Sialolithiasis: A Retrospective Review of Patient Demographics and Risk Factors for Reoperation

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Introduction

- Sialolithiasis is a common cause of salivary gland dysfunction which affects 1.2% of the population.
- Often presents as recurrent and painful glandular swelling, and patients are often treated with a conservative approach.
- Refractory cases may require surgical intervention by transoral sialodochotomy and stone removal, or newer, less invasive procedures, including sialendoscopy.
- Previously identified risk factors for sialolithiasis include dehydration and smoking.
- While previous studies have suggested that sialendoscopy is an effective and safe treatment for obstructive salivary gland disease, there is a paucity of data regarding risk factors for reoperation.

Methods

- Study Design: single institution, retrospective review of patients diagnosed with sialolithiasis from 2008 to 2020
- Demographic factors, smoking history, comorbid medical conditions, medication history, and clinical evaluation/management were recorded.
- Analyses with two-tailed correlation coefficients and two-sided chi-square were performed.

Results

- Total of 274 cases identified in 141 men and 133 women.
- 81% of cases (221/274) involved the submandibular gland, 18% (47/274) involved the parotid gland (**Figure 1**).
- Average age of onset was 51 years.
- Imaging obtained in 72% of cases (197/273), and 82% of imaging studies (162/197) confirmed sialolithiasis.
- Surgical management pursued in 88% of cases, 54% of which included sialendoscopy.
  - 3% of patients required multiple procedures.
- Stone analysis was pursued in 40% of surgical cases
  - 95% of stones were homogenous, with an average stone size of 9 mm.
- Stone size was not significantly associated with gland location **(Figure 2)** or duration of symptoms ($p>0.05$).
- Smoking, alcohol, and drug use were not significantly related to reoperation ($p>0.05$) **(Figure 3).**
- Diuretic use was significantly associated with reoperation ($p<0.05$), though the size of this group was small **(Figure 4).**

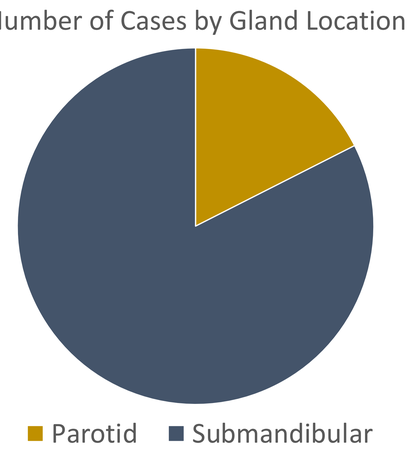

Figure 1. Distribution of cases affecting parotid gland vs submandibular gland.

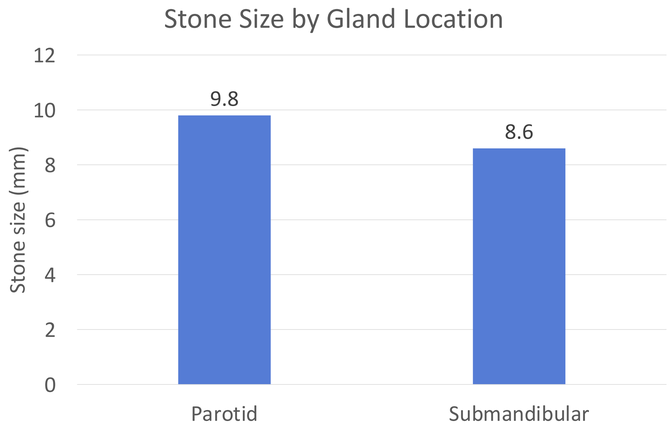

Figure 2. There was no significant difference in stone size by gland location.

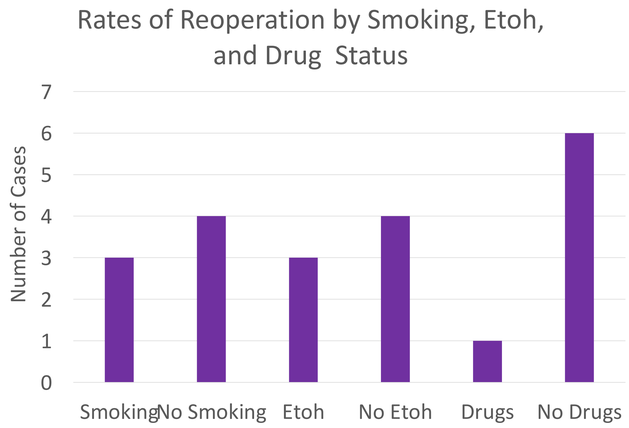

Figure 3. Smoking, alcohol, and drug use were not significantly associated with reoperation.

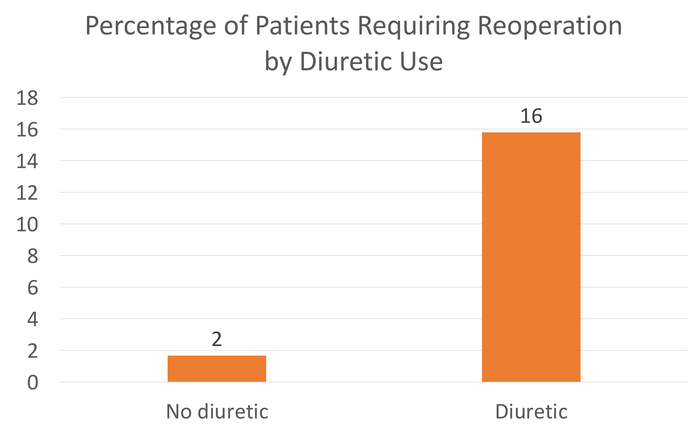

Figure 4. A larger fraction of patients taking diuretics required reoperation, though the size of this group was small.

Discussion

- Stone distribution mirrored that reported in other studies – with majority affecting submandibular glands.
- Gland involvement did not confer significant differences in stone size in our study, but other studies have noted smaller stone size in sialolithiasis of the parotid gland.
- Smoking has been demonstrated to be a risk factor for sialolithiasis but did not increase reoperation rates in this study.
- Diuretic usage in this cohort (7%) was consistent with reported population rates of diuretic use (8.7%); other retrospective reviews of patients with sialolithiasis have noted increased rates of diuretic use.

Conclusions

1. In patients who required operative management of sialolithiasis, over half underwent sialendoscopy.
2. While overall rates of reoperation were low, a greater fraction of patients concurrently taking diuretics required additional procedures.
3. Understanding risk factors for sialolithiasis and determining who is most likely to require multiple procedures can help clinicians to better diagnose, manage, and counsel their sialolithiasis patients

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