Background: Diagnosis and treatment of submandibular gland (SMG) sialolithiasis can be challenging. With the advent of sialendoscopy the rates of successful treatment have increased significantly, but still treatment failures may occur in up to 10%. The most common cause of failure is lack of calculus localization prior to surgery.

Objectives: To present a novel approach for ultrasound (U/S) guided needle localization of calculi during transoral sialoendoscopy and to discuss the advantages of U/S examination in patients with symptomatic submandibular sialolithiasis.

Methods: Thirty-three adult patients with symptomatic SMG sialolithiasis who failed sialolithotomy were included in this study. All patients underwent sialoendoscopy with pre-operative U/S guided needle localization of calculi. Outcomes of interest included: accurate detection of stones, successful completion of procedure, and time to completion of procedures.

Results: U/S guided needle localization detected 38 out of 40 submandibular calculi (sensitivity=95.0%, specificity=91.4%, PPV=96.9%, NPV=85.7%). No patients who underwent intra-oral sialoendoscopy. The procedure was successfully completed in 32 (97.0%) of 33 patients. Two patients developed ductal stenosis, and were referred for revision. A total of 4 procedures (12.1%) were performed in the operating room setting. The oral cavity and sublingual gland were the most common locations of calculi (32/38 = 84.2% of localizations). The success rate of transoral sialolithotomy was 90.9%, and average time to completion (n=33) was 23.9 (SD=6.9) min. Of the three failed procedures, one was due to bleeding from the lingual vein and two procedures were terminated due to patient discomfort. None of the procedures were terminated due to unsuccessful localization.

In two of the three stones, the stone was accurately localized, but was not able to be delivered. In one patient the second proximal stone could not be removed. One patient (3.3%) required salvage sialadenectomy for definitive management.

Two patients developed ductal stenosis, and were treated and followed in the outpatient setting. The rate of infection, swelling, or tongue numbness in 29/33 patients with long-term follow-up (mean 8.1 months).

CONCLUSIONS

U/S needle localization does have certain difficulties however. It requires experience and skill to reliably identify and localize calculi, especially in the distal or mid ductal region. U/S needle localization does have certain difficulties however. It requires experience and skill to reliably identify and localize calculi, especially in the distal or mid ductal region. The technique to distal or mid ductal stones in the operating room setting. Ultrasound exam can be used in cases where U/S is contraindicated or there is significant obesity. Ultrasound exam can be used in cases where U/S is contraindicated or there is significant obesity.

REFERENCES


Ultrasound and Needle Localization During Transoral Submandibular Sialolithotomy

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ABSTRACT

Sialolithiasis is the most common cause of obstruction of the submandibular gland and accounts for approximately 80-90% of all calculi. An accurate and efficient localization prior to transoral sialoendoscopy may be challenging for a variety of reasons. Management options include sialoendoscopy, sialoendoscopy-assisted, or purely transoral sialolithotomy. Additional, laser lithotripsy and extracorporeal shockwave lithotripsy are utilized, but have limited indications and frequency recur during repeated treatments. Submandibular sialolithiasis is the most common cause of ductal obstruction. For several years, sialoendoscopy has gained attention as a safe and effective method for both diagnostic and therapeutic management of submandibular sialolithiasis and can be performed in the office-based or operative setting.

Methods: Thirty-three adult patients with symptomatic submandibular sialolithiasis who failed sialolithotomy were included in this study. All patients underwent sialoendoscopy with pre-operative U/S guided needle localization of calculi. Outcomes of interest included: accurate detection of stones, successful completion of procedure, and time to completion of procedures.

Results: U/S guided needle localization detected 38 out of 40 submandibular calculi (sensitivity=95.0%, specificity=91.4%, PPV=96.9%, NPV=85.7%). No patients who underwent intra-oral sialoendoscopy. The procedure was successfully completed in 32 (97.0%) of 33 patients. Two patients developed ductal stenosis, and were referred for revision. A total of 4 procedures (12.1%) were performed in the operating room setting. The oral cavity and sublingual gland were the most common locations of calculi (32/38 = 84.2% of localizations). The success rate of transoral sialolithotomy was 90.9%, and average time to completion (n=33) was 23.9 (SD=6.9) min. Of the three failed procedures, one was due to bleeding from the lingual vein and two procedures were terminated due to patient discomfort. None of the procedures were terminated due to unsuccessful localization.

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CONCLUSIONS

U/S needle localization does have certain difficulties however. It requires experience and skill to reliably identify and localize calculi, especially in the distal or mid ductal region. Ultrasound exam can be used in cases where U/S is contraindicated or there is significant obesity. Ultrasound exam can be used in cases where U/S is contraindicated or there is significant obesity.

REFERENCES


