



(RESEARCH ARTICLE)



EndoTech® minimally invasive trigger thumb release

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Abstract

We describe a novel minimally invasive technique for the treatment of trigger thumb. 37 patients with a total of 41 thumbs were included in the study. A visual analogue pain scale was used before surgery and also at 2 week and 6 month follow up visits. The pain was significantly improved from a pre op of 7.92 (+/- 1.6) to .65 (+/- .8) at the 2 week follow up and finally .29 (+/- 1.8) at the 6 month follow up. All of the patients had relief of triggering and only 1 patient required any therapy. This endoscopic technique for trigger thumb allows the surgeon to perform a trigger release with a minimal incision and provides excellent relief without any complications.

Keywords: Trigger thumb; Tenosynovitis; Endoscopic; Minimally invasive surgery

1. Introduction

Trigger finger is one of the most common conditions seen by hand surgeons and therapists. Symptoms include pain at the base of the finger toward the palm and can develop into a locking of the finger. The general population has a risk of 2.5% however those patients with diabetes have an increased risk of developing trigger finger of up to 10%. After conservative measures have failed, surgical treatment has traditionally involved an incision with open release of the A1 pulley. This technique has typically yielded fairly reliable outcomes however there have been complication rates ranging from 11% to 43% [1-5]. Surgeons have developed minimally invasive techniques to minimize the incision such as percutaneous release using a needle in the office. These techniques are still blind and may have unacceptable recurrence rates or complications. The EndoTech® minimally invasive trigger release is a patent-pending technique utilizing the EndoTech® system for endoscopic hand surgery. This unique technique allows complete visualization of the tendon and release of the tight sheath causing the pain with a minimal incision. We performed this particular surgical release on 37 consecutive patients (4 patients with bilateral symptoms) suffering from trigger thumb and reviewed their outcomes.

2. Material and methods

Patients with persistent symptoms of trigger thumb despite conservative measures were included in the study. These patients were given the option for continued conservative care such as steroid injections, therapy and NSAIDs or proceed with surgical intervention. Patients who chose surgical release of the trigger thumb were given the option for a standard open procedure or the EndoTech® minimally invasive trigger finger release. Preoperatively these patients rated their level of pain on a scale of 0-10 with 0 being no pain and 10 being the most severe.

The incision was placed approximately 1 cm distal to the metacarpophalangeal joint crease. This placement approximates the distal aspect of the A1 pulley [6]. The synovial dissectors were then placed into the incision and used to dissect a path over the A1 pulley in a distal to proximal manner. Next, the EndoTech® trigger finger release

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instrument was placed through the minimal incision and under direct visualization, the A1 pulley was divided longitudinally (figure 1). The digital nerve was safely retracted to the side during release of the A1 pulley when it was close to the area of surgical release. The procedure was performed with direct visualization of the tendon and the sheath during the entire procedure, with visualization of the tendon gliding easily after the sheath was divided (Figure 2). Patients began immediate range of motion and light activity. The dressings were removed in 2 days and patients were allowed to shower and get the finger wet, however, submerging in water such as bathing or swimming was avoided for 2 weeks. Patients were followed up in the office at approximately 2 weeks after surgery and rated their pain on the 0-10 scale as they did before surgery.

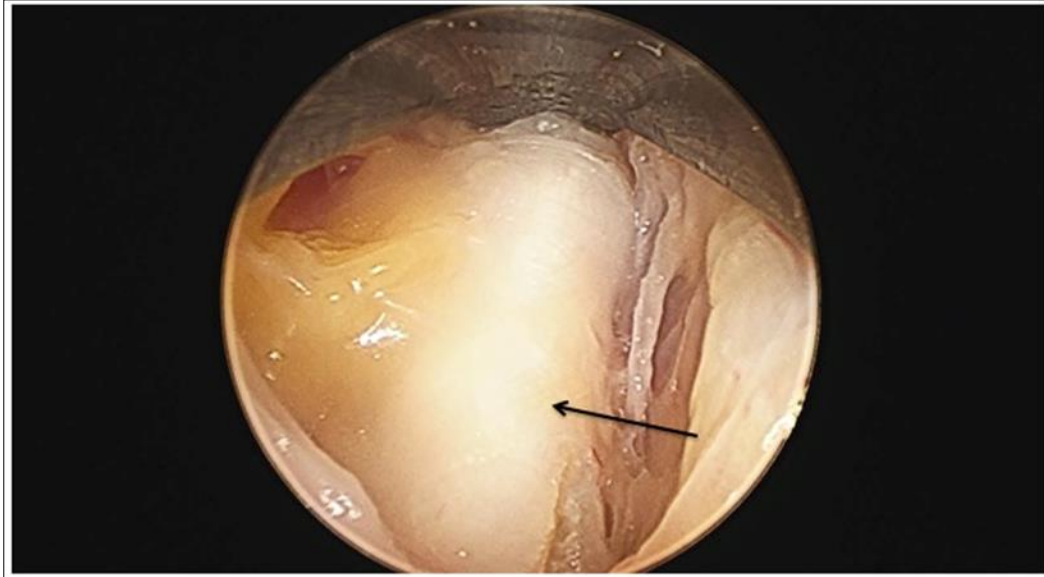


Figure 1 Tendon under thick inflamed sheath (black arrow) limiting function and causing pain with motion

