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Gastrocnemius-Soleus Fascia Turn Down Graft for Chronic Tendo-Achilles Rupture Reconstruction

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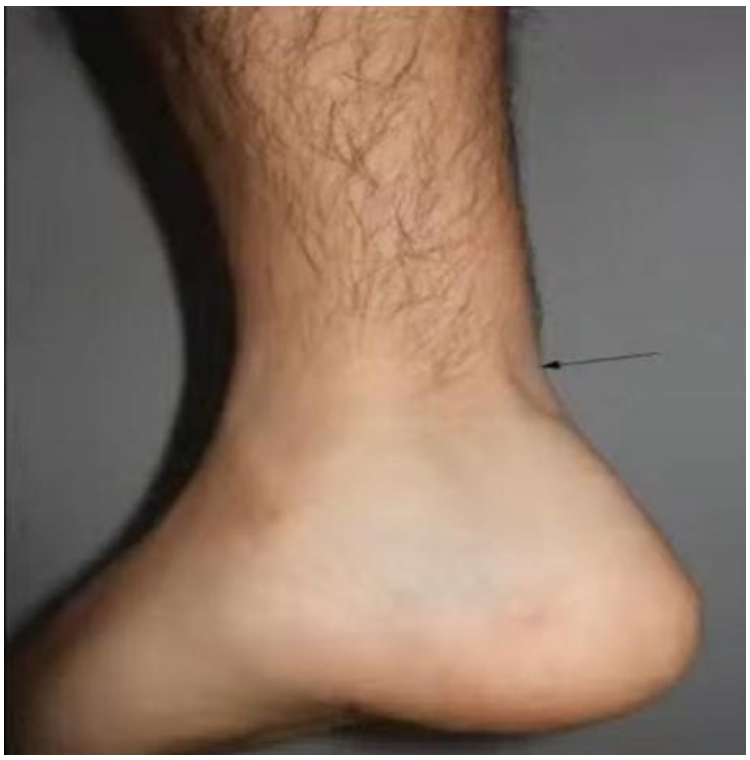
Abstract: ***Background**: Achilles' tendon chronic rupture is a common entity that is usually misdiagnosed or mistreated. Hence, the patient was presented to us later or with complications affecting the gait. Surgical resection is needed to either bridge the gap or reinforce the strength of the tendon repair. **Objectives**: Our study's goal was to assess the clinical results of repairing chronic Achilles' tendon lesions employing the middle segment of the proximal portion of the tendon (gastro- soleus), as a turn-down graft. **Methods**: Our prospective interventional study included 04 patients with chronic Achilles' tendon rupture attending at Burdwan Medical College & hospital, W.B from May 2022 to May 2024. Diagnosis of the patients was confirmed clinically and by radiographic investigations. They were all treated with the same open reconstruction procedure using GSF turn down graft. The average follow-up was 06 months. The results of this study were assessed by the Achilles tendon rupture score (ATRS), and capacity to perform repeated heel raises on the affected side. **Results**: The mean operative time was 90 mins. The median time of repair was 15 (10-20) days after injury. No intraoperative complications occurred. The typical follow-up period was 06 months. In terms of the ATRS, we found a significant reduction from 82.8±3 preoperatively to 20.8±6.7 at 06 months postoperatively (P value=0.001). In terms of the post operative complications, there was no re-rupture. one patient experienced superficial wound infection which improved with daily dressing and antibiotics. Additionally, two patients had slight ankle stiffness four months after the operation, which improved after programmed rehabilitation at the sixth month. **Conclusions**: The GSF turn down graft is a simple, safe, well-tolerated effective method of treatment with excellent functional results.*

Keywords: GSF –Gastrocnemius –soleus fascia turn down graft, achilles tendon, chronic rupture, reconstruction

1. Case History

- 45 Years/ male
- Pain around left ankle and limping
- MOI: Direct trauma
- No open wound
- No other injury

