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Case Report

Multiple Bilateral Parotid Sialolithiasis with Long-Term Conservative Follow-Up: A Case Report

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Abstract

Background:

Sialolithiasis is the most common cause of salivary gland swelling and predominantly affects the submandibular gland. Multiple bilateral sialoliths of the parotid gland are exceedingly rare.

Case Presentation:

We report the case of a 75-year-old male with multiple bilateral parotid sialoliths who was followed clinically and radiologically for 7 years. Initial imaging revealed more than 20 calculi in both parotid glands, several measuring over 15 mm in diameter. Due to significant comorbidities, the patient declined surgical intervention and was managed conservatively. During follow-up, only two mild episodes of parotitis occurred, both resolving with outpatient treatment. Serial imaging demonstrated minimal growth in stone size and no significant increase in stone number. Fine-needle aspiration revealed non-mucinous cyst content, thereby excluding sialadenosis.

Conclusion:

This case is notable for the presence of multiple large bilateral parotid sialoliths in the absence of Sjögren syndrome and for its long-term radiological stability under conservative management. In patients who are not suitable candidates for surgery and who do not experience frequent infections, long-term observation may represent a reasonable alternative to surgical treatment.

Keywords: parotid gland; sialolithiasis; bilateral sialoliths; multiple salivary stones; conservative management

Introduction

Sialolithiasis is the most common cause of salivary gland swelling. According to current literature, the annual incidence among symptomatic patients is approximately 1 in 10,000 to 1 in 30,000.[1] Approximately 80–90% of sialoliths occur in the submandibular gland, whereas 5–20% are found in the parotid gland. The sublingual and minor salivary glands are rarely affected. A single stone is present in 70–80% of patients, two stones in approximately 20%, and three or more stones in about 5% of cases. Bilateral sialolithiasis is uncommon, accounting for fewer than 3% of cases.[2]

Lustmann et al. classified sialoliths into four groups based on maximal diameter: Group 1, 1–5 mm; Group 2, 6–10 mm; Group 3, 11–15 mm; and Group 4, >15 mm. Approximately 59% of sialoliths measure between 2.1 and 10 mm, while only 7.6% exceed 15 mm in diameter. [2] Although the exact etiology of sialolithiasis remains unclear, several predisposing factors have been proposed, including smoking, medications that reduce salivary secretion, hypertension, dyslipidemia, nephrolithiasis, and cholelithiasis. [3,4]

Multiple bilateral parotid stones, as observed in our case, are exceedingly rare, with only a few cases reported in the literature.[5,6] Several of these cases were associated with Sjögren syndrome.[7,8] Decreased salivary flow and dehydration may predispose patients to sialolithiasis, which may explain this association.[9] However, epidemiological data regarding the incidence of sialolithiasis in patients with Sjögren syndrome remain limited.

Sialadenosis is a non-inflammatory condition characterized by recurrent, often bilateral, painless or painful enlargement of the salivary glands, most commonly affecting the parotid gland.[10] Although its exact etiology is unclear, it is thought to result from autonomic neuropathy affecting salivary secretion.[11] Approximately half of affected patients have associated comorbidities such as diabetes mellitus, cirrhosis (particularly alcohol-related), or malnutrition.[12]

Herein, we present a 75-year-old patient with multiple bilateral parotid sialoliths who underwent a 7-year clinical and radiological follow-up, representing one of the longest follow-up periods reported in the literature.

Case Presentation

In 2018, a 68-year-old male presented with bilateral fullness of the mandibular and buccal regions accompanied by occasional mild pain during meals. His medical history revealed an episode of left-sided parotitis one month earlier, during which he had presented to the emergency department with pain, swelling, and erythema of the left parotid region. Ultrasonography at that time suggested acute parotitis without abscess formation, and he was treated with hydration and non-steroidal anti-inflammatory drugs. Symptoms resolved within one week.

On examination in 2018, both parotid glands were enlarged but non-tender, with no erythema or warmth. Salivary flow from the ductal orifices was present without purulence, and facial nerve function was intact. Parotid ultrasonography demonstrated bilaterally enlarged glands with widespread cystic ductal ectasia (6 mm on the right and 7 mm on the left) and multiple intraductal calculi measuring up to 5–6 mm. Contrast-enhanced neck computed tomography (CT) revealed more than 20 stones, some of which were conglomerated, measuring up to 15 × 8 mm on the left and 13 × 10 mm on the right (Figure 1). Serum calcium, phosphorus, and uric acid levels were within normal limits.

The patient's medical history included acute rheumatic fever, mitral valve replacement, and atherosclerotic heart disease. Given the presence of multiple stones involving both the superficial and deep lobes of the parotid glands, parotidectomy was recommended. However, the patient declined surgical intervention because of his comorbidities and was therefore managed conservatively.

Follow-up ultrasonography performed at regular intervals consistently demonstrated persistent stones. The patient experienced a second mild episode of parotitis in 2021, again without abscess formation, which resolved with outpatient treatment.

In September 2025, clinical examination findings remained stable. It was noted that in July 2025, the patient had been evaluated at an outside center for similar symptoms. Ultrasonography at that time revealed cystic ductal dilatation consistent with sialectasia and multiple calculi, with the largest measuring 9 mm on the right and 9.5 mm on the left. Contrast-enhanced neck CT demonstrated increased gland volume, more prominent on the left side, cystic ectasia, and more than 20 stones, the largest measuring approximately 17 mm (Figure 2).

