



Case report

Wide-awake local anesthesia for open rotator cuff repair: A case report

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ABSTRACT

Introduction and importance: Improper treatment of rotator cuff tear might result in progression of tear and deterioration of patient function. The rotator cuff tear can be managed conservatively in most cases however surgical treatment is inevitable in persistent patients.

Presentation of case: A 45-year-old woman presented to our clinic with shoulder pain and restricted range of motion following a fall from a height three months before the current presentation. Due to the lack of favorable response to conservative treatment and the fact that rotator cuff rupture was traumatic, she became a candidate for rotator cuff repair surgery. Due to financial issues and the patient's refusal of undergoing general anesthesia we considered the WALANT technique. Prior to surgery, we explained the whole procedure to the patient, referring to its pros and cons.

Clinical discussion: The WALANT procedure is a relatively recent technique that has become widespread in orthopedic surgery in the past decade. The advantages of the WALANT technique are that it is simple, feasible, and safe and that the analgesic is adequate during the operation and for the first few hours afterward (5). Concerns with this method include patient discomfort and pain during surgery, which can be managed by educating the patient and minute-by-minute explanation during the procedure.

Conclusion: We advocate open rotator cuff repair with the WALANT approach as an effective, cost-saving, safe, simple, and quick alternative to general and regional anesthesia for certain patients or with limited anesthetic resources.

Level of evidence: V

1. Introduction and importance

Rotator cuff tear is a common condition in adults causing shoulder pain, discomfort, loss of function, and psychological stress which impairs quality of life [1,2]. Improper treatment of rotator cuff tear might result in progression of tear and deterioration of patient function. The rotator cuff tear can be managed conservatively in most cases however surgical treatment is inevitable in persistent patients. According to the current literature while the outcomes of arthroscopic and open repair are most likely the same; open cuff repair is more cost-effective than arthroscopic repair [3–5]. Several anesthesia options are available for rotator cuff repair such as general, regional, and combined anesthesia. Anesthesia is associated with respiratory and cardiac comorbidities; therefore, the use of regional anesthesia is a good alternative [3].

The wide-awake Local Anesthesia No Tourniquet (WALANT)

approach has been developed for numerous orthopedic surgeries, including upper extremity soft tissue surgery, ulnar fracture, olecranon fracture, and distal radius fracture, clavicle fracture, and ankle fracture. This wide-awake technique allows performing surgery in a comfortable, non-sedating, cooperative, tourniquet-free, safe, simple, and rapid manner [1–6]. To our knowledge, the WALANT technique has not previously been utilized to repair rotator cuff tears. This is the first case report describing the use of the WALANT method for open rotator cuff repair.

2. Presentation of case

A 45-year-old woman presented to our clinic with shoulder pain and restricted range of motion following a fall from a height three months before the current presentation. The drug history was significant for

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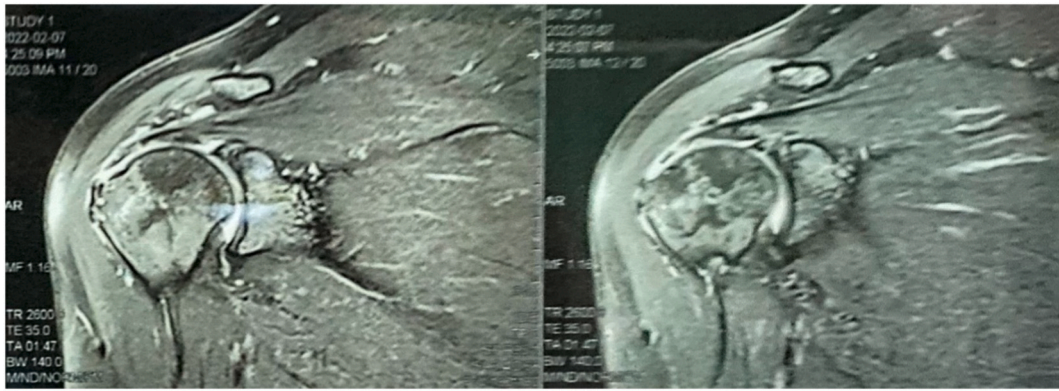


Fig. 1. MRI of the patient revealed full-thickness rotator cuff tendon rupture.