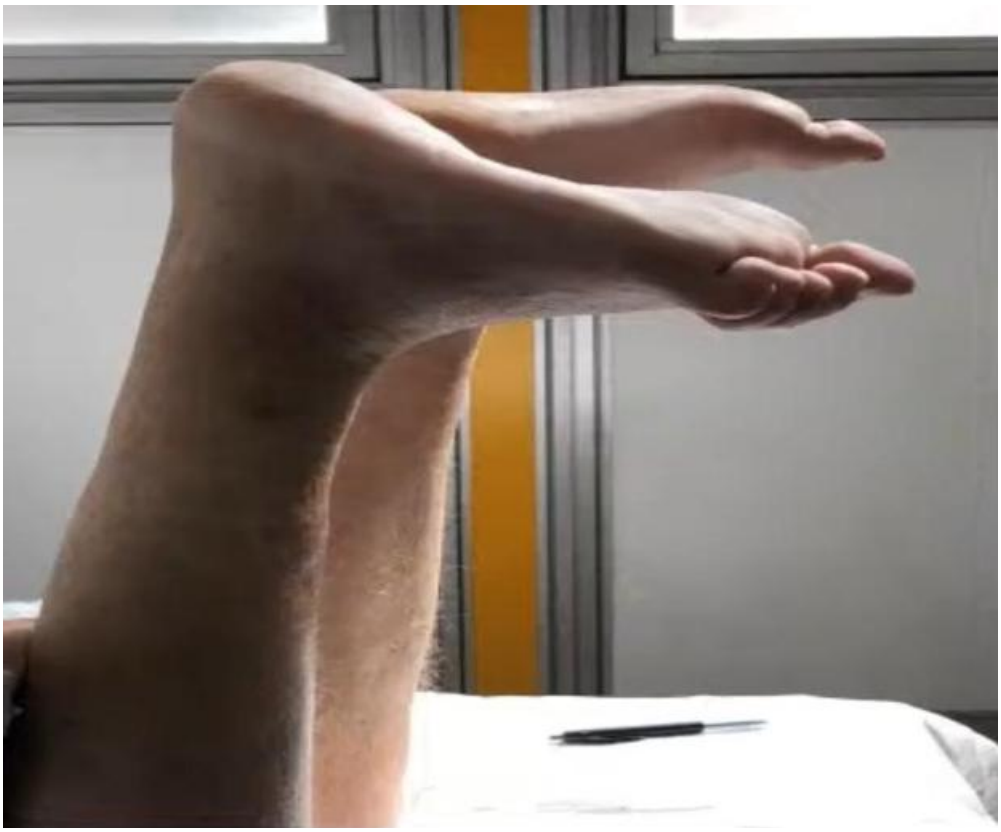


2. Diagnosis

History:
- Hearing of snapping sound
- Toe off weakness in affected limb

Clinical Examination:
- Palpable gap of 4 cm +nt following direct trauma

Matle's Test:



- Loss of normal resting tension in affected ankle

Simmond's / Thompson test:

Patient in prone position

↓

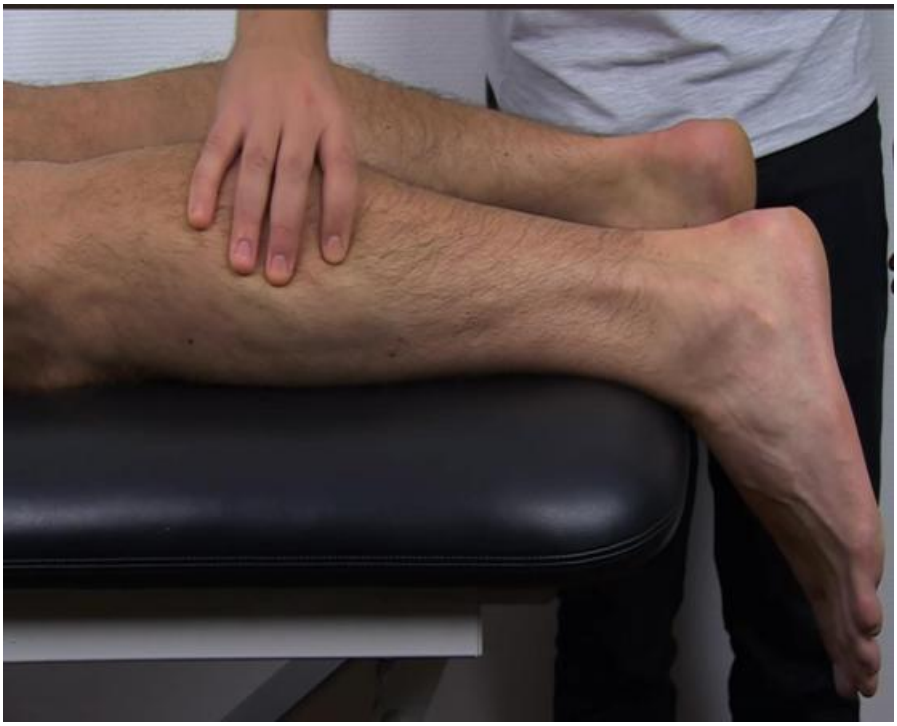
Squeezing the calf of extended leg

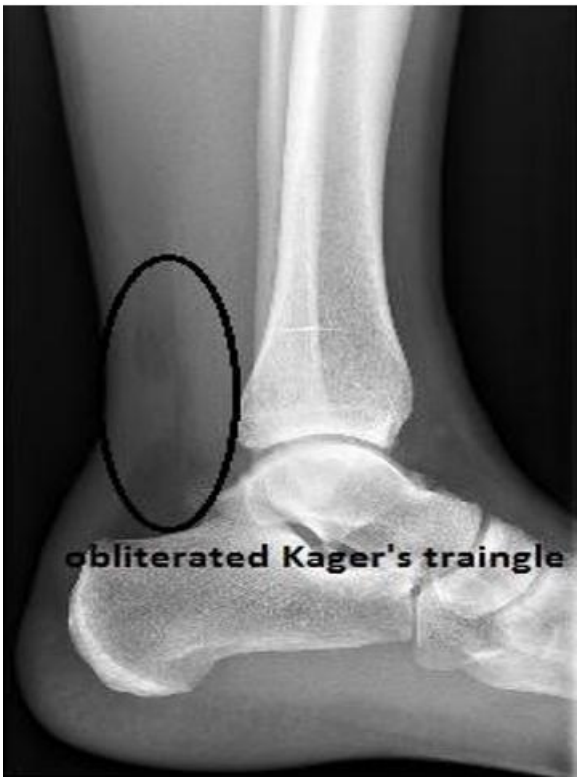
↓

No passive plantar flexion of ankle

Investigations:

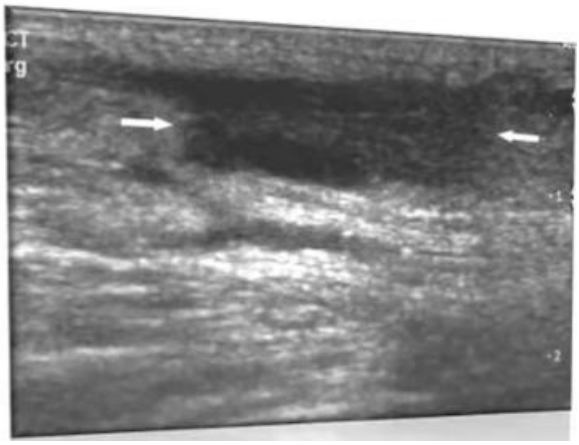
Radiographs:
- Standing Lateral view of Ankle Jt.
- If Achilles avulsion suspected
- Useful in ruling out other injuries





MSK Ultrasonography:

a) Not necessary for diagnosis
b) Helpful in deciding management
   - < 5 mm gap on plantar flexion
   - <10 mm gap with ankle in neutral
   - Good results with conservative management
c) Here the gap is 4 cm



