Wide-Awake Local Anesthesia, No Tourniquet Surgery in the Philippines

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The use of wide-awake local anesthesia, no tourniquet (WALANT) has been adapted by most hand surgeons in the Philippines. This is especially true for centers with a large volume of patients needing specialized care for the hand. The use of WALANT has enabled surgeons to do procedures on an outpatient basis, thus potentially creating cost-saving measures for patients and health care facilities. Aside from common outpatient procedures like carpal tunnel syndrome, trigger finger, and de Quervain tenosynovitis, open reduction internal fixation of hand fractures, acute tendon repairs, tendon transfers, and reconstructions have been performed under WALANT as outpatient procedures. The future of WALANT surgery in the Philippines is promising. Teaching WALANT to other areas of the country can counterbalance the large disproportion of hand surgeons to patients and the concentration of specialized care in urban areas. This will enable patients to receive surgical hand care without going to large urban centers.

A session was dedicated to tendon surgeries using WALANT ranging from primary repairs to tendon transfers to tenolysis. Since then, more local surgeons in the Philippines have been using WALANT, especially for day surgeries like carpal tunnel, trigger finger, de Quervain disease, and excision of benign tumors of the hand and upper extremity.

The use of WALANT surgery is prevalent among hand surgeons. A pilot study on this was recently reported by Magoto and Alagar on their experience at a local government hospital on carpal tunnel syndrome. Although in their report, none were bloodless nor had too much bleeding, no complications were noted, and the pain was very well controlled in their 13 patients.

The hesitancy in using epinephrine in hand surgery is because of the fear of finger necrosis. In a recent review, there have been several case reports of using 1% lidocaine with 1:100,000 epinephrine associated with digital necrosis. In an extensive literature review in 2001 by Denkler, of the 48 cases of digital gangrene and necrosis after local anesthesia, only 21 cases involved the use of epinephrine, and only 4 were in which the concentration was recorded.

In a multicenter prospective study of 3,100 cases of hand and finger procedures using epinephrine, Lalonde et al reported no incidence of phenolamine rescue or digital necrosis.

Key words: Local anesthesia, WALANT, Wide-awake surgery

The use of local anesthesia in hand surgery is not new, and this is usually performed with the tourniquet for procedures lasting not more than an hour. In most urban centers, these are performed in operating rooms inside hospitals as outpatient surgeries, smaller surgicenters, or surgical centers.

The wide-awake local anesthesia no tourniquet (WALANT) has gained much attention in recent years because of its effectiveness, safety, cost, and patient satisfaction. The WALANT technique uses a combination of lidocaine and epinephrine to establish hemostasis and local anesthesia without the use of a tourniquet with the patient awake. There are many published studies on the usefulness of WALANT in hand surgery procedures.

Although the technique has been quite popular in other countries, in the Philippines, this technique gained traction after Dr Don Lalonde gave a talk on WALANT during the 11th Asian Pacific Federation of Societies for Hand Surgery 2017 in Cebu, Philippines.

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Specific Procedures Under WALANT in the Philippines

As of 2022, the Association of Hand Surgeons of the Philippines (AHSP) has 43 members, mostly concentrated in urban centers and Metro Manila, the capital of the country. These hand surgeons are distributed among various private and government hospitals. Traditionally, most procedures are done on the wrist and hand, and some fingers are under general anesthesia, regional block with or without sedation. Until recently, there has been an increasing trend in the use of WALANT in various bone and soft-tissue surgeries of the hand and upper extremity. The administration of WALANT in the Philippines is usually performed by surgeons, unlike in South Korea, where it is administered by an anesthetist.

In a survey among members of the AHSP, 23 responded that they do WALANT on their cases, and 5 declared that they do not use WALANT, with 2 saying that they use it sometimes. The most common soft-tissue procedures are open carpal tunnel, trigger finger, and de Quervain’s releases, including excision of benign tumors and tumor-like lesions. For bone procedures, phalangeal and metacarpal fixations are the most common. Also, some have used WALANT on certain acute scaphoid percutaneous screw fixations.

