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Clinical and epidemiologic aspects of sialolithiasis: a retrospective study

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Introduction

Sialolithiasis is said to be the most common disorder of the major salivary glands.¹ The submandibular glands are by far the most commonly affected glands (80%-90%), followed by the parotid glands (5-20%); stones are discovered in the sublingual glands only rarely, and very rarely in the minor salivary glands.² Recurrent swelling and pain at mealtimes are typical symptoms. Nowadays, high-frequency ultrasound examination is the effective method of choice to confirm diagnosis;³ oral application of ascorbic acid improves ultrasound visualization of the salivary gland duct in cases of obstruction.⁴ The current study presents important clinical data and epidemiologic aspects of patients treated for sialolithiasis over a period of more than 22 years.

Methods

A retrospective analysis was performed after reviewing the records of 2322 patients treated between 1987 and 2009 in the Department of ENT, Head and Neck Surgery, University of Erlangen. Selected clinical parameters were gender, age, size, number, location of the stone, affected side and age at first ENT evaluation. Patients' complaints were classified into four different categories (1- painful swelling; 2-swelling; 3-pain; 4- no symptoms). Based on the ultrasound results, stones were classified by location and by maximum diameter into four groups as per Lustman et al. (I: 1-5mm; II: 6-10mm; III: 11-15mm; group IV: >15mm). Differences between groups were calculated with the student's t-test.

Results

2959 stones were identified. Demographic details are shown in Table 1. 80.4% were submandibular stones (53% hilar/proximal, 37% distal, 10% intraparenchymal). 19.6% were parotid stones (83% in Stensen's duct, 17% intraparenchymal) (Figure 1). The main group suffered from swelling (50.3%) followed by painful swelling (41.6%) and pain (3.1%) (Figure 2). Sialoliths had been discovered beforehand in the submandibular gland (p=0.00024; T-test) (Figure 3). Multiple stones were found in 16.9% of patients. Average stone diameter in the submandibular gland was 8.3mm (range 1-35mm) and 46% of the stones were in group II; in the parotid gland average diameter was 6.4 mm (range 1-31mm) and 51% were in group I (Figure 4).

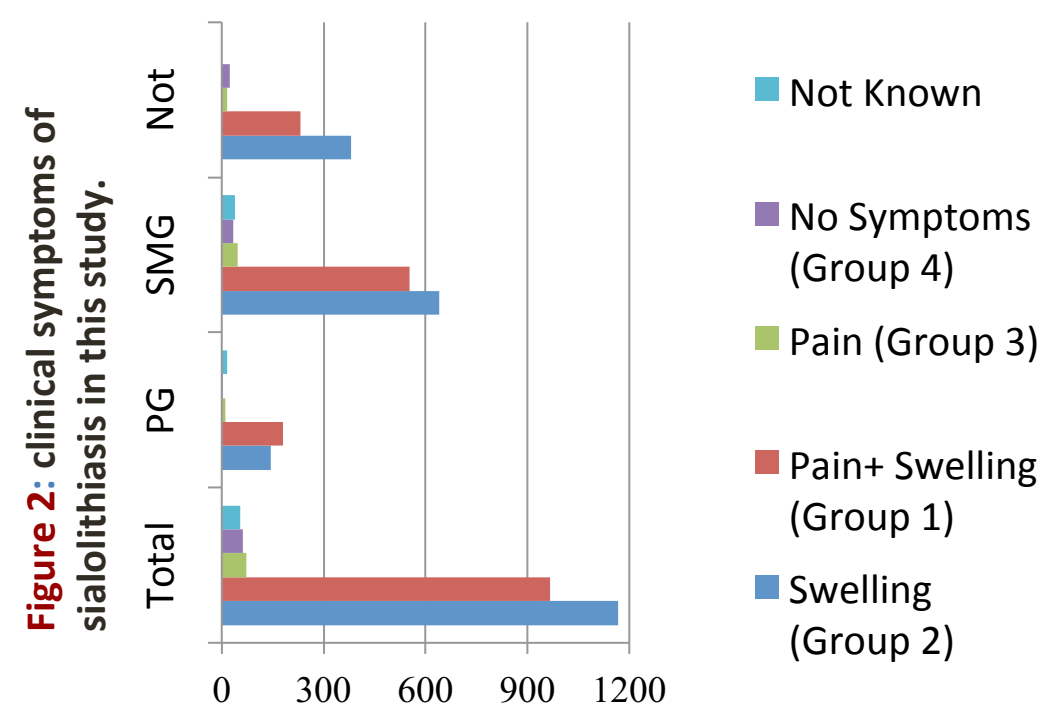


Figure 2: clinical symptoms of sialolithiasis in this study.