Operative Management

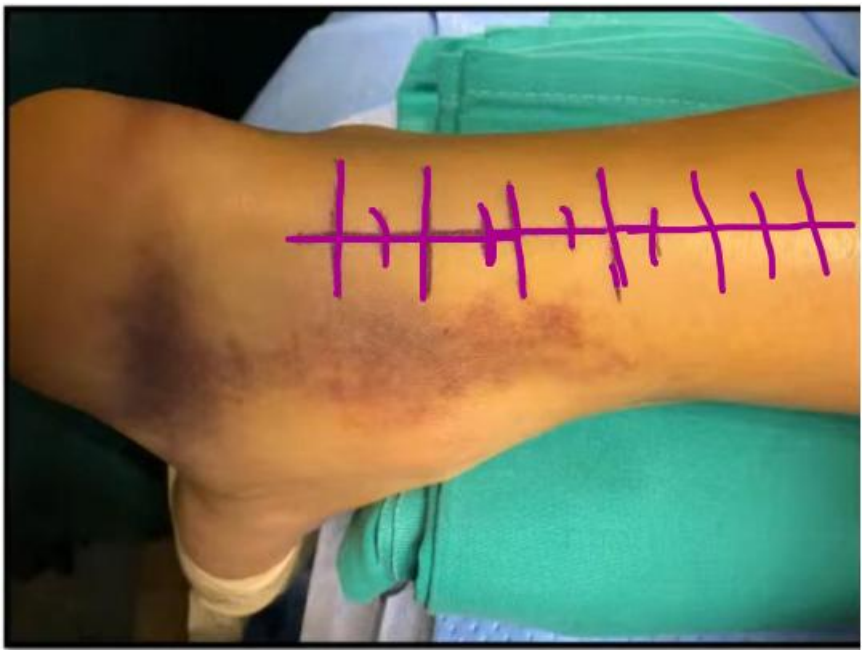
Ideal candidate

- Middle aged patient < 60 yrs
- Active or athletic individual
- Rupture > 72 hrs old
- No contraindications
- Informed consent +nt

Contraindications

- Diabetes
- Steroid / FQs user
- Peripheral Vascular Disease
- Poor skin and soft tissue quality

Operative steps

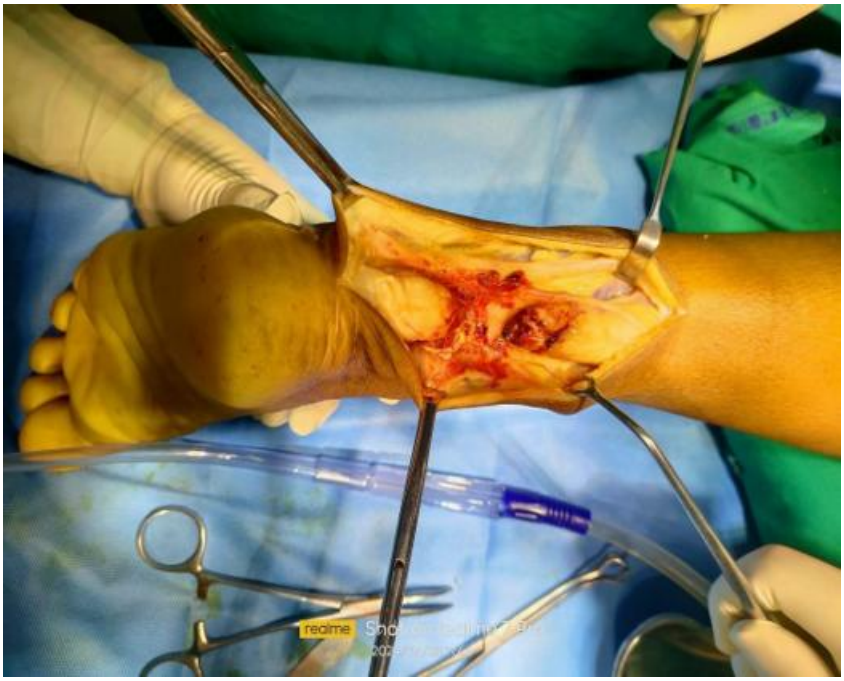


- Pre-operative antibiotics given
- Patient is under Spinal anaesthesia
- Tourniquet was applied
- Prone position
- Posterior longitudinal midline incision