Flexor tendon injuries

Flexor tendon repairs are usually done with the patient under general anesthesia, and the strength of the repair was gauged by the passive extension of the digits after repair. Tension was usually evaluated with the tenodesis effect and observation of the finger cascade. Since WALANT has been adapted, intraoperative, real-time assessment of the tendon repair is immediately known, catching the repair site at the pulleys. Because of this, venting of the pulleys can be done immediately if needed. The traditional way of creating a window in the wrist and pulling the repaired tendon to check if it will catch on the pulley is no longer warranted. Active finger flexion can be done to check any catching and gap formation of the repair. This way, the surgeon will be more confident in the repair as the patient undergoes hand rehabilitation posttendon repair. Patient 1 is the case of a 26-year-old woman with a laceration in zone II of the flexor digitorum profundus of the right little finger (dominant hand) while opening a can. We use 1:100,000 epinephrine with 1% lidocaine. In flexor tendon injuries zone II, we injected 10 cc: 5 cc at the A1 pulley area, 2 cc each at the proximal and middle phalanx, and 1 cc at the pulp if needed. In this case, a total of only 8 cc was needed because the finger was small and we did not inject any more at the pulp area. We used a 4-0 nylon suture, and the tendon repair technique that was used was a 4-core cruciate repair with a 6-0 nylon epitendinous continuous suture for the flexor digitorum profundus and a modified Kessler for the FDS. We only repaired the ulnar slip of the FDS as we judged that repairing both will have problems in tendon gliding after surgery because of the bulkiness of the 2 repaired FDS tendons. Intraoperative observation of the repair was possible during active flexion (Fig. 1A, B). After surgery, the hand is immobilized at 20° of wrist flexion, 60°–70° metacarpophalangeal joint flexion, and neutral interphalangeal joints. We do not have a tenodesis orthosis, so we start early range of motion within 1 week with active midrange motion after days 3–4. A partial fist was achieved with approximately 45° of active flexion of the metacarpophalangeal and interphalangeal joints with active extension within the confines of the orthosis. Passive flexion of the digits was continued for the pulp to reach the palm. Some surgeons use the Modified Duran exercise program. Orthosis removal was performed at 6 weeks, with night orthosis fabrication for an additional 1 week. Then buddy taping was performed to the adjacent
digit. Slight flexion contracture of the proximal interphalangeal joint was observed at the 6-month follow-up, but otherwise, there was a good range of motion for the right little finger (Fig. 1C, D).

**Extensor tendon injuries**

Injuries to the extensor tendons are usually because of trauma and closed ruptures from rheumatoid arthritis. One of the concerns in extensor tendon repair or reconstruction is doing the proper tensioning. On the days when the patient is sedated or under general anesthesia, the only way to determine proper tensioning after zone VI extensor tendon repair or transfer is by doing the tenodesis test and observing the cascade of the fingers as the wrist is flexed and extended. With the WALANT technique, the strength and tension of the repair during the actual movement of the digits are tested intraoperatively. Patient 2 is a right-handed 35-year-old female surgeon who consulted 1 month after sustaining a laceration on extensor zone V of the right ring finger. The extension lag of the ring finger was bothering her (Fig. 2). A total of 20 cc lidocaine-epinephrine at 1:100,000 was injected along the planned incision. The intraoperative repair with a range of motion with a recent follow-up after 3 years (Video 1, available on the Journal’s website at www.jhsgo.org) showed a better ring finger extension.

**Fractures of the hand**

In treating fractures of the hand, especially metacarpal and phalangeal fractures, the stability of the fixation is important to facilitate early rehabilitation and avoid joint stiffness. Patient 3 is a 16-year-old man with a 2-week history of a fracture of the fifth metacarpal shaft of the left hand with scissoring on physical examination (Fig. 3A, B). A total of 30 cc of lidocaine-epinephrine was administered at a 1:100,000 ratio before surgery along the planned incision until tumescence was achieved. After 30 minutes, the incision was made. An additional 10 cc intraoperatively was administered: 2 cc over bone, 4 cc at the dorsal, and 4 cc at the volar area during exposure of the fracture. Intraoperative stability with the correction of malrotation was confirmed after plate fixation and immediate movement was commenced with good fracture healing at 1 year (Fig. 3C, D). Patient 4 sustained a fracture of the second metacarpal that was fixed with interference screws. A total of 20 cc tumescent anesthesia at 1:100,000, lidocaine-epinephrine was injected at the incision site. The incision was done after 30 minutes. Video 2 (available on the Journal’s website at www.jhsgo.org) shows the intraoperative assessment of fixation stability with a good outcome at 3 months.

