

APOA Foot & Ankle Council Presents..

# Case of the Fortnight

1st August 2021



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Presented by:



**Dr. Pongpol Petchkum**

Foot and Ankle Division  
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Bangkok, Thailand

## Title: Achilles Tendon Repair with Mini-open Technique

*Upcoming Case of the Fortnight  
on 15th August 2021*

Presented by:

**Dr. Juan Agustin  
D. Coruña IV**

Bacolod City, Philippines



## Title: 3D Preoperative Planning in Ankle Trauma

### Learning Points:

- ⬆ Treatment of acute achilles tendon rupture should be tailored by patient condition and needs
- ⬆ Conservative treatments may have benefits in low demand patient. However, the functional rehabilitation protocol with early range of motion are mandatory to reduce the re-rupture rate and improve push-off strength
- ⬆ Surgical treatments are suitable for young active patient. The conventional open repair has benefit in acute or chronic rupture with the chance for direct end-to-end repair and removal of any hematoma and fibrous tissue, but has a high rate of wound complication
- ⬆ Percutaneous repair has lower wound complication, adhesion, and infection but there are some risks of sural nerve injury.
- ⬆ Mini-open repair with Dresdner instrument has benefits of percutaneous repair and also has lower risk of sural nerve injury.
- ⬆ Both percutaneous and mini-open repair should be done within 2 weeks before the formation of fibrous tissue obstructing the end-to-end healing

Want to present a case? Write to...



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## Achilles Tendon Repair with Mini-open Technique

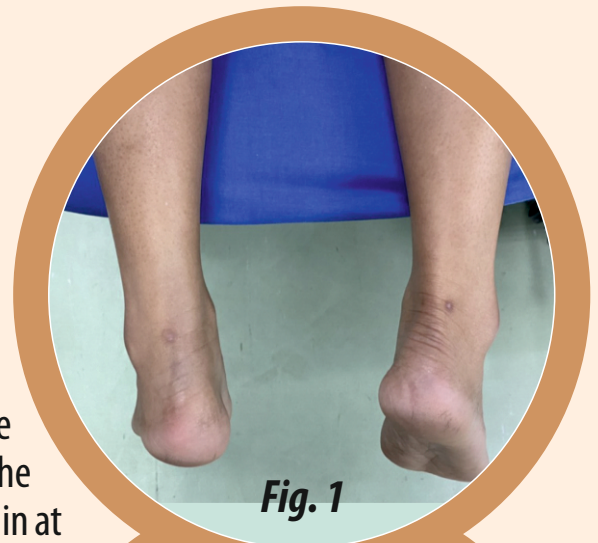
### Dr. Pongpol Petchkum

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A 52 years old female has fallen on left ankle during playing badminton 2 hours prior to arrival. She had left posterior ankle pain suddenly after pushed off and jumped. After accident she could not walk due to pain and weakness. She has no previous pain at heel cord and no underlying disease.

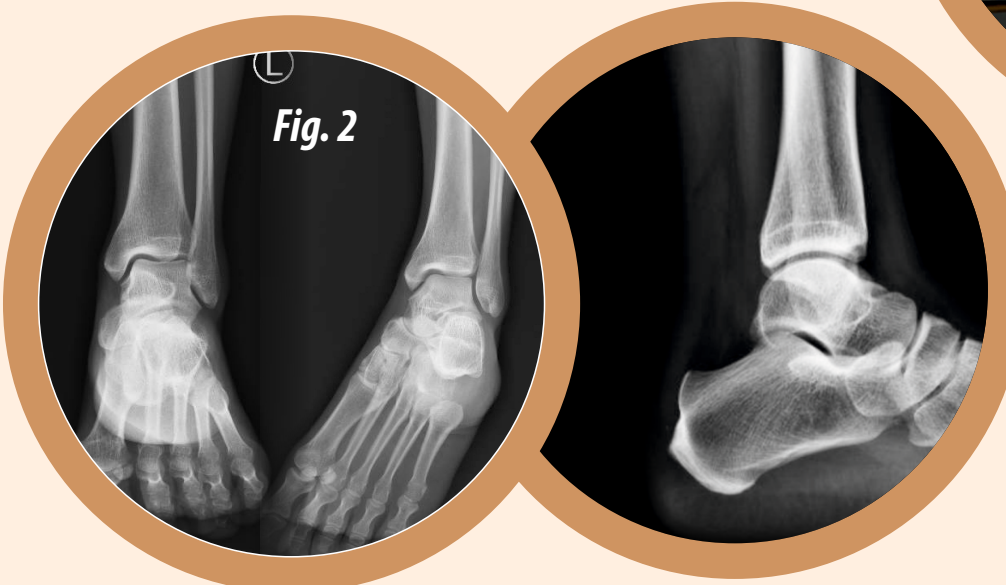
Physical examination of left ankle (**fig.1**) revealed palpable gap with tenderness at 5 cm from calcaneal insertion of Achilles tendon. Thompson's squeeze test was found to be positive.