Extending from calcaneus to proximal third of calf

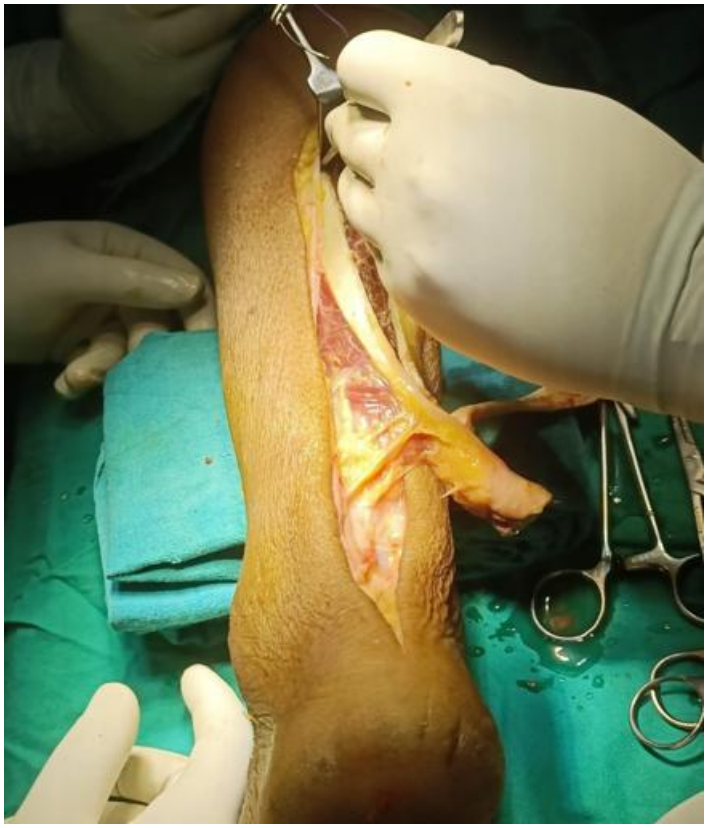
- Make full thickness skin flap
- Exposed the ruptured tendon
- Excise the scar tissue from between the ends

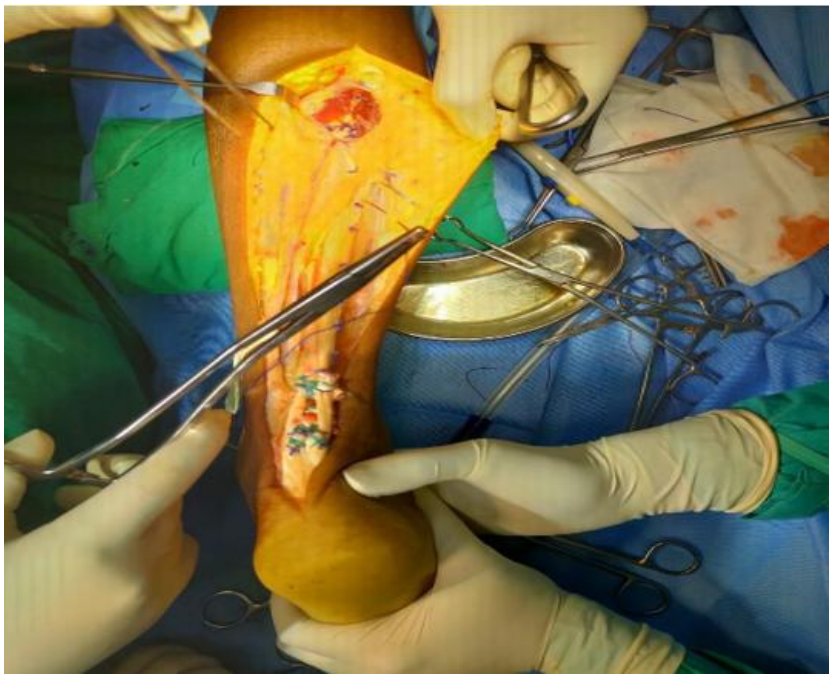
- Free from median raphe of gastrocnemius muscle a strip of tendon 1.5 cm wide and 18 cm long taken
- Leave the tendon attached proximal to the site of rupture

