

WALANT Anesthesia in Arthroplasty of Fractured Distal Radius: A Case Report and Literature Review

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Case Report

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Abstract: The use of prosthesis is nowadays a common treatment for challenging complex intra-articular fractures of the distal radius, especially in a context of osteoporosis in elderly patients. In this case report, we provide an overview of the use of Wide Awake Local Anesthesia with No Tourniquet (commonly referred to as WALANT) in hemiarthroplasty of the wrist. WALANT anesthesia is used for various surgical procedures of the hand, but its application in prosthetic replacement of the distal radius is not well defined.

Keywords: prosthesis, Anesthesia, Arthroplasty.

INTRODUCTION

The comminuted intra-articular distal radius fractures in osteoporotic elderly patients presents a genuine reconstruction issue, particularly when associated to a central impaction [1].

Prosthesis replacement is nowadays considered as a treatment of choice in such complex situation, and is being increasingly used by orthopedic surgeons [1, 2].

In the other side, Wide Awake Local Anesthesia with no Tourniquet "WALANT" is becoming a good alternative for various surgical procedures of the hand [3-7] but its application in replacement and resurfacing prosthesis of distal radial epiphysis remains at an early stage of formulation [8].

The aim of this case report is to assess the applicability of WALANT in this surgical procedure and to help highlight the benefits such operating method could offer.

CASE REPORT

An autonomous 89 years female patient, right-handed, is treated for insulin-dependent diabetes, high blood pressure, hypothyroidism, osteoarthritis and dyslipidemia. The patient was admitted to the emergency room for an isolated blunt trauma of the right wrist. Front and side x-ray images revealed complex intra-articular fracture of the distal radius, associated to a fracture of the ulnar styloid, with signs of osteoporosis and arthrosis [fig 1].

The indication of prosthesis was retained. We obtained the free and informed consent of the patient to whom we clearly explained all the aspects of the procedure under Walant, as well as its advantages and inconveniences compared to when using other anesthesia options.

Walant anesthesia was performed by the same orthopedist who did the surgery, using a solution of epinephrine, lidocaine, bicarbonate and physiologic serum. It was aseptically injected in the whole wrist area and joint [figs 2, 3 and 4].



Fig-1: Front and side x-ray images revealing complex intra-articular fracture of the distal radius



Fig-2



Fig-3



Fig-4

Figures 2, 3 4: WALANT anesthesia injections

The traumatized limb was then prepared for the surgery. We started 30 minutes after the injections. The surgical pathway was based on a dorsal and longitudinal incision facing the third compartment. The dorsal retinaculum was sufficiently opened to allow the resection of epiphysis fragments and place the

appropriate prosthesis under radiological control. We then asked the patient to mobilize her wrist in order to verify the stability of the implant. During the procedure we did not encounter bleeding disorders or exposure difficulties and no redon drain has been placed while wound closure. Peroperative and postoperative x-ray images were performed [figs 5 and 6].



Fig-5: Peroperative x-ray image



Fig-6: postoperative x-ray image

The wrist has been immobilized in extension, and postoperative pain treatment was based on oral tramadol and paracetamol. The surgical suites were simple.

DISCUSSION

No study has been done to date about arthroplasty of the distal radius using WALANT anesthesia. Meanwhile, its application in implantation of a ball and socket trapeziometacarpal prosthesis has been described [9], as well as in open reduction of and plating fixation of distal radius fracture [8].

This approach of wide-awake local anesthesia uses lidocaine and epinephrine as only injected medications and exempts us of tourniquet [10]. It has proven itself to have numerous advantages and benefits [5, 11, 12].

Without sedation or brachial plexus block, there is no need for preoperative anesthesia consultations, examinations or blood tests. The patient doesn't have to fast, to change his medical routine (like mostly recommended for diabetics) or interrupt an anticoagulation medication [8, 11, 12].

An awake patient can witness the effectiveness of the intervention during the procedure, in the operating room, and at the same time cooperates with the surgeon through active movements [8, 9, 11, 12] and enables him to assess the success of his surgical operation and to conduct changes, if needed, prior to dermal suturing [8, 11, 12].

He can get advice during surgery from the surgeon who has the opportunity to educate and give directions to help improving clinical outcomes and results [11, 12].

There is less post-operative nausea, vomiting, or other side effects of anesthetic drugs, less recovery time, monitoring and hospitalization [8, 11, 12]. That being said, the patient gains in comfort, time and money [8, 11, 12].

With the anesthesia effect of lidocaine combined with hemostatic effect of epinephrine, we control blood loss without using a tourniquet, which could cause discomfort, pain, paresthesia and even severe neurological deficits [13].

Due to the vasoconstriction effect of epinephrine [3, 10], bleeding is limited during the whole operation, there is no discomfort for the surgeon and no need for redon's drain. In fact, this vasoactive effect disappears slowly enough for the primary hemostasis coagulation function to be achieved; which is not the case with the tourniquet deflation [8].

Nevertheless, we need to precise that WALANT approach is not compatible for all individuals [8: some of them can be too anxious to support the environment of the operating room and the conscious awareness of the surgical procedure: this may constitute a contraindication for WALANT.

CONCLUSION

Hand surgeons are increasingly attracted by the proven advantages of WALANT anesthesia. Its use is becoming a current practice in a large amount of hand surgeries, but its application is not well defined yet in prosthesis replacement of distal radius. Our case report provides an overview of the positive contribution of wide-awake anesthesia to this kind of arthroplasty; it would therefore be interesting to assess more studies in this direction.

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