**Fig. 1**



Plain radiograph of left ankle (**fig.2**) demonstrated loss of Kager's triangle without bone avulsion.



**Fig. 2**

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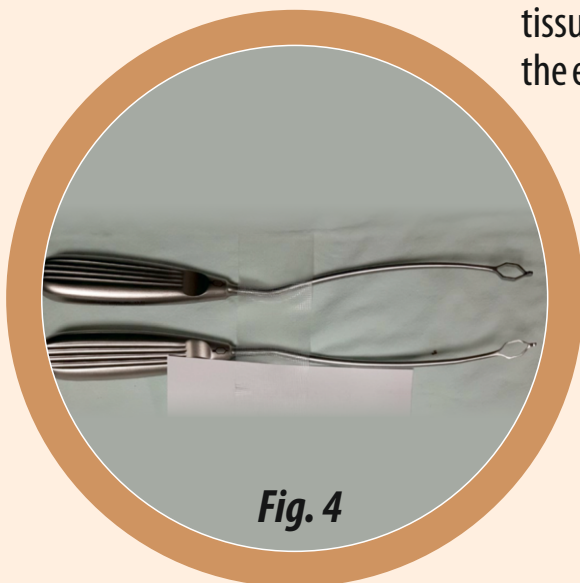
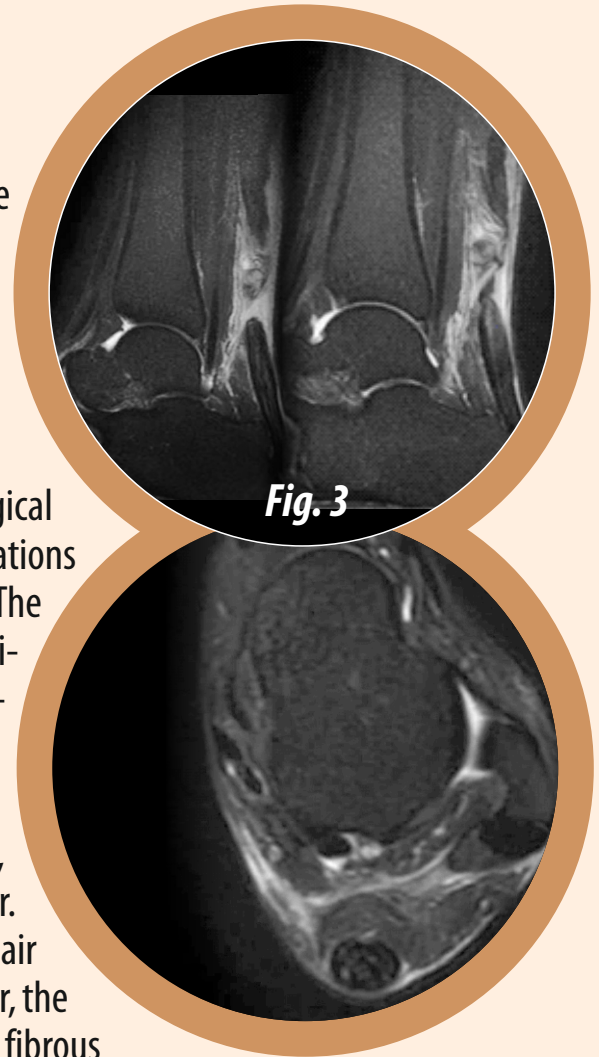
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Magnetic resonance imaging of left ankle (**fig.3**) found complete Achilles tendon rupture with gap 3 cm at 5 cm above calcaneal insertion and no evidences of tendinopathy.

The diagnosis was acute Achilles tendon rupture left ankle.

Treatment options were discussed both conservative and surgical treatment. The conservative treatment had less wound complications but higher re-rupture rate and weaker push off strength. The surgical options were offered, