CASE REPORT

Tendon retrieval in zone I & II injuries—a visit of new technique

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Introduction

When an injury occurs with the digit in flexion, the proximal ends of the divided flexor Tendons of the thumb or the fingers usually retract as far proximal as the carpal tunnel or even the very distal forearm. Retrieval can be difficult as the flexor tendon sheath is not uniform. It is narrower at the joints because the palmar plates protrude into the flexor sheath and the ends of the bones are bulbous.5 Post-injury inflammation further narrows the tendon sheath, and the tendon may swell, making retrieval even more challenging.1 Traumatic handling of the tendon and its sheath predisposes them to adhesions, stiffness, and a poor clinical result. Therefore, most authors advise gentle handling of the tendon ends and the sheath.

Various techniques have been described for this purpose, including the use of ante grade Sweeping external pressure,6 ‘milking’ with an elastic bandage,4 rigid and flexible tendon retrievers,3 atraumatic tendon forceps,13 suction,10 soft flexible rod or tubes as a guide1,2,7,11,12 and skin hooks and hypodermic needles.9 The purpose of this report is to describe another simple, atraumatic technique that utilizes prolene suture which are readily available in the operating room. The technique should be non-irritating, less damaging to the flexor sheath and also easy to use.

Technique

Step 1: If after gently milking of the tendon in finger and wrist flexion has failed to retrieve the tendon than a small transverse incision is made in the palm over the distal palmar crease (Fig. 1) area of A1 pulley and exploration is done to identify proximal end of tendon.8

Step 2: The proximal tendon is delivered to the surface. As not previously described we will use the nonabsorbable prolene suture in strength of 2/0 or 3/0 in straight needle and modified Kessler suture is inserted for a distance of 1 cm (Fig. 2).

Step 3: Through the wound 14G or 16 G plastic cannula with stylet is taken and negotiated through the slit in the flexor sheath due to injury The finger should be in extension and with great care the plastic cannula should come out through the proximal incision over the distal crease.

Step 4: The ends of the Kessler suture are wound round the loop of straight needle of prolene suture and than negotiated distally until the ends of the suture (Kessler) along with the needle exit at the level of the laceration.
Step 5: Gentle traction on the ends of the Kessler suture results in the smooth distal delivery of the cut tendon end (Fig. 3). The Kessler suture is completed or removed, and the desired tenorrhaphy technique is commenced. The sheath is closed at the end with fine prolene 6/0 suture and satisfactory tendon excursion in the sheath is confirmed before closing the wound.

Discussion

We describe a simple, quick, inexpensive, and effective technique of Flexor tendon retrieval for zone II lacerations.

The use of instruments like tendon retrieval forceps, suction catheters, rubber tubing, aneurysm needle, skin hooks, flexible rods and alike guides all have to pass through the flexor sheath after making an opening in the sheath. This potentially lead to friction, traction and disturbance in the synovial culture of the sheath. The flexor sheath having very narrow lumen structure is very resistant to the contour of all these guides.

If the process involves many passes of these instruments, there is likely chance of damage to the inner lining of the synovial flexor sheath.

Our method of using plastic cannula which is very inert and need only to be pass once through the sheath, so it have no such disadvantage and ideally

Figure 1  Prolene in straight needle being threaded.

Figure 2  Cannula as transit for the prolene straight needle.

Figure 3  Completion of the retrieval without damage to tendon sheath.
after retrieving the proximal end of the tendon there is no much friction between the inner end of the tendon sheath and the plastic cannula. The cannula just act like a conduit for the straight needle prolene suture, the straight needle helps in the easy passage through the sheath. The repair can be done with any method of surgeon choice like Strickland, Modified klinert, Bunnels, four stranded repair easily with prolene straight needle and with very good result. So the great thing about this technique is the liberty it offers to the surgeon to do whatever procedure they want to do and suture they like to use.

I advocate the surgeons to try this method when they fall in trouble trying to retrieve the tendon in zone II.

References