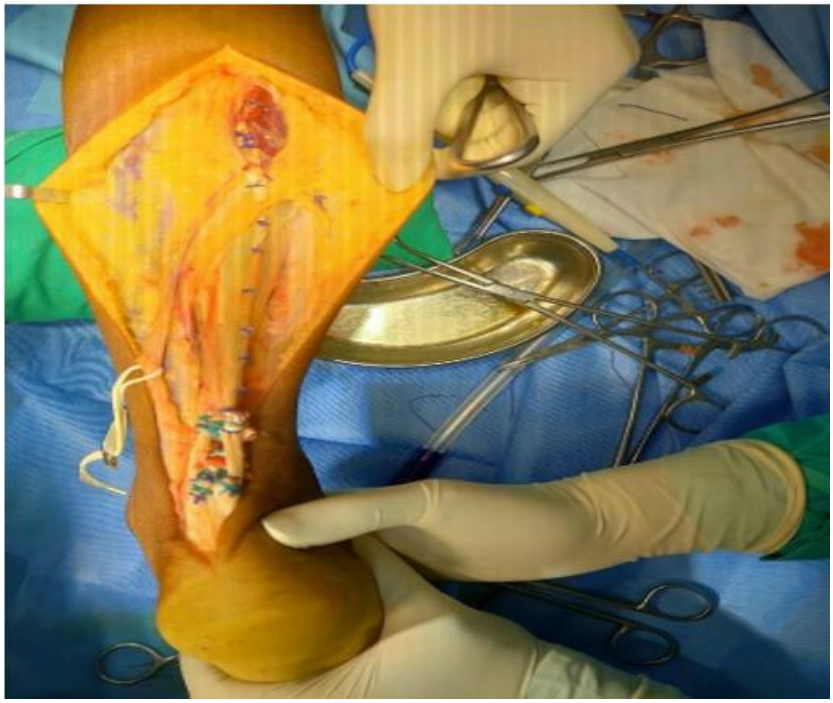


Turn the strip distally, pass it transversely and anchor it there

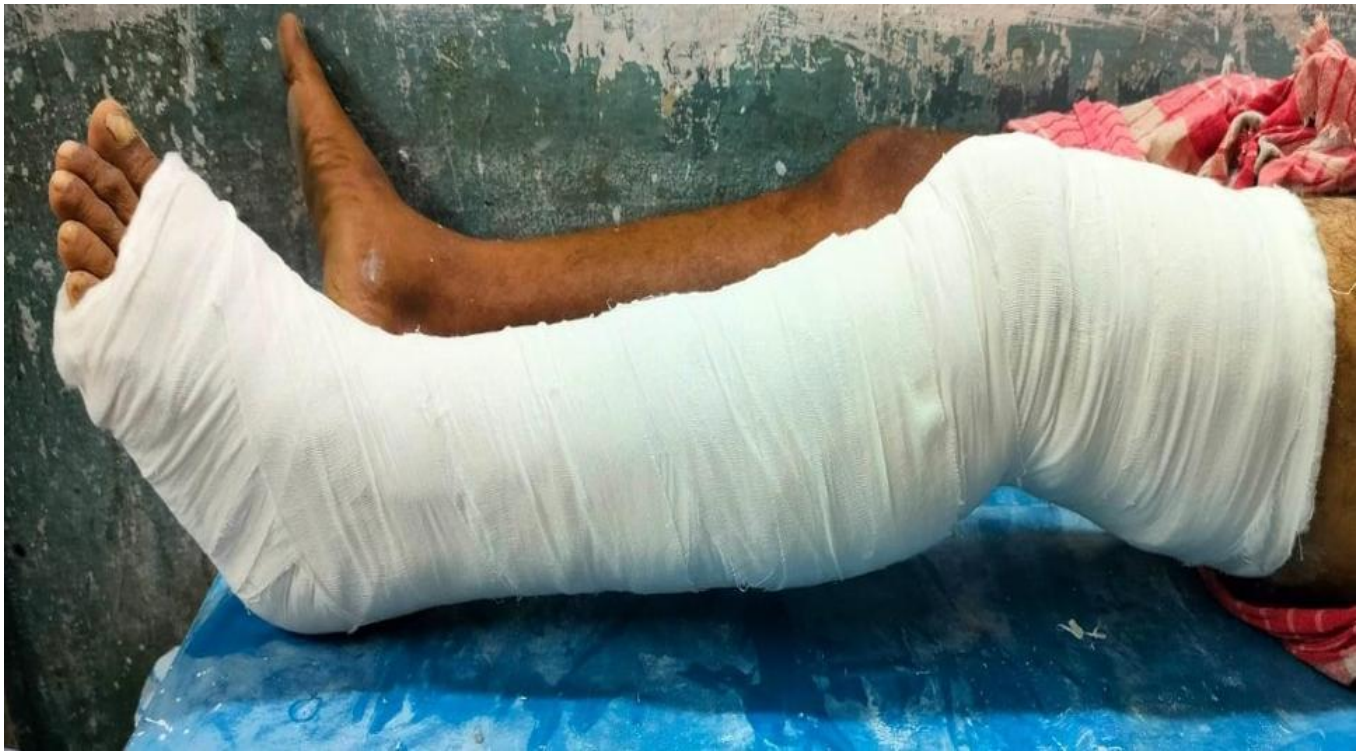
- Pass the strip distally, then transversely, pass it again from anterior to posterior and anchor it
- Bring the strip proximally, pass transversely; carry it distally and suture it on itself







