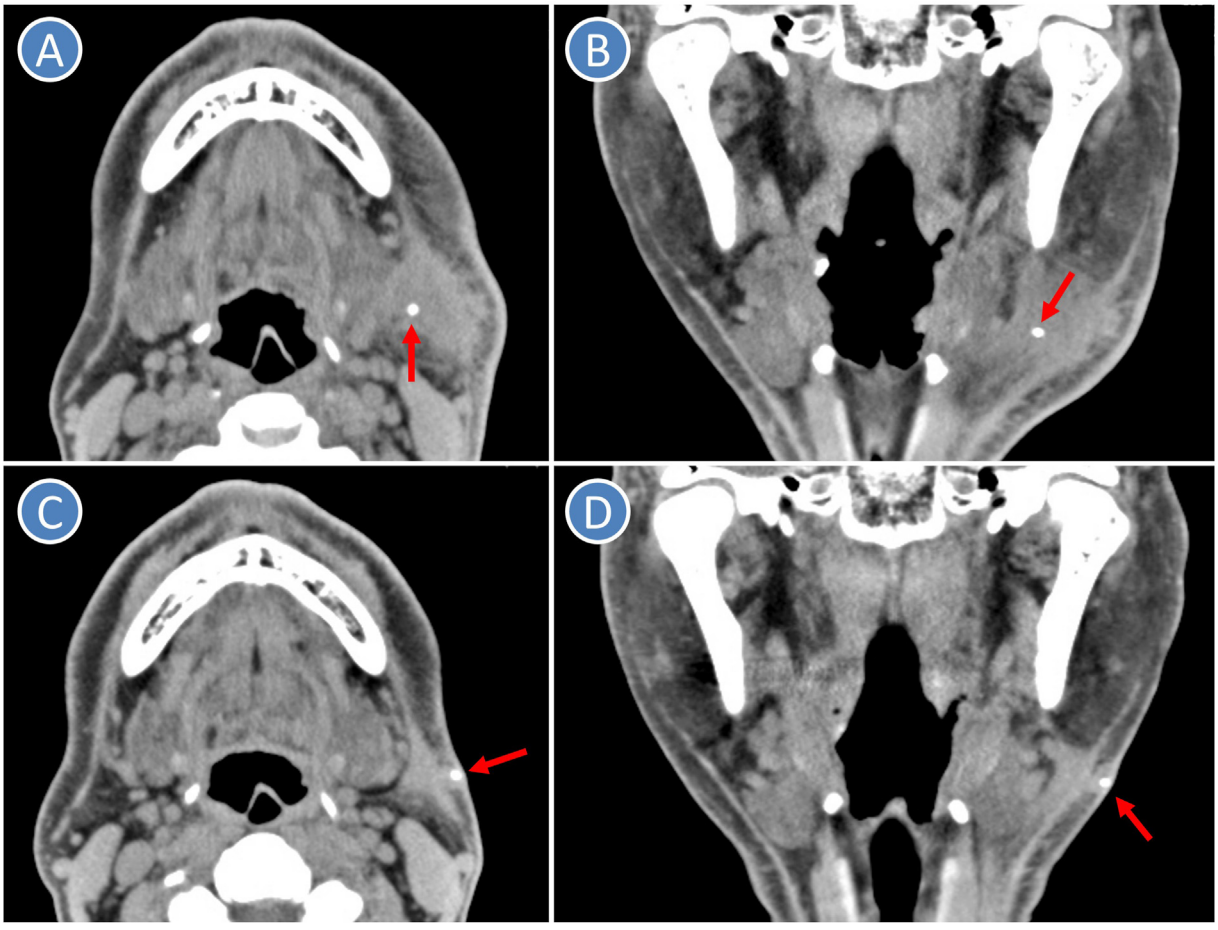

Figure 1 Radiological images.
(A, B) Computed tomography on the first visit. Arrow indicates a sialolith. (C, D) Computed tomography 2 months after the first visit. Arrow indicates that the sialolith migrated into the subcutaneous tissue.

sedation,[2—4] others were removed with abscess drainage or SMG removal under general anesthesia.[1,5]

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

Acknowledgments

None.

References

1. Karengera D, Yousefpour A, Reychler H. Unusual elimination of a salivary calculus. A case report. *Int J Oral Maxillofac Surg* 1998; 27:224—5.
2. Wakoh M, Goto TK, Matsuzaka K, Shibahara T, Kamio T. Sialocutaneous fistula with ectopic submandibular gland sialolith, revealing a hidden ipsilateral enlarged and elongated styloid process: a consideration based on CT findings. *Oral Radiol* 2021; 37:336—44.
3. Drage NA, Brown JE, Makdissi J, Townend J. Migrating salivary stones: report of three cases. *Br J Oral Maxillofac Surg* 2005;43: 180—2.
4. Heinelt M, Phillips T. The migrating sialolith: a case report. *SN Compr Clin Med* 2021;3:2052—5.
5. Cannon P, Bhatti D, Arman S, Togo A. Submandibular sialolith migration. *BMJ Case Rep* 2023;16:e252482.

Toshinori Iwai*
Satomi Sugiyama
Hiroaki Kitajima
Kenji Mitsudo
Department of Oral and Maxillofacial Surgery/ Orthodontics, Yokohama City University Hospital, Yokohama, Kanagawa, Japan

*Corresponding author. Department of Oral and Maxillofacial Surgery/Orthodontics, Yokohama City University Hospital, 3-9 Fukuura, Kanazawa-ku, Yokohama, Kanagawa 236-0004, Japan.
E-mail address: iwai104@yokohama-cu.ac.jp (T. Iwai)

Received 5 May 2025
Final revision received 5 May 2025
Available online 14 May 2025