Fine-needle aspiration biopsy of the left parotid gland performed in August 2025 revealed non-mucinous cyst content. Comparison of CT scans obtained in 2018 and 2025 demonstrated minimal growth in stone size and no significant increase in stone number (Figures 1 and 2).

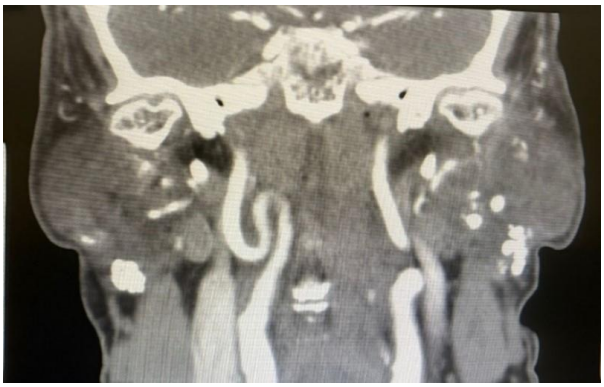

Figure 1: Coronal section of contrast-enhanced neck computed tomography obtained in 2018. Multiple calculi are observed in both parotid glands, some of which show conglomeration. The largest stone measures 15 × 8 mm in the left parotid gland and 13 × 10 mm in the right parotid gland.

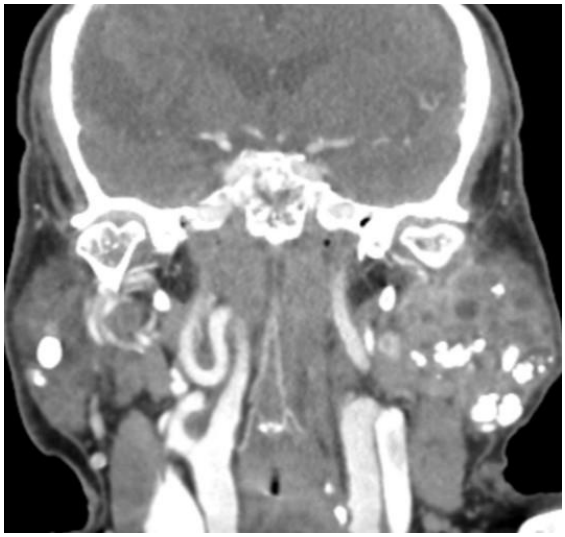

Figure 2: Coronal section of contrast-enhanced neck computed tomography obtained in 2025. More than 20 calculi are observed in both parotid glands, with the largest stone measuring approximately 17 mm. Cystic dilatations consistent with sialectasia are present within the parenchyma.

Discussion

Lustmann et al. reported that sialolithiasis occurs in the parotid gland in only 5–20% of cases, is multiple in approximately 5%, and is bilateral in fewer than 3%.[2] These findings underscore the rarity of the presentation observed in our patient. Furthermore, stones measuring greater than 15 mm (Group 4) account for only 7.6% of all sialoliths and approximately 1% of parotid stones. [2] The presence of stones exceeding 15 mm in our patient further emphasizes the unusual nature of this case.

In a retrospective study of 153 patients, Huoh et al. reported higher rates of smoking and diuretic use among patients with sialolithiasis. [3] Similarly, a large retrospective cohort study including 5,100 patients identified hypertension, dyslipidemia, nephrolithiasis, and cholelithiasis as significant systemic risk factors. [4] In contrast, Kraaij et al. found no significant association between Sjögren syndrome, other systemic diseases, medications, smoking, or alcohol consumption and the development of sialolithiasis. [13] Thus, despite proposed mechanisms, a definitive relationship between Sjögren syndrome and sialolithiasis remains unproven.

Although our patient had a history of smoking and diuretic use, current evidence is insufficient to establish a causal relationship with stone formation. Moreover, most available studies are single-center and retrospective in nature, limiting the strength of their conclusions.

Given the patient's longstanding bilateral parotid gland enlargement, sialadenosis was considered in the differential diagnosis. However, imaging findings demonstrating extensive sialolithiasis effectively excluded this condition. Histopathological features supportive of sialadenosis include acinar hypertrophy, granular cytoplasm, and myoepithelial cell degeneration,[12] [14] none of which were identified on fine-needle aspiration cytology in our patient.

Previously reported cases of bilateral multiple parotid stones describe varying management approaches, including superficial parotidectomy, [5] total parotidectomy, [6] and spontaneous stone extrusion following gland massage.[7] In contrast, our patient declined surgical intervention, and conservative management was pursued. Over a 7-year follow-up period, no significant increase in stone size or number and no recurrent severe infections were observed.

Conclusion

This case differs from the few previously reported cases by the absence of Sjögren syndrome and by its clinical resemblance to sialadenosis despite the presence of multiple bilateral parotid sialoliths.

Although some studies suggest that smoking and diuretic use may be risk factors for sialolithiasis, others have found no meaningful association. Consequently, the etiology in this case remains unclear, highlighting the need for well-designed studies investigating systemic risk factors.

Importantly, this case demonstrates that in patients who decline surgery or are unsuitable surgical candidates and who do not experience frequent episodes of parotitis, long-term conservative follow-up may represent an appropriate management strategy.

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