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MULTIMEDIA ARTICLES

Wide-awake trapeziectomy: video detailing local anesthetic injection and surgery

Hana Farhangkhoee · Jan Lalonde · Donald H. Lalonde

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Abstract The use of local anesthesia with epinephrine and no tourniquet/no sedation is becoming an excellent alternative for hand surgeries. This wide-awake approach is the most commonly used method of anesthesia for carpal tunnel release in Canada. The purpose of this paper is to provide a video detailing this technique for trapeziectomy for trapeziometacarpal joint osteoarthritis.

Keywords Basal joint arthritis · Local anesthesia · Trapeziectomy · Trapeziometacarpal joint · Wide-awake surgery

Introduction

The use of pure local anesthesia with lidocaine and epinephrine is becoming widely accepted for the use of hand surgery, with the former achieving analgesia and the latter providing hemostasis [5]. The tourniquet is no longer a requirement with wide-awake hand surgery. Deleting sedation or general anesthesia has many benefits including negating the preoperative testing, eliminating postoperative nausea and vomiting, reducing postoperative hospital stay, and providing a far easier way to manage the patient with multiple comorbidities such as morbid obesity and diabetes. These patients are able to get up and go home as they would after a dental procedure.

Tourniquet-free lidocaine with epinephrine for carpal tunnel release is the most commonly used approach in Canada [4, 6], and this technique has permitted safely moving the operation outside of the main operating room with very low infection rates [7]. Wide-awake flexor tendon repair has been shown to produce very low rupture and tenolysis rates [2, 3]. The technique has also been helpful in Dupuytren's patients with comorbidities [10].

Anesthesia for basal joint arthroplasty or trapeziectomy traditionally includes a tourniquet and general or regional anesthesia with intravenous sedation. The purpose of this paper is to present the first video of wide-awake basal joint trapeziectomy with no tourniquet, no sedation, and the use of only locally injected lidocaine and epinephrine.

Local Anesthesia for Basal Joint Trapeziectomy

Using a 27-gauge needle, a total of 30–40 cc of premixed 1% lidocaine with 1:100,000 epinephrine is injected throughout the whole radial half of the wrist to bathe all areas where dissection will be performed (see Video). The idea is to stay within the safe limits of 7 mg/kg of lidocaine and epinephrine, but to inject more than the required volume (tumesce) so that no intraoperative painful "top ups" will be required and that the patient will have a comfortable pain-free operative experience.

Local anesthesia injection pain can also be minimized. As the first needle enters the wrist, the patient feels the

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H. Farhangkhoee · J. Lalonde · D. H. Lalonde (✉)
Division of Plastic and Reconstructive Surgery,
Dalhousie University,
Hilyard Place, 600 Main Street, Suite C204,
Saint John, NB E2K 1J5, Canada
e-mail: drdonlalonde@nb.aibn.com

initial poke of the needle. By injecting slowly and always generating an area of palpable local anesthetic swelling at least 5 mm ahead of the needle tip, the patient will not feel any further local anesthetic injection pain if the solution is buffered (10 cc of 1% lidocaine with 1:100,000 epinephrine:1 cc of bicarbonate 8.4%) [9]. The patients are injected on a stretcher in the preoperative holding area before entering the operating room to allow time for epinephrine hemostasis to occur optimally. No additional local anesthetic injections are usually needed during the surgery.

Surgical Approach for Basal Joint Trapeziectomy

A standard 4-cm dorsoradial longitudinal incision is made over the trapeziometacarpal joint (see Video). The branches of the superficial radial nerve and the lateral antebrachial cutaneous nerve are retracted to either side of the wound and the dissection is carried down between the interval of the extensor pollicis brevis and abductor pollicis longus (APL). The radial artery is identified and retracted proximally. The joint capsule is then incised and the trapezium exposed and removed with a rongeur. The space is palpated to be sure there are no remaining osteophytes.

After trapezial excision, the patient then takes the thumb through an intraoperative pain-free active range of motion to help the surgeon decide on whether or not to perform further soft tissue maneuvers such as ligament suspension with APL tendon slips or K-wire insertion. The senior author stopped performing routine ligament reconstruction and tendon interposition (LRTI) and K-wire insertion 3 years ago as a result of best evidence literature assessment [1, 8, 11]. Since then, they have observed that the results are comparable to LRTI or trapeziectomy with K-wire, but that the patient morbidity is less, as the high-level evidence suggests. However, full standard LRTI would easily be accomplished with the wide-awake approach by injecting additional local anesthesia in the volar radial forearm for flexor carpi radialis harvest.

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