Ultrasound-Guided Needle Localization of Parotid Sialolithiasis
– A Novel Technique

Arjun S. Joshi, MD1; Amit Sood, BA1
The George Washington University – Division of Otolaryngology - Head and Neck Surgery

ABSTRACT

Objectives: 1) To describe a novel operative technique in patients with parotid sialolithiasis
2) To demonstrate the feasibility and discuss its indications

Methods: From August 2009 to January 2012, patients with symptomatic parotid sialolithiasis underwent ultrasound needle localization and open parotidectomy at a tertiary-level hospital setting. Outcomes included success of delivery, presence of infection, ductal stenosis, loss of glandular function, or facial nerve paralysis. Independent variables included size of localization and location of sialoliths.

Results: Eleven patients were treated using transcutaneous ultrasound-guided needle placement and injection of methylene blue prior to external sialolithotomy in the operating room. Patients were chosen if they had failed surgical treatment or if an endoscopic approach was not possible. Transcutaneous ultrasound needle localization was successful in all patients. Localization allowed the surgeon to directly visualize parotid stones and if amenable, extract the sialolith through the skin incision. Proper visualization of the stone was confirmed. A modified Blair incision was made, sub-SMAS flaps were elevated, and the parotid masseteric fascia was exposed. The location of the stone was suggested by the focus of methylene blue (which usually measures 5mm) and intraparotid dissection is performed. Depending on the location of the stone, the buccal branch of the facial nerve is functionally intact and seen dissected. The stone is delivered and Stensen's duct is then identified as a punctate area of methylene blue injection and incision through the duct is performed in the line-of-sight axis of the duct. The stone is delivered and Stensen's duct is usually stented using a 6/0 Prolene suture over a guide wire. All stones were retrieved. Of the 11 patients, 10 (91.9%) stones were classified as oval-shaped, and 1 (9.1%) of the patients, respectively. The average sialolith length was 7.6 +/- 2 (range 5.7-11) mm. The average surgical time was 53 +/- 10.8 (range 37-73) minutes. The average follow-up was 8.9 +/- 2 (range 6-14) months. All 11 (100%) of the cases. Ten (91.9%) patients had stones within the proximal 1/3 of the ductal system. One (9.1%) patient had stones present within the proximal 1/3 and middle 1/3 of ductal system. Ten (91.9%) patients had stones present within the proximal 1/3 and middle 1/3 of ductal system.

CONCLUSIONS

Ultrasound-Guided Needle localization is an effective technique for the treatment of large and/or proximally located parotid stones which may fail standard endoscopic treatment. This technology is rapidly learned, widely applicable, and cost-effective.

It should be incorporated into the routine treatment algorithm for treatment of obstructive sialolithiasis.

REFERENCES