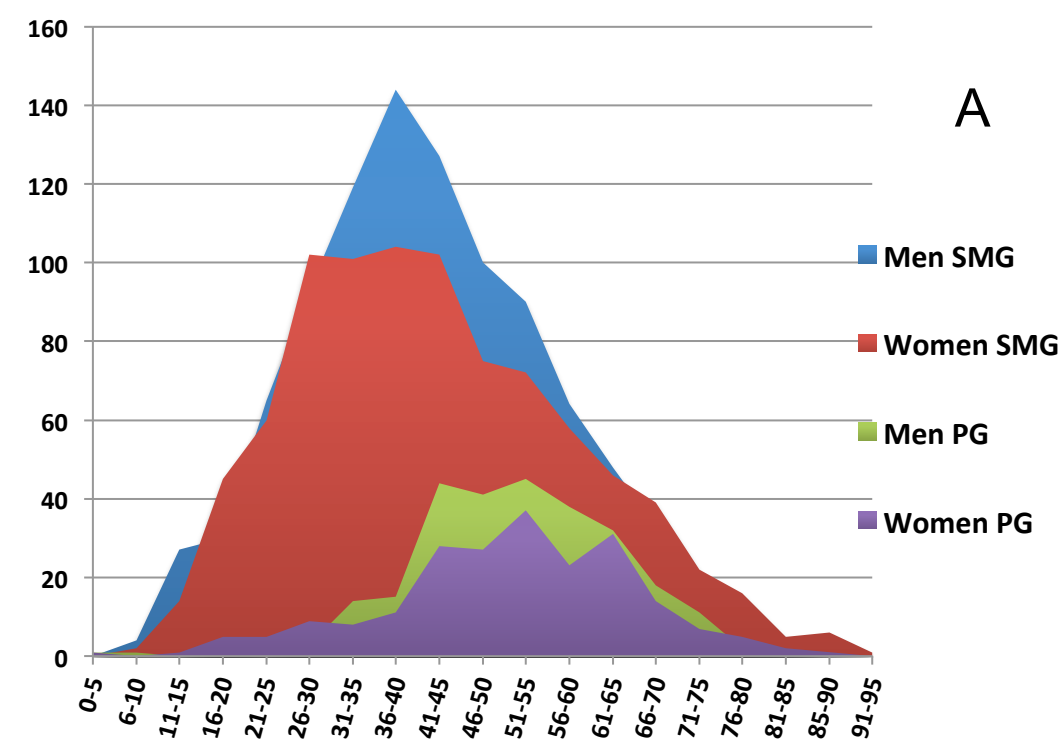
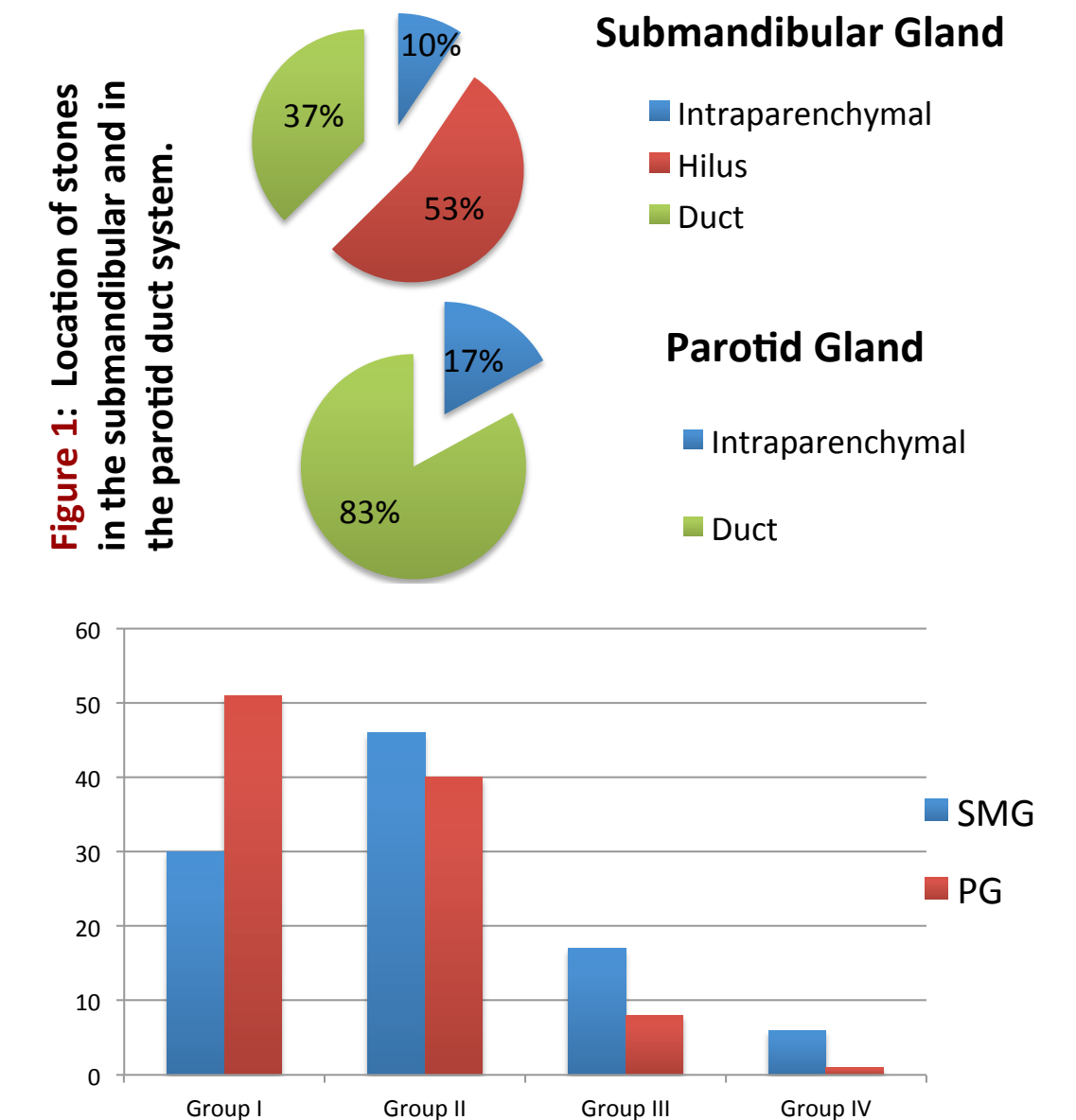


