

## CASE REPORT

## A Case of Submandibular Salivary Gland Duct Sialolith

Arifur Rahman<sup>1</sup>, Shahana Begum<sup>2</sup>**Abstract:**

*A thirty five years old Saudi male with history of recurrent swelling and pain in the right sublingual region for past few months with no history of discharge came for consultation. On examination the gland was neither remarkably palpable, nor tender, and was free to move with overlying normal skin. On milking the gland there was no pus or salivary discharge from the right Wharton's duct orifice. The occlusal radiograph revealed a calcified mass in the duct little over a centimeter long. Under local anaesthesia the stone was surgically removed from the duct. After one week patient had reported with uneventful healing.*

**Introduction:**

The common diseases of the salivary glands can be broadly classified into four groups: cystic, obstructive, inflammatory and neoplastic. The mucous cysts are the commonest, followed by the obstructive diseases. The most common causes of obstructive diseases are the formation of the sialoliths (stones). More so in the submandibular gland (80% to 92% cases). Lower rates have been reported in the parotid gland (6% to 20% cases) and the sublingual and minor salivary glands (1% - 2% cases)<sup>1,2,3</sup>. Factors that tend to favour submandibular versus parotid gland stone formation are: a) the longer and larger caliber duct and slower flow rates in the submandibular gland compared with parotid gland, b) the fact that saliva flows against the gravity in the submandibular gland, c) the presence of alkaline saliva in the submandibular gland, and d) the high mucin and calcium content of the saliva in the submandibular gland<sup>1-3</sup>. Bilateral or multiple

gland sialolithiasis is uncommon, occurring in lower than 3% of cases<sup>4</sup>. Sialolithiasis occurs equally both on the right and left sides<sup>5</sup>.

About 70% to 80% of cases feature solitary stones; only about 5% of patients have three or more stones<sup>2</sup>. Most submandibular stones are found in the salivary duct (75% to 85% cases)<sup>6</sup>. Stones in the hilum of the gland tend to be oval, whereas stones in the duct tend to be elongated and their surface can be either smooth or irregular<sup>7</sup>.

These stones usually occur in adult male and may be asymptomatic<sup>8,9</sup>. However, when they reach a suitable size to obstruct the flow of the saliva, they present with pain and the enlargement of the gland, particularly in relation to meal. Secondary infection often supervenes with fever, redness and purulent discharge from the duct. Almost 85% of submandibular stones are radio opaque and are easily visualized on plain radiographs. Approximately 50% of the stones are distal to the edge of the mylohyoid muscle and are best seen on an occlusal radiograph. Occasionally, the

1. Assistant Professor, Dental Department, Holy Family Red Crescent Medical College and Hospital, Dhaka.
2. Assistant Professor, Department of Oral & Maxillo-facial Surgery, Pioneer Dental College and Hospital, Dhaka.

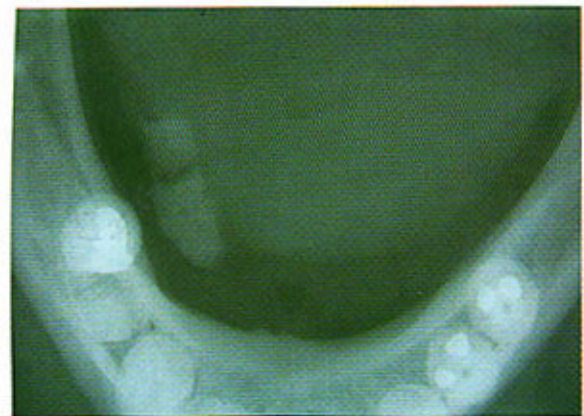
stones are radiolucent and are visualized only as filling defects on sialograms. Although some smaller stones pass spontaneously, the majority require surgical removal. If the removal of the stone does not cure the condition of the gland (persistent enlargement and/or pus discharge through the Wharton's duct orifice), a decision to ablate the gland is taken after further investigations (Sialogram, MRI etc.).

For all the distal stones a transoral approach is taken. Stones closer to the edge of mylohyoid muscle are difficult to remove.

**Case report:**

A thirty five year old Saudi male was referred to Oral and Maxillofacial Surgery clinic of Dental Centre in King Fahad Specialist Hospital, Buraidah, Al-Qassim, KSA with the history of recurrent swelling and pain in the right sublingual region for past few months. There was no history of pus discharge. On examination, the gland was not remarkably palpable, not tender and was free to move. The overlying skin was normal. On milking the gland there was no pus or salivary discharge from the right Wharton's duct orifice. The occlusal radiograph revealed a calcified mass, occupying approximately anterior third of the course of the duct (Fig-1). The presence of the stone was confirmed.

