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Review Article

Description of Walant Technique on Achilles Surgery in Times of Covid-19

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Abstract

The WALANT technique, wide-awake local anesthesia no tourniquet has been applied in hand surgeries with good results.

We describe the technique of WALANT anesthesia to be performed in the Achilles surgery (Achilles rupture, non insertional tendinopathy, insertional tendinopathy).

Methods: The anesthesia procedure begins in the posterior part of the Achilles tendon in between the skin and the peritenon, where the skin incision is going to be.

Another injection is done in the Kager space medial and lateral

Finally we go more proximal and inject de solution in the posterior compartment fascia.

It is important to perform the anesthesia procedure at least 30 minutes before de surgery.

WALANT solution is injected based on lidocaine, epinephrine Sodium Bicarbonate and saline solution.

No tourniquet is used during the surgery.

Intraoperative dynamic check can be performed to confirm correct stability of the repair and this allow rapid recovery program.

Keywords: Description of Walant; Technique on Achilles Surgery

Introduction

The Achilles surgery aims to restore the anatomical continuity in order to regain functions. Because tourniquet is required, the Achilles surgery is usually performed with, either a popliteal block, spinal anesthesia or general anesthesia. Classically, local anesthesia has not been considered as an option, and therefore, surgical departments have traditionally relied on an anesthesiologist to do these procedures [1,2].

In other hand, the 2019 novel coronavirus (SARS-CoV2) is the causal agent of the newly-termed Coronavirus Disease 2019 (COVID-19). The outbreak was first identified in December 2019 in Wuhan, China. In January 2020, the World Health Association (WHO) declared the COVID-19 as an epidemic [3].

The COVID-19 pandemic has obligated to redeploy medical teams, mainly anesthetists and intensivists. Anesthetists have been transferred to Intensive Care Units (UCI)as a strategy to better manage complications of the infection which may include pneumonia and acute respiratory distress syndrome.

In this context, surgical anesthesiologists had changed their usual duties leading to a lack of anesthetists for non-priority cases. Because of the non-priority nature of the cases for forefoot surgery, surgeries have been delayed or canceled leading to an increase in the waiting lists. For this reason, it became mandatory to find alternatives to continue performing cases in order to avoid long waiting lists.

Local anesthesia with lidocaine and epinephrine, has been described as an alternative for some minor orthopedics procedures. The foot and ankle WALANT technique (Wide Awake Local Anesthesia No Tourniquet) is an adaptation from the one used for hand surgery as initially described by Donald Lalonde. The use of lidocaine and epinephrine in this technique produces hemostasis and anesthesia, which obviates the need for a pneumatic tourniquet during the operation. Additional advantages of this technique include comfort for patient and surgeon, reduced time of theatre, cost savings, and the patient is fully conscious during the operation [2,4-6].

From WALANT anesthesia in hand surgery to the achilles surgery

The wide-awake local anesthesia no tourniquet (WALANT) technique was initially created for hand surgeries. Dr. Donald Lalonde systematically used in several hand surgeries and reported good results. The advantage of having the chance to perform an intraoperative assessment of function has made to consider this technique for the foot and ankle surgery [6,7].

Although WALANT technique is widely used in hand surgery, its use has scarcely been reported in foot surgery and a very small number of articles about the usage of WALANT technique in foot surgery are available. Thus, in order to adapt the WALANT technique to foot surgery, our team had to adjust the technique to the specifications of foot anatomy.

No less important is the advantage of requiring less or no preoperative studies or pre-anesthetic evaluation. Secondly, it is an easily reproducible technique performed by the surgeon, and therefore, making it possible to work without a dedicated anesthetist in the operating room. In addition, it represents a significant saving in hospital resources and the possibility to continue performing surgeries in this coronavirus era.

The WALANT technique has demonstrated to be as safe as conventional methods in terms of complication rates, as well as, lower post-operative pain scores and no differences in patient satisfaction making this to strengthen its indication [5].

It is important to highlight that some groups voted against the WALANT technique based on the risk of distal vasoconstriction secondary to epinephrine administration. However, Evidence-based medicine has clarified that the use of epinephrine is completely safe since level 1 evidence exists for the safe use of epinephrine in fingers, and in case of persistent vasoconstriction phentolamine that can act as an antidote [8].

Regarding the previous experience in WALANT foot and ankle surgery, Bilgetekin., *et al*. evaluated a total of 31 patients who underwent foot and ankle surgery with WALANT technique and concluded that the WALANT technique provides satisfactory anxiety and pain scores, acceptable complications, and a short length of hospital stay in patients with foot and ankle injuries [9].

Poggetti., *et al.* also demonstrated a significant reduction of postoperative pain levels and the number of hospitalization days. The group did not find differences in terms of post-operative complications and finally, they concluded that the WALANT can be considered as a suitable option in selected patients due to important clinical and economic advantages compared to the traditional locoregional anesthesia with a tourniquet [10].

These previous experiences and the extrapolation based on the knowledge of the anatomical landmarks of the lower extremity have provided enough confidence to perform the technique for Achilles surgery. Our experience match with the advantages reported in the literature so far.

Description of the WALANT technique in the achille surgery

First of all, the patient is administered with 1 mg of midazolam orally. After some minutes, the surgeon carries out the infiltrations with a syringe, which has previously been prepared by the Pharma-

cy Department of the Hospital. We believe that using pre-prepared syringes diminishes the possibility of dosage miscalculation. These syringes contain: 0.1 cm^3 Adrenaline (1:100000), 5 cm^3 Lidocaine at 2% concentration, 5 cm^3 saline solution, and 2 cm^3 Sodium Bicarbonate.

For Achilles Surgery, 20 to 30 cm^3 of this solution is used. As a reference, in small simple surgeries such as akin osteotomy, weil osteotomy or mortons neuroma, 10 cm^3 of this solution is used.

To begin the anesthesia, a 21G needle is introduced to posterior part of the Achilles in between the skin and the peritenon, where the skin incision is going to be done. Additional injection is done in the Kager space medial and lateral. Finally, the needle is moved proximally additional injection of solution in administered in the posterior compartment fascia. It is important to perform the anesthesia procedure at least 30 minutes before de surgery.

Ischemia expression or tourniquet is not used in any case. Information to the patient is of paramount importance in this procedure. To achieve patient collaboration, it is important to talk to them and explain every step of the surgery. It is also recommended to play relaxing music in the theatre while performing the surgery allows creating a calm and serene environment that might help the patient feel at ease.

It is important to remark that active motion is allowed during the Achilles surgery and it permits to check the stability of the reconstruction (Achilles tendon repair or insertional tendon reconstruction for instance). Our team has performed the WALANT technique in Achilles rupture treatment, Achilles tendinopathy and Achilles insertional tendinopathy.

The patient is taken after the procedure to the ambulatory surgery unit, where clear explanations and instructions about postoperative care are given. Early recovery protocol is allowed in all patients as we have checked the tendon stability.

Conclusions

WALANT anesthesia for the Achilles surgery is a safe and secure technique, it allows intraoperative dynamic visualization of the repair.

WALANT technique reduces the surgical cost and increases the speed of surgical preparation.

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