

Wrist Arthroscopy Under Portal Site Local Anesthesia Without Tourniquet and Sedation



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KEYWORDS

• Wrist arthroscopy • Portal site • Local anesthesia • Lidocaine

KEY POINTS

- In well-selected patients with adequate preparation and precaution, PSLA is a low-risk and comfortable procedure.
- The patient is neither sedated, nor under general or regional anaesthesia and tourniquet is not routinely used due to local hemostasis effect of anaesthetic mixture.
- 2% lidocaine with 1:200,000 epinephrine is injected through a 25G needle to portal sites, starting from joint capsule slowly back to the subcutaneous layer.
- The radiocarpal joint is then distended with saline injection and portal is created with transverse superficial skin incision followed by dilation by curved hemostat.
- Appropriate choice of the finger trap type, a proper application technique and adequate padding around the arm can enhance the comfort of patient.

INTRODUCTION

Historically, all joint arthroscopies are performed under general or regional anesthesia. Together with the aid of a tourniquet to achieve bloodless field, clear vision can be obtained during the procedure.

However, Rolf and colleagues^{1,2} have successfully demonstrated the use of local injection of anesthetic agent to the portal sites in knee and ankle arthroscopy, bringing us to a new horizon because it can obviate the need for and risk of general anesthesia. We have transferred the successful experience of wide-awake local

anesthesia into wrist arthroscopy and developed the technique of portal site local anesthesia (PSLA), which is now our major mode of anesthesia when we perform wrist arthroscopy.

In this article, we discuss the indications and contraindications, techniques to perform wrist arthroscopy under PSLA, and monitoring methods, as well as the potential risks in using PSLA.

INDICATIONS AND CONTRAINDICATIONS

The technique of PSLA for wrist arthroscopy has been used since 1998 in our center. All

Disclosure Statement: The authors have nothing to disclose.

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Hand Clin 33 (2017) 585–591

<http://dx.doi.org/10.1016/j.hcl.2017.06.001>

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diagnostic arthroscopy and many therapeutic procedures including, soft tissue procedures such as synovectomy, thermal shrinkage for scapholunate interosseous ligament, ganglionectomy, and triangular fibrocartilage complex (TFCC) debridement and repair, as well as minor bone procedure in radial styloidectomy and wafer procedure are suitable cases for PSLA (**Box 1**). Before the surgery, the patient should be well-informed about the procedure and be able to conform to the instructions given by the surgeon.

Absolute contraindications for PSLA include known hypersensitivity to lidocaine and epinephrine. The presence of cardiac disease has been mentioned in the literature as a relative contraindication because this group of patients may be sensitive to epinephrine.³ Procedures that require extensive bone work, such as proximal row carpectomy and scaphoidectomy with 4-corner fusion, may not be suitable. Patient factors such as young and immature patients, and patients with severe anxiety, mental retardation, uncontrolled psychiatric illness, or a low pain threshold are not appropriate candidates for this technique (see **Box 1**).

TECHNIQUE OF WRIST ARTHROSCOPY UNDER PORTAL SITE LOCAL ANESTHESIA

During the operation, no monitored anesthesia care or sedation is required. The patient is in the supine position and the operated arm is put on a hand table. The operated arm is prepared and draped from the hand to the upper arm level. It is important to maintain good comfort of the patient

Box 1

Wrist arthroscopy procedures indicated for portal site local anesthesia

Soft tissue procedure

- Arthroscopic debridement
- Removal of loose body
- Synovectomy and biopsy
- Ganglionectomy
- Triangular fibrocartilage complex repair
- Triangular fibrocartilage complex debridement
- Thermal shrinkage for interosseous ligament
- Release of wrist contracture

Bone procedure

- Radial styloidectomy
- Arthroscopic wafer procedure
- Distal Scaphoidectomy

during the surgical procedure. We find that the appropriate choice of finger trap type, proper application technique, and adequate padding around the arm can patient enhance.

The affected hand is subjected to digital traction through the plastic finger traps by using a sterilizable Wrist Traction Tower (ConMed Linvatec Corp., Goleta, CA) with an adjustable tension spring to control the traction force. We prefer the use of plastic over metal trap because the latter is poorly tolerated by the patient when the operation is performed under PSLA. This protection is particularly important for patients with fragile skin, such as in rheumatoid arthritis. Three-finger traps are being used for the index, middle, and ring fingers for an even distribution of the traction force. The traps should reach the bases of the fingers at the web space level to ensure maximum skin contact (**Fig. 1**).

The patient's arm is placed on the metal base plate of the traction tower, when the shoulder is abducted, elbow flexed to 90°, forearm in neutral rotation, and the hand in an erected position. A broad self-adhesive Velcro band is used to wrap around the arm and the base plate at the level close to the bent elbow to provide countertraction.

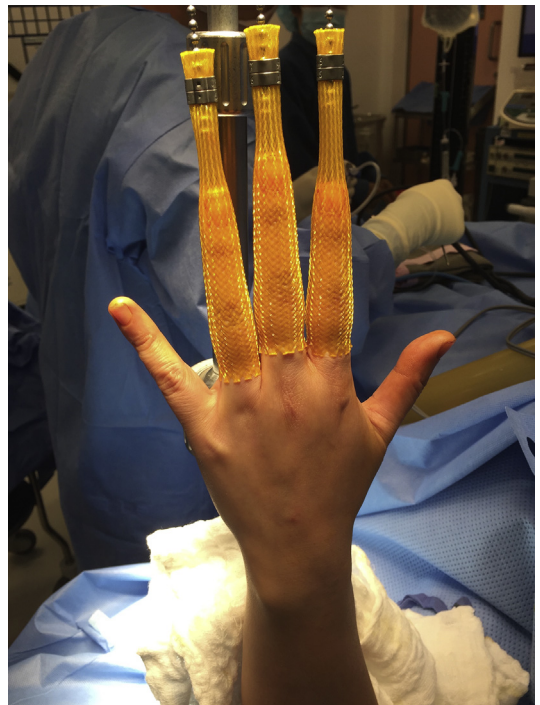


Fig. 1. Use of a plastic finger trap is preferable, especially in patients with fragile skin. Finger traps are used in index, middle, and ring fingers for even distribution of traction force and the traps should reach the base of finger at the web space level to ensure maximum skin contact.

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