

POSTOPERATIVE REHABILITATION PROTOCOL AFTER MPSH / MODIFIED PERCUTANEOUS SUTURE / OF ACHILLES TENDON.

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ABSTRACT:

We present clinical study of 68 patients / male, mean age 38.5 yr / s applied early loading and functional treatment following percutaneous suture of Achilles tendon. Postoperatively were followed clinically and sonographic 3-6-12 meters of the results defined / visual analog scale / VSA in the score. In all patients, there are normal physical activity without significant differences in the mobility of the ankle joint. Not seen repeated ruptures. We agree that early mobilization and functional treatment did not increase the risk of reruptured and leads to excellent early function parameters of plantar flexion.

Key words: percutaneous suture, functional treatment and protocol

INTRODUCTION

Traumas of Achilles tendon are common and those affect mainly young adults in an active employment age – both actively engaged and not engaged in sports. Unsystematic practicing of different kinds of sports, mechanical overstress, and overloading of the tendon are the main reasons for its pathology. Modern methods include surgical and non-surgical treatment.

OBJECTIVE

To apply postoperative rehabilitation protocol after a modified percutaneous suture (MPS) and to assess the results in ATRS (Achilles Tendon Total Rupture Score).

MATERIAL AND METHODS

We applied postoperative rehabilitation protocol to 68 patients after a percutaneous fixation of the Achilles tendon. The research period was from June 2008 to June 2009 in MBAL St Anna – Varna and MBAL Eurohospital – Varna. All patients were male, mean age, 38.5 years, operated within 48 hours after the trauma with a modified percutaneous fixation, under local anesthesia.

MPS Technique

The technique presents MPS in two levels using

metal probes (drivers), which, crossing each other, pass through the stab incisions from medial to lateral in proximal and distal directions, 3 above and 3 beneath the traumatic groove. DEXON (1) or Assucryl (1) is used, two for the proximal and two for the distal tendon fragment. The consecutive phases of MPS are presented in the graphs below

Phase 1

- Under extended knee and foot dorsiflexion, the probes are introduced in the middle of the traumatic groove, crossing each other, and the threads are passed through them (fig. 1, 2)

- Under flexed knee and plantar flexion of the foot, the probes are again introduced through the initial holes in the middle of the traumatic groove, and crisscrossing follow and passing the threads in them, this time in proximal direction (at the same level in the frontal plane and different in the sagittal plane) (fig.3, 4)

Sewing the stab incisions is not necessary, as that heal over without operative scars. Bed stay is from 12 to 24 hours.

- cast immobilization (boot in neutral position) for 30 days (fig.7)

- weight bearing commence at 20 day (ergometre cycling), 15-20 min. per day until the removal of the immobilization

- medical PE and physiotherapy are implemented from 30 to 45 days (fig. 5)

- heel elevation for 14 days (with heel lifts) (fig. 6)

- cast immobilization and aiding devices removal on 60 day

- postoperative follow-up, clinically and sonographically, at 3, 6, and 12 months, and the results measured in points (in ATRS)

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Postoperative rehabilitation protocol

1-14 day

- protection of the operated tendon – plaster cast (orthesis) in neutral foot position (90° dorsiflexion)
- limb elevation
- anti-thrombosis prophylaxis until 10 day
- walking with aiding devices
- isometric contractions of the hip muscles and knee joint

14 – 28 day

- control postoperative sonography
- isometric exercises continue
- ergometre cycling – 20 min. per day (fig. 8, 9)

28 – 41 days

- plaster brace
- early motor exercises – 2 hours daily
- ankle flexion and extension
- eversion/inversion rotation

41 – 60 day

- partial loading (walking with one clutch)
- heel lift
- rehabilitation program continues (fig. 10 , 11, 12)
- ergometre cycling – 20 min. per day, two times a day (fig. 13)

60 day

- immobilization removal
- unaided walking
- control sonography

RESULTS

All patients report persistent pain during the first 3 to 5 days. Tissue swelling is also more prolonged, mean 24-48 hours. We did not observe any local skin infections. We did not have cases of sural neuralgia or re-ruptures within the calendar year. The patients return to their usual pre-injury activity in the 3rd month. Postoperatively, the patients were followed-up, clinically and sonographically, at 3, 6, 12 months and the results were determined in points in the ARST.

Excellent: 94-100 points (mean 97) – with 58 patients (85%) – without pain, swelling, stiffness, limping, and decreased activity.

Good: 80-94 points (mean 87) – with 8 patients (11.76%) – slight pain, minimal deficit

Satisfactory: 64-70 points (mean 67) – with 2 patients (3.24%) – painful deficit, limping.

There is almost normal physical activity with all patients, without significant differences in the mobility of the ankle joint. No re-ruptures are observed.

DISCUSSION AND CONCLUSIONS

Percutaneous fixation offers a shorter period of immobilization – up to 30 days, low re-rupture rate – 2-3%. Local skin lesions are not observed. MPS is a perfect method of Achilles tendon percutaneous fixation, whose priority is preserving the paratenon and skin integrity in the injured region. We maintain it under local anesthesia. Postoperatively, we apply sonographic and clinical scan of the results.