**Tendon transfer**

Tendon transfers for hand function continue to challenge hand surgeons, especially in setting appropriate tension for the transfer. One of the most common transfers performed in hand surgery is the extensor indicis proprius (EIP) transfer for thumb extension.12,13

Previous tendon transfers are usually performed with the patient under general anesthesia and tension is usually set “slightly tighter” because this was thought to be better than a loose transfer. Tendodesis testing is usually the conventional way to assess appropriate tensioning in tendon transfer in an asleep patient. Patient 5 is a 36-year-old seaman who sustained a 3-month-old laceration on the dorsum of his hand (thumb zone IV) with an inability to extend his right thumb. We did an EIP to extensor pollicis longus (EPL) transfer. A total of 25 cc of 1% lidocaine with 1:100,000 epinephrine was injected to provide tumescence at the surgical site. The tendon ends of the EPL and harvested EIP were identified (Fig. 4A, B). Side-to-side mattress temporary sutures were done before testing the wrist and thumb in a neutral position.

We usually place a rolled towel in the first web space to keep the thumb and wrist in a neutral position. We did intraoperative testing of thumb extension with the patient while the patient was looking at his hand (Video 3, available on the Journal’s website at www.jhsgo.org). The patient was asked to touch the tip of the little finger with the thumb and to make a ‘thumbs up’ sign. Once with good tension, we did a Pulvertaft weave for the EIP to EPL transfer with the wrist in neutral. We found that it is easier for the patient to move his repaired tendon when he saw his hand move. This was also true for all primary tendon repairs. He performed immediate motion within 1 week within the protective orthosis with the wrist in neutral. At 3 weeks after surgery, the orthosis was maintained in between exercises, and simultaneous index finger and thumb extension was encouraged without the orthosis. At this stage, gradual flexion of the thumb was also started. The orthosis was then removed totally 6 weeks after surgery. His follow-up at 3 months showed good thumb extension (Fig. 4C, D).

**Extensor carpi ulnaris subsheath reconstruction**

The diagnosis of extensor carpi ulnaris (ECU) subluxation can be challenging. Once confirmed, a trial of orthosis fabrication with the wrist in pronation, radial deviation, and extension with the elbow flexed will usually work in most cases. However, ECU instability not responsive to nonsurgical treatment may need surgery to reconstruct the ECU subsheath. Patient 6 is a 25-year-old man diagnosed with an ECU instability and magnetic resonance image showed a “perched” ECU (red circle) that did not reduce on pronation and supination (Fig. 5) and was dislocating clinically (Video 4, available on the Journal’s website at www.jhsgo.org). He underwent surgical reconstruction of the ECU subsheath after a trial of nonsurgical treatment for 5 weeks. We used the WALANT technique to reconstruct the subsheath. We injected 40 cc of 1:100,000 1% lidocaine and epinephrine and waited for 30 minutes before the surgical
incision. The injection was done over the planned incision at the ulnar border of the wrist along the ECU. Intraoperative movement showed “snapping” ECU on wrist flexion-extension. We used 2 anchor sutures to stabilize the attenuated ECU subsheath to keep the ECU within the groove. The intraoperative stability of the ECU after reconstruction was evaluated when there was no tendon subluxation on active movements of the wrist (Video 4). The patient’s elbow was immobilized in a cast with the elbow in 90° flexion, forearm pronated 90°, and the wrist at a slight radial deviation with neutral flexion-extension for 6 weeks. Four months postsurgery showed no recurrence of subluxation with ECU stability.