Close the wound, apply long leg cast in knee flexion and ankle in plantar flexion



Post-operative Care:

0-2 wks:
Cast is removed at 2 wks.
Wound is inspected, suture removed

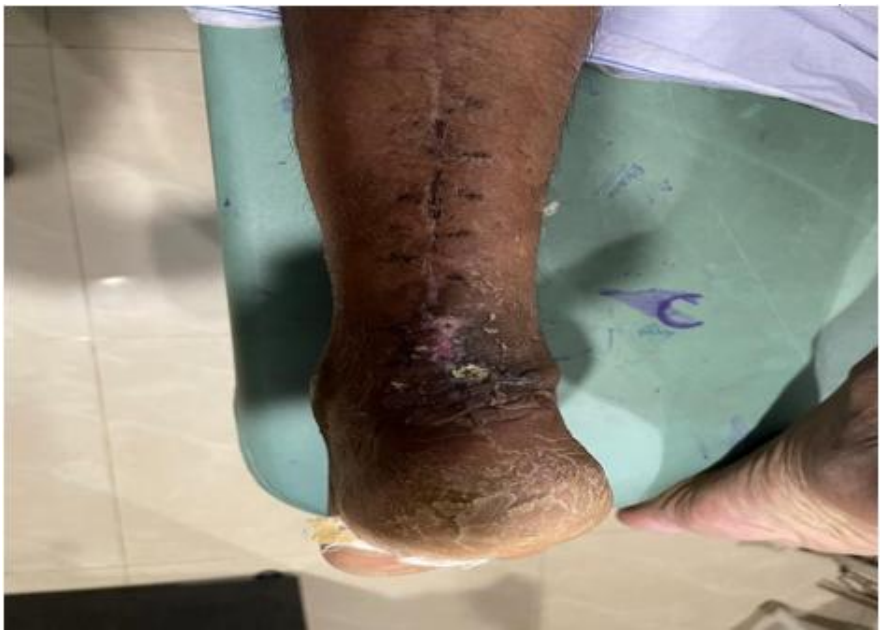
2-4 wks:
Short leg cast with foot in gravity equinus for 2 wks more.

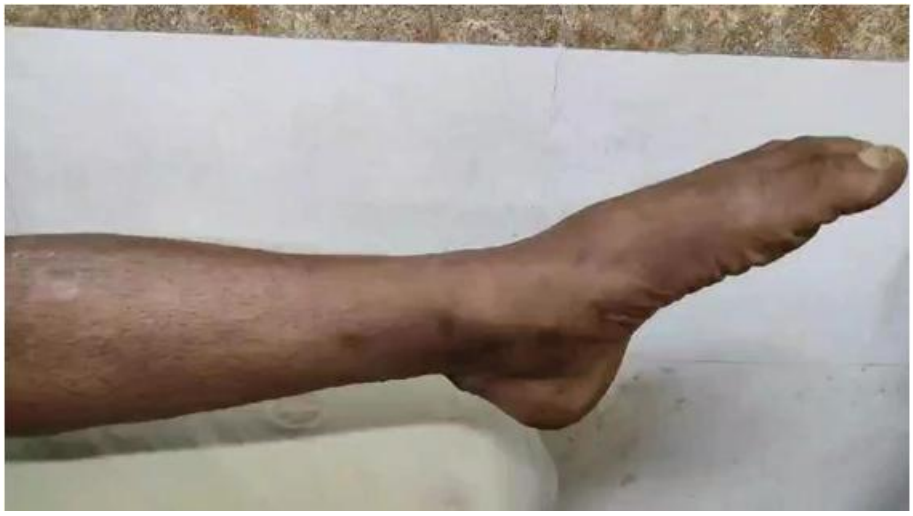
4-6 wks:
Cast is changed with foot in plantigrade position weight bearing as tolerated in cast

