

Minimal Pain Tumescence Local Anesthesia WALANT Basal Thumb Arthritis Implant Arthroplasty

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The purpose of this article and its videos is to help enable surgeons to start performing wide-awake local anesthesia no tourniquet (WALANT) implant thumb arthroplasty if they are interested in doing so. Thumb basal joint arthritis surgery is typically performed under regional or general anesthesia with a tourniquet and sedation. WALANT has emerged as a viable alternative, offering significant advantages such as the elimination of nausea and vomiting, intraoperative patient active movement assessment, reduced costs, and improved patient safety.¹

Most North Americans prefer trapeziectomy with ligament reconstruction and tendon interposition for thumb metacarpal trapezial arthritis. Many Europeans prefer metal implant joint replacement.² With WALANT anesthesia, the authors perform both ligament reconstruction and tendon interposition (for stage 4) and implant reconstruction (for stages 2 and 3).

When possible, we prefer trapezium implant surgery. The first author has been using implant arthroplasty for more than 10 years and has inserted more than 50 modular MAIA implants (MAM Medical, Candiac, Quebec, Canada). He is very pleased with his patient outcomes. This article demonstrates the use of WALANT to insert one of these implants.

PROVIDING A GOOD PATIENT EXPERIENCE

We believe that surgery is an experience that can be enjoyed instead of endured.³ Taking sedation out of the equation eliminates preoperative visits for blood tests, chest x-rays, and electrocardiograms, as well as consultations to “clear” patients for the sedation anesthesia. There is no need for fasting or changing daily medication regimens. Patients get up and go home to be with their children like after a dental procedure. They do not need a

home sitter to be with them because they have not had sedation.

A big part of making WALANT surgery enjoyable is to eliminate the pain of local anesthesia injection, as previously described with videos in open access.⁴ When the only pain a patient feels is a tiny needle poke, and then no more pain during the rest of the local anesthesia or the surgery, they are delighted. (See Video 1 [online], which shows how to inject minimally painful tumescent local anesthesia for trapezium implant surgery.)

HOW TO INJECT MINIMALLY PAINFUL TUMESCENT LOCAL ANESTHESIA FOR BASAL JOINT IMPLANT SURGERY

- Use room temperature local anesthesia, infiltrate very slowly, and solicit constant patient feedback to tell us if they feel pain after the first needle poke.
- Minimize the sting of the first 30G needle poke with sensory noise such as (1) dynamic vibration, (2) pinching the skin into the needle rather than pushing the needle into the skin, (3) asking the patient to cough at the time of first needle insertion, and (4) distracting the patient with pleasant conversation.
- Hold the initial needle very still in a perpendicular insertion angle while injecting a large visible bulge of local anesthesia in the subcutaneous fat.
- Change to a slightly larger 27G or 25G needle into the first numbed area to slowly inject 10 mL of 1% lidocaine with epinephrine (1:200,000) over the trapezium to the periosteum, 10 mL over the proximal first metacarpal, 10 mL on the radial base of the metacarpal, and 10 mL on the ulnar base of the metacarpal.
- Reinsert needles and inject them into areas that have already been numbed. Push the local ahead of the needle from proximal to distal.
- Inject a final 5 mL into the joint.
- It is important to wait 45 minutes after the injection of the local anesthesia before starting the procedure to give the lidocaine and epinephrine time to work and produce a clear surgical field without a tourniquet.
- The patient is encouraged to use the bathroom before they walk into the operating room.

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THE OPERATING ROOM CAN BE A PLEASANT ENVIRONMENT

The operating room does not need to be a scary place for WALANT surgery. (See **Video 2 [online]**, which displays the WALANT room for joint replacement surgery.) Eliminating sedation avoids the need for intravenous line insertion and noisy monitoring. Oral prophylactic antibiotics are used to reduce the risk of infection. The lights are dimmed, and the room is quiet other than soft conversation and music selected by the patient. The staff is trained to interact pleasantly with the patient at all times. The surgeon and staff provide constant friendly communication with the patient as needed. To minimize anxiety, we warn them ahead of time about noise and vibration when we use tools such as saws and hammers. Patients love this environment.

THUMB BASAL JOINT IMPLANT ARTHROPLASTY PROCEDURE

Video 3 shows the implant insertion procedure. (See **Video 3 [online]**, which displays wide-awake basal joint replacement with a MAIA implant, performed by the author without the use of sedation.) After the implant is seated, the patient actively moves the thumb so the surgeon can see how well the implant interacts with the moving tissues and make immediate adjustments to ensure optimal implant positioning and functionality. The patient needs to look at the thumb for this part of the procedure to see where the thumb is moving because they have lost proprioception with the local anesthesia. An intraoperative video of the implant moving can be recorded for the patient and shared with the hand therapist. Another video animation of MAIA implant insertion can be seen at MAIA Surgical Technique 3D Animation (YouTube.com).⁵ Video

4 details the tips that lead to successful implant surgery, as well as how to avoid and manage complications. (See **Video 4 [online]**, which displays tips that lead to successful implant surgery, as well as how to avoid and manage complications.) If the implant fails over time, a wide-awake trapeziectomy can be performed.

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Dr. Lalonde is editor of books for Thieme Medical Publishers and consultant for Accurate Surgical and Scientific Instruments, Corp. Dr. Brutus has no financial interest to declare in relation to the content of this article.

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