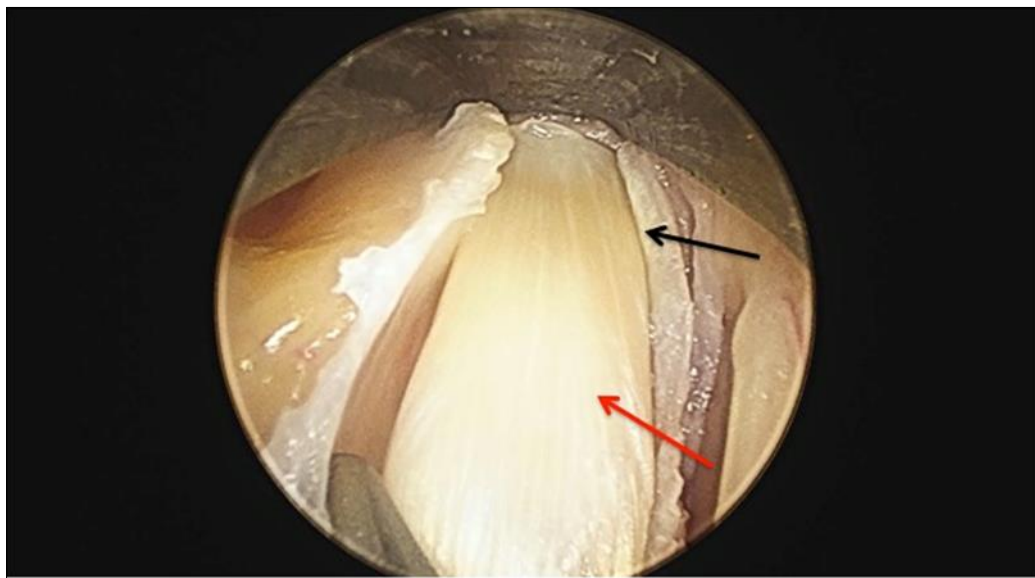


Figure 2 Tendon (Red) after complete release of thick tissue (Black) with subsequent full motion without triggering

Patients were then followed up for a final evaluation at approximately 6 months after surgery. These patients were asked about their overall pain level and also their scar from the surgical incision with 0 = no issues to 10 = severe pain / not satisfied.

3. Results

37 patients were included in the study with a total of 41 thumbs (4 patients had bilateral trigger thumb). The pain level was significantly reduced by the first follow up visit at an average of 18.1 days from a pre-op VAS of 7.92 (+/- 1.6) to a post-op VAS of .65 (+/- .8). A second follow up visit at an average of 6.4 months demonstrated persistent relief in pain with a VAS of .29 (+/- 1.8) and high satisfaction with the scar with a VAS of .4 (+/- 1.1) (Figure 3). There were no complications such as wound infections, tendon or nerve injuries. None of the patients had any complaints of triggering or locking after the surgical release for a 100% success rate. Only 1 of the patients required formal therapy to treat complaints of stiffness for a rate of 2.4% (1/41).

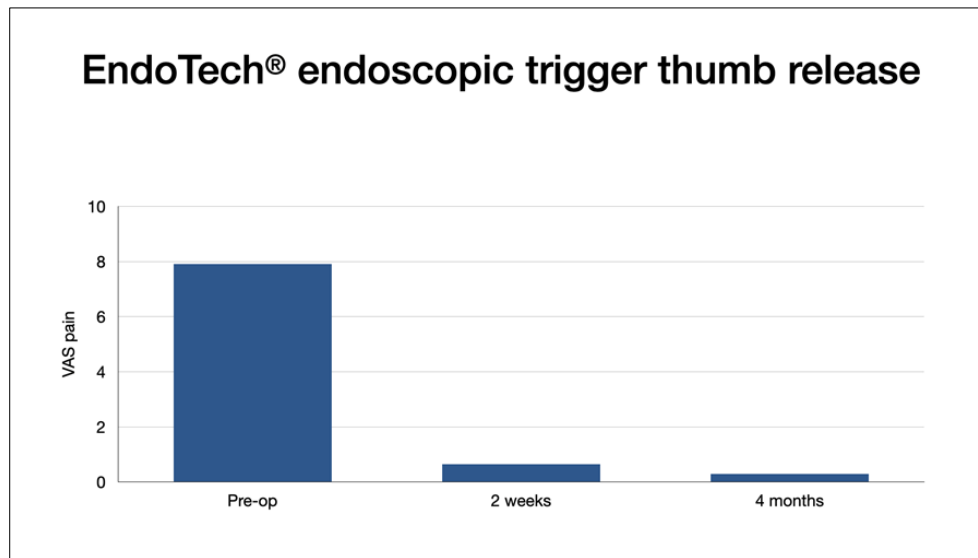


Figure 3 Pain relief after EndoTech endoscopic trigger thumb release

4. Discussion

Although conservative management of trigger finger with anti-inflammatory medications and steroids can improve symptoms, these patients often complain of persistent or recurrent symptoms that require surgical intervention for more definitive relief. The traditional open surgery has led to prolonged postoperative pain and complications¹⁻⁵.

The EndoTech® endoscopic trigger finger surgery allows for a minimal incision and trauma to the surrounding tissues. The patients removed their dressing in 2 days and returned to light activity immediately and full unrestricted activity within a week. The procedure has been performed safely without any complications such as wound infections, nerve injuries or damage to the tendon. The satisfaction rate has been excellent with complete relief of triggering and no recurrence or persistent symptoms to date. This novel technique allows for a minimally invasive release of the A1 pulley with excellent results and no complications due to the enhanced visualization.

According to our results, this endoscopic treatment offers excellent short and long-term relief from trigger thumb. This unique approach also demonstrates minimal morbidity, utilizing a minimal incision and achieving complete relief without any complications.

5. Conclusion

We present an endoscopic treatment option for trigger thumb release. The EndoTech endoscopic trigger thumb procedure allows for a minimally invasive treatment with quick recovery and minimal discomfort.

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