CONCLUSION

ATRS is an instrument with high reliability, validity, and sensitivity for measuring the results, related to the symptoms and the physical activity after Achilles ruptures treatment. The ruptures of the Achilles tendon should be considered in a vast polyclinic spectrum. The rehabilitation protocol, offered by us, if applied in time and adequately, shows high effectiveness and functionality. We agree that early mobilization and functional treatment do not enhance the risk of re-ruptures and results in early functioning of the plantar flexion with excellent parameters.



Fig. 1. first step of suture



Fig. 2. spending strings



Fig. 3. second step of suture



Fig. 4. spending strings in distal direction



Fig. 5. orthosis

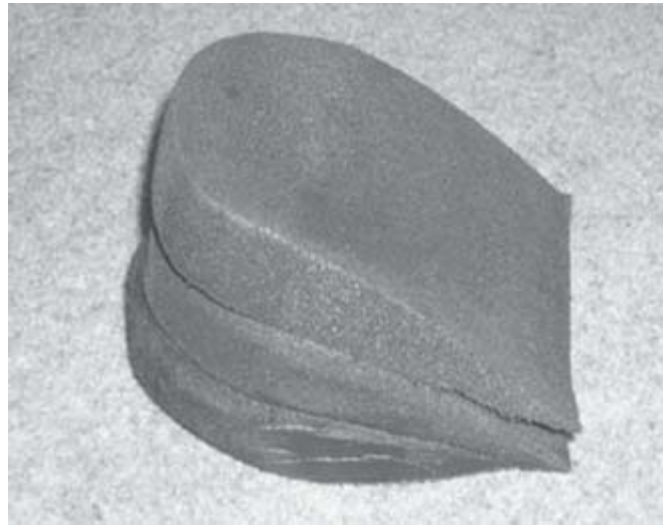


Fig. 6. lifter



Fig. 7. cast



Fig. 8. ergometry



Fig. 9. ergometry

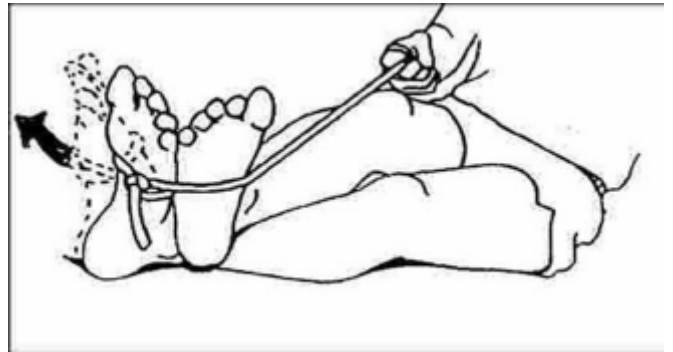


Fig. 11. ankle inversion

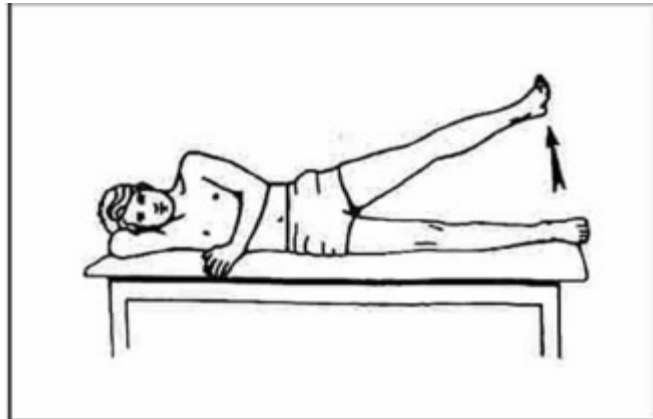


Fig. 10. flexion, dorsiflexion

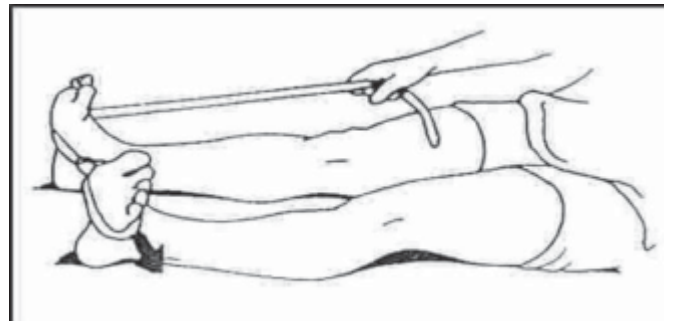


Fig. 12. physiotherapy

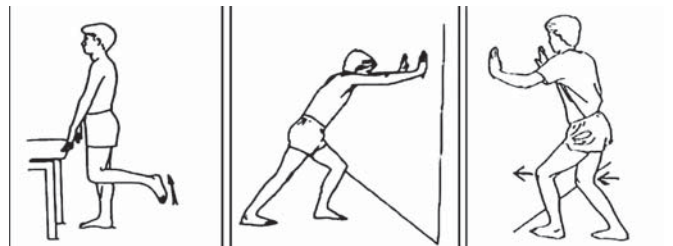


Fig. 13. calf stretch, dorsiflexion stretch,

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