Figure 3: Diagnosed cases and age at first presentation, stratified by gender and gland.

Table 1: Demographic details at first ENT evaluation.

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|----------------------------|-------------------|-----------------|
| Total number of calculi | 2959 | |
| Total number of patients | 2322 | |
| Number of patients treated | 2205 | 95.0% |
| Children | 50 | 2.2% |
| Male-Female | 1232 (53.1%) | 1090 (46.9%) |
| Gland: SMG-PG | 1838 (79.2%) | 484 (20.8%) |
| Side: right-left (N°) | 1053 (45.2%) | 951 (54.8%) |
| Average age (women-men) | 46.3 years (4-91) | 46 years (3-89) |
| Average age (SMG-PG) | 42.5 years (6-91) | 51 years (3-89) |
| Size (SMG-PG) | 8.3 mm (0.1-35) | 6.4 mm (0.1-31) |



Conclusion

This study shows no significant difference in the occurrence of sialolithiasis in relation to gender and age. As described in previous studies, submandibular stones were largely the most frequent. They were earlier discovered (p=0.00024; T-test) and as symptomatic, generally larger in size than parotid stones. Ultrasound represents an excellent diagnostic technique. Epidemiologic features and clinical manifestations of sialolithiasis assist the diagnosis and lead to an appropriate treatment. Due to their location and smaller diameter, parotid stones in some cases can only be treated using a surgical endoscopic technique. On the contrary, the bigger size and the more proximal location in the ductal system of the submandibular stones, together with the difficult endoscopic approach in the "surgical knee" of the Whartin duct lead more frequent to a combined approach.

References

1. Marchal F, Dulguerov P. Sialolithiasis management: the state of the art. Arch Otolaryngol Head Neck Surg 2003;129:951-6.
2. Rauch S, Gorlin RJ. Disease of the salivary glands. In: Gorlin RJ, Goldmann H M eds. Oral pathology. St Louis, MO: Mosby; 1970:997-1003.
3. Capaccio P, Torretta S, Ottaviani F, Sambataro G, Pignataro L. Modern management of obstructive salivary diseases. Acta Otorhinolaryngol Ital 2007;27:161-72.
4. Bozzato A, Hertel V, Bumm K, Iro H, Zenk J. Salivary stimulation with ascorbic acid enhances sonographic diagnosis of obstructive sialoadenitis. J Clin Ultrasound 2009;37:329-32.