

# FIGURE-OF-8 PULLEYPLASTY OF THE A2 PULLEY DURING FLEXOR TENDON REPAIR IN ZONE II: A NOVEL TECHNIQUE

## **Abstract:**

**Background:** For decades, Zone II flexor tendon injuries have been the focus of many researchers. This is thought to be not only because it is the most commonly injured zone, but also the most complicated one. Further studies and subdivisions by Tang have shown that among the infamous Zone II injuries, Zone IIc was associated with the worst outcomes. That is partly because this subzone lies directly underneath the A2 pulley. In some cases, the bulky repair site traverses under the entire length of the A2 pulley during active motion, making partial pulley venting unsatisfactory. That brought us to the conclusion that an alternative approach may be necessary in such cases. Hence, we developed a method to widen the entire A2 pulley, using our figure-of-eight pulleyplasty technique.

**Aim of the Work:** To establish an alternative method of dealing with the most complicated of cases, involving Zone IIc, and to assess the efficacy and safety of this procedure.

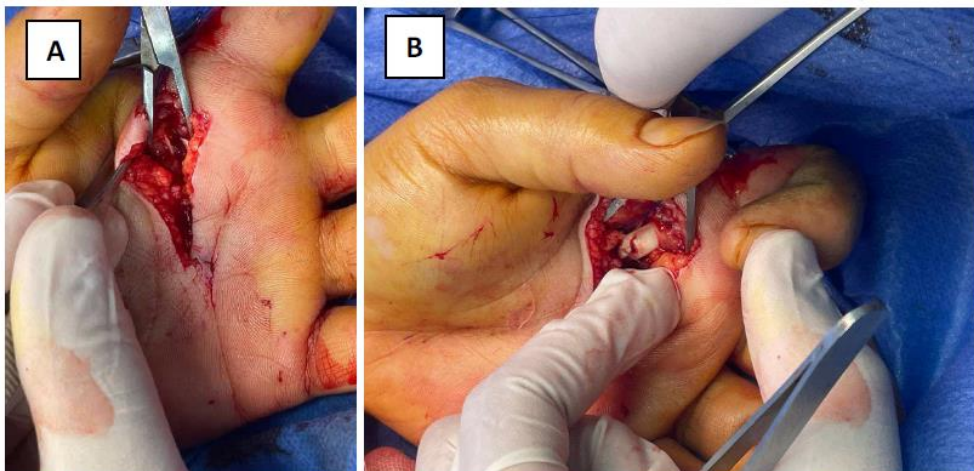
**Patients and Methods:** Our study was a single-arm prospective clinical trial. It included eight patients (15 digits), presenting to the Trauma Unit, Plastic Surgery Department, Kasr Alainy,

Cairo University Hospitals, with Zone IIc injuries. All patients were offered post-operative physiotherapy sessions. Participants' range of motion (ROM) and adherence to physiotherapy were assessed and documented.

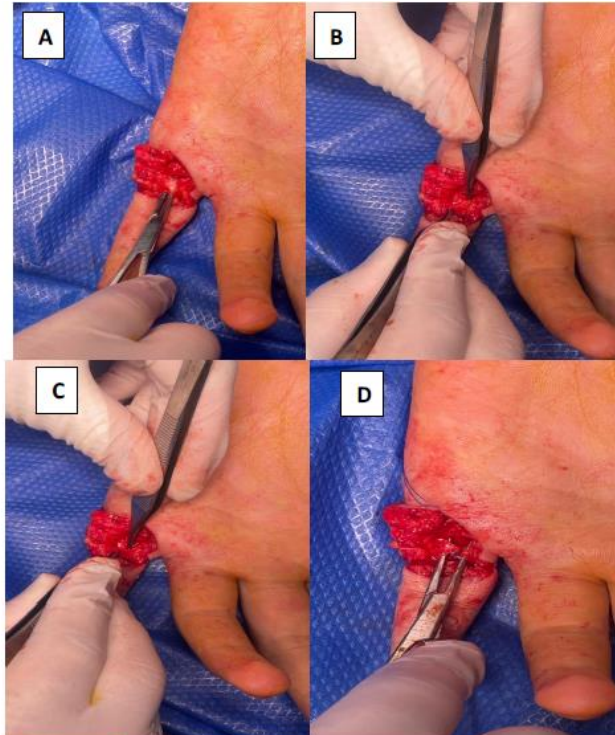
**Results:** All patients with high treatment adherence had excellent to good ROM on the Strickland Scoring System. However, participants with poor adherence had suboptimal results.

**Conclusion:** Widening of the A2 pulley can be used in Zone IIc injuries, especially in patients who are likely to comply with early active motion physiotherapy.

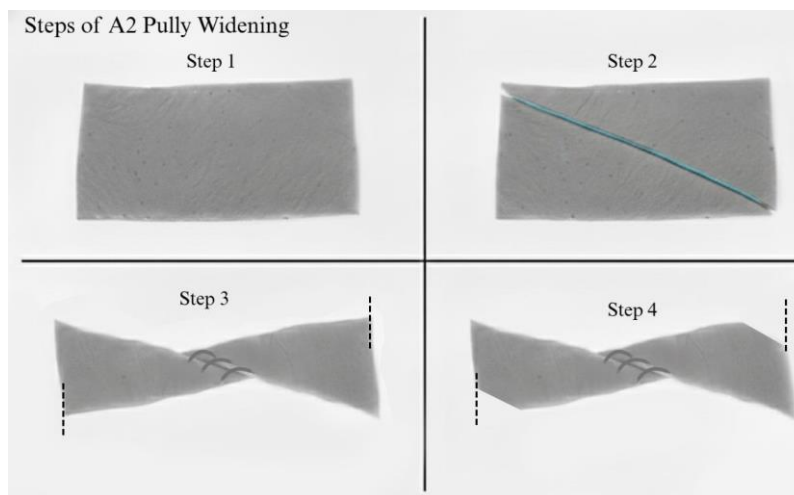
**Keywords:** FDP, FDS, A2 pulley, Zone IIc, pulleyplasty.



**Figure (16): (A) Blunt dissection using a mosquito until the pulley is seen. (B) Flexion of the DIP and PIP to see the length of the distal stumps of both the FDS and FDP.**



**Figure (30):** A2 pulley is shown after meticulous dissection (A) Intraoperative A2 pulley is exposed. (B) A2 pulley is incised obliquely. (C) The incised A2 edges are carefully situated in their new position. (D) The newly widened A2 pulleys is sutured in their new position.



**Figure (...):** An illustrative diagram of the surgical step required to complete a “Figure-of-8 Pulleyplasty”. (Step 1) The A2 is carefully exposed. (Step 2) The A2 pulley is incised obliquely. (Step 3) The incised edges are situated and sutured in their new position. (Step 4) Minimal back-cuts are made at each right-angled base of the pulley (at the dotted lines), forming a figure-of-8 shaped pulley.