How WALANT has changed hand surgery in the Philippines

The concept of WALANT has made more hand surgeons confident in assessing the strength of repair of a tendon or stability of bone fixation. This has led to more outpatient surgeries and an increase in the turnover of patients. Patient discomfort from using a tourniquet in common procedures can now be eliminated. In some hospitals, while waiting for the long processing period in the outpatient setting, anesthetic injections can be administered in advance. This is especially true in university hospitals, government hospitals, or large tertiary centers where patient volume is large, and increased turnover of patients or admissions can facilitate patient care. Tendon repairs and simple bone fixations of the hand can now be done under local anesthesia, and the patient can be discharged after the procedure. Even procedures, such as tendon transfers, can now be performed under local anesthesia, and patients can be discharged after the procedure. This will minimize the risk of general anesthesia for the patient. This effect has yet to be determined on a larger scale in the Philippine health care system.

Hospital protocols may need to be revisited and modified to maximize cost savings when using WALANT.

Access to surgical care remains limited to many areas in the Philippines. A recent workforce study showed inequitable distribution, specifically of orthopedic specialists, concentrating mostly on the National Capital Region, where most tertiary hospitals are located, and the major cities. The distribution is disproportionate to the population in need of care. Similarly, tertiary facilities for surgical procedures are mainly located in the same urban settings. Although tertiary facilities are highly concentrated in market centers, specialized care may be made accessible by distributing surgical specialists. However, the specialists often require advanced facilities to perform their procedures. While building advanced facilities will need time and support from the government and private investors, surgical specialists may alternatively choose to settle in less equipped centers as long as they can perform their procedures safely and effectively.

As for who pays for health care, Filipino patients are often expected to shoulder what will be in excess of the standard rates set by the Philippine Health Insurance Corporation (PhilHealth or PHIC). Although no-balance billing is in effect in government centers, it is still not universal and impacts the average citizen undergoing common surgical procedures. At present, the All Case Rate system is in place that limits coverage per procedure, regardless of variabilities that may affect the cost, like location (private or public), set-up (admitted or day surgery), and type of anesthesia. Given this, procedures traditionally performed as inpatient under anesthesia are being slowly migrated to day surgery with less costly anesthetics to optimize the available subsidy from the government.

The increasing use of WALANT has enabled many procedures with minimal to no payout from patients and the conservation of hospital resources. Difficulties in the hospital admission process for surgical procedures, the cost of hospitalization, and the onset of the

![Figure 3](image-url)
pandemic were why outpatient surgical procedures with WALANT have gained popularity among hand surgeons. Acute tendon repairs and transfers, for example, can now be done using WALANT and as outpatient procedures. Several modifications in the traditional use of WALANT were adopted by some Filipino hand surgeons. Some surgeons decreased the waiting time from 30 minutes to 15 minutes as long as tumescence was achieved, especially in open carpal tunnel release. Others use intraoperative injections to the fracture site during bone fixation procedures.

**Discussion**

The WALANT technique in hand and upper extremity surgery continues to gain popularity among Filipino hand surgeons, with approximately 70% of the members using the WALANT technique regularly, with some extending it to bone fixations and tendon reconstructions. Perhaps among the deterrent factors in regularly using WALANT, especially for simple procedures like open carpal tunnel releases, trigger finger releases, and first dorsal compartment releases is the fear of digital necrosis, the waiting time, bleeding during the surgery, and hesitancy of some patients to be awake during surgery (like tendon repairs or bone fixations). The local hand society (AHSP) has been promoting the use of WALANT in hand surgery to overcome these factors. It has focused on its safety, cost, and similar outcomes, if not better, than traditional anesthesia for the same procedures. The campaign on WALANT surgery was not only limited to hand surgeons. In the Philippines, most general hand surgeons and those with other specialties still do basic orthopedic procedures on the hand, like carpal tunnel, trigger finger releases, and de Quervain tenosynovitis. Some surgeons are now fixing forearm fractures under WALANT. We believe that more hand surgeons in the Philippines will use the WALANT technique in the future.

In conclusion, with nearly three-quarters of hand surgeons and some general orthopedic surgeons in the Philippines using WALANT for minor hand surgeries, WALANT surgery improves patient outcomes and accessibility to the average Filipino. The future of WALANT surgery in the Philippines is promising and will help to distribute the burden of hand surgery all around the country, not just in urban centers.

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