Fig. 2. The coracoid process, acromion, clavicle, and acromioclavicular joint were marked.

nonsteroidal anti-inflammatory drugs (NSAIDs). She had also received 20 sessions of physiotherapy without any improvement. During the physical examination, her active range of motion (ROM) was 90 degrees of forwarding flexion and 80 degrees of abduction, whereas her passive ROM was 120 degrees of forwarding flexion and 110 degrees of abduction. Supraspinatus and infraspinatus tendon examinations were positive. The MRI revealed full-thickness tendon rupture (Fig. 1).

Due to the lack of favorable response to conservative treatment and the fact that rotator cuff rupture was traumatic, she became a candidate for rotator cuff repair surgery. Due to financial issues and patient's refusal of undergoing general anesthesia we considered WALANT technique. Prior to surgery we explained the whole procedure to patient, referring to its pros and cons.

We utilized a solution of 50 ml of 1 % lidocaine, 5 ml of 7.5 % sodium



Fig. 3. The injection began at the coracoid process and progressed along the length of the incision.

bicarbonate, and 1 ml of adrenaline, and then diluted it with 150 ml of normal saline. After transporting the patient to the operating table, the patient was positioned in a semi-setting position, and prep and drape were performed. The coracoid process, acromion, clavicle, and acromioclavicular joint were marked (Fig. 2).

The injection began at the coracoid process and progressed along the length of the incision, the lateral border of the acromion, the sub acromial region, and the ACJ. The solution was injected were in multiple site at 1 to 1.5 cm intervals (Fig. 3).

After twenty minutes, a surgical incision was made and the skin and subcutaneous tissue were dissected. We approached between the anterior and middle thirds of the deltoid muscle and performed sub acromial bursectomy. In this step, we determined the size of tear by internal and external rotation of the humerus. We found 2 cm transverse full-thickness tear in the rotator cuff. The osteotome and rasp were used to perform acromioplasty in both directions, to place lower surface of the acromion in the alignment with the inferior surface of the clavicle. Then we mobilized the rotator cuff using a blunt probe to release adhesions posteriorly beginning with the infraspinatus tendon, and progressed to the anterior aspect. We used a rongeur to create a 3 mm wide groove in the greater tuberosity. We repaired rotator cuff with double-row technique and fixed the tendon to bone with suture anchor (Figs. 4, 5).

The patient was discharged six hours after surgery with a low-profile pillow sling. Upon the follow up visit, two weeks later the suture was removed, and the patient was recommended to wear pillow for another 4 weeks. The patient was allowed to do isometric exercise with external



Fig. 4. The rotator cuff repaired with double-row technique and fixed the tendon to bone with suture anchor.



Fig. 5. The post-operation radiography.

rotation after six weeks, while active range of motion was permitted after twelve weeks. Six months following surgery, the patient's range of motion was nearly complete, and there were no complications or pain.

3. Clinical discussion

The WALANT procedure is a relatively recent technique that has become widespread in orthopedic surgery in the past decade. This approach has been used in numerous orthopedic surgeries, including tendon repair and some of upper extremities' fractures such as hand, distal radius, ulnar shaft, olecranon, clavicle. Even successful removal of the device under WALANT has been previously reported [4].

The advantages of the WALANT technique are that it is simple, feasible and safe and that the analgesic is adequate during the operation and for the first few hours afterward [5]. Concerns with this method include patient discomfort and pain during surgery, which can be managed by educating the patient and minute-by-minute explanation during the procedure. In this regard we can inject analgesia if the patient complains of any pain during the surgery. During the COVID-19 pandemic, the WALANT technique gained popularity since it did not require intubation and the patients were quickly discharged after surgery [7].

In our case, the injections were performed in the area of operation and the sub acromial space. And the patient had no pain or discomfort during surgery. The absence of pain and bleeding during the operation was effective and the patient was discharged 6 h after surgery.

4. Conclusion

We advocate open rotator cuff repair with the WALANT approach as an effective, cost-saving, safe, simple, and quick alternative to general and regional anesthesia for certain patients or with limited anesthetic resources.

Ethical approval

Ethical approval not required.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in Chief of this journal on request.

Guarantor

Meisam Jafari Kafiabadi is the Guarantor and also the corresponding author in this study.

Research location

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Research registration

N/A.

CRedit authorship contribution statement

All authors made a major contribution in preparing this manuscript.

Declaration of competing interest

The author(s) declare no potential conflicts of interests with respect

to the research, authorship, and/or publication of this article.

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