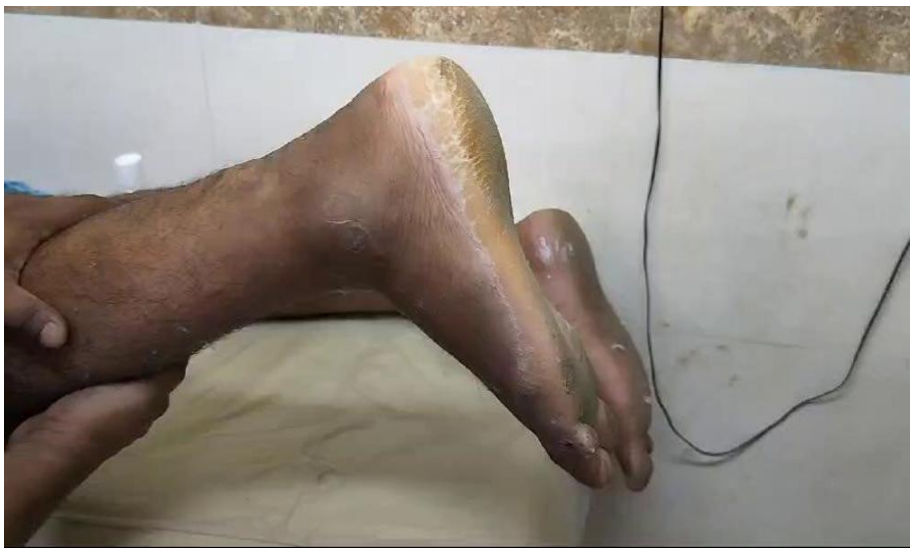
6-8 wks:
Full weight bearing is allowed in short leg cast
Active range of motion exercise are begun
Return to full unrestricted activity at least 06 months and often more

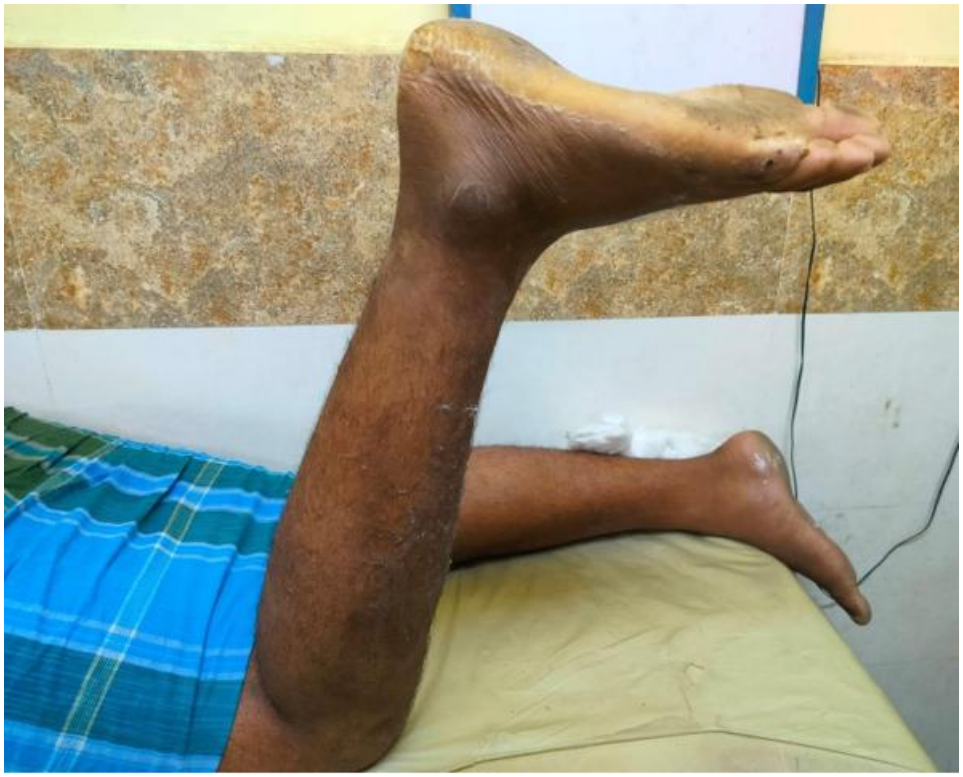
Follow up
Follow up was done at 2 weeks, 4 weeks, 6 weeks, 12 weeks & at 6 months

Clinical outcome









3. Functional Outcome

ATRS (Achilles Tendon Rupture Score): improved

Pre-operative value	Post-operative value
25	54

4. Conclusion

In this case of chronic tendo-achilles rupture reconstructed with gastrocnemius- soleus fascia turn down graft and proper rehabilitation provided good clinical and functional outcome.

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