Under 2% lidocaine with adrenaline lingual nerve block and local infiltration sublingually, an incision was made along the Wharton's duct over the entire span of the stone, dipping the blade till the gritty feeling. With the blunt dissection the entire stone was exposed and retrieved with ease (Fig- 2). The stone was creamy yellow in colour, with irregular surface measuring little over a centimeter long, split into two pieces (Fig- 3).



**Figure-1:** Occlusal radiograph showing the sialolith in the right submandibular gland duct.



**Figure-2:** Intraoral photograph showing exposed sialolith in the submandibular gland duct.



**Figure-3:** Close up photograph showing the size and colour of the sialolith.

The area was irrigated with normal saline to remove the small particles of the stone, if any. Usually a posterior stay suture is done to occlude the duct and prevent the migration of the stone posteriorly. But it is not an easy task as the lingual nerve and the artery are in close proximity.

There was no pus, even no immediate flow of saliva was noted. The mucosa was closed by 2-0 catgut suture. One week after, during the follow up visit, the patient had an uneventful healing, and the gland regressed to some degree.

### Discussion:

Usually salivary gland duct stone is "one-off" event. There is usually no further problem once it is removed. However, some people develop one or more further stone at some later time. It is not clear why salivary stone develop and there are no definite ways to prevent them. Although there is no proof, a good intake of fluid is mentioned by some to help to prevent the formation of stone. So, it may be wise to drink plenty of fluid especially if anybody exercises frequently or lives in a hot country.

Most salivary stones are mainly made of calcium. However, there is no abnormality of the blood calcium level or any other problem with calcium metabolism in the body is reported. Salivary gland stones are usually not associated with any other diseases.

Sialolith may be located in different position along the salivary duct and gland, also large and small sialoliths have been reported both in salivary gland<sup>10,11</sup> and salivary duct<sup>12,13,14,15</sup>.

Sabmandibular stones are treated surgically via either an intraoral or an external approach. The most appropriate mode of

treatment depends primarily on the size and location of the stone.

### References:

1. Levy DM, Remine WH, Devine KD. Salivary gland calculi: pain and swelling associated with eating. *JAMA* 1962; 181: 1115-19.
2. McKenna JP, Bostock DJ, McMenamin PG. Sialolithiasis. *Am Faro Physician* 1987; 36: 119-25.
3. Perrotta RJ, Williams JR, Selfe RW. Simultaneous bilateral parotid and submandibular gland calculi. *Arch Otolaryngol* 1978; 104: 469-70.
4. Work WP, Hecht DW. Inflammatory disease of major salivary glands. In: Paparella MM, Shumrick DA (editors). *Otolaryngology*. Vol.3. Philadelphia: W.B. Saunders, 1980. pp- 2235-43.
5. Lustmann J, Regev E, Melamed Y. Sialolithiasis. A survey on 245 patients and a review of the literature. *Int J Oral Maxillofac Surg* 1990; 19: 135-8.
6. Paul D, Chauhan SR. Salivary megalith with a sialo-cutaneous and sialo-oral fistula: A case report. *J Laryngol Otol* 1995; 109: 767-9.
7. Avrahami E, Englender M, Chen E, et al. CT of submandibular gland sialolithiasis. *Neuroradiology* 1996; 8: 287-90.
8. Kruger GO. Sialolithotomy. *Am Faro Physician* 1972; 5: 116-21.
9. Kaudelka BM. Obstructive disorders. In: Ellis GL, Auclair PL, Gnepp DR (editors). *Surgical Pathology of the Salivary Glands*. Philadelphia: W.B. Saunders, 1991. pp-26-38.
10. Akin I, Esmer N. A submandibular sialolith of unusual size: A case report. *J Otolaryngol* 1991; 20: 123-5.
11. Zakaria MA. Giant calculi of the submandibular salivary gland. *Br J Oral Surg* 1981;19: 230-2.

12. Siddiqui SJ. Sialolithiasis: An unusually large submandibular salivary stone. *Br Dent J* 2002; 193: 89-91.
13. Raksin SZ, Gould SM, Williams AC. Submandibular duct sialolith of unusual size and shape. *J Oral Surg* 1975; 33:142-5.
14. Mustard TA. Calculus of unusual size in Wharton's duct. *Br Dent J* 1945; 79: 129.
15. Brusati R, Fiamminghi L. Large calculus of the submandibular gland. Report of a case. *J Oral Surg* 1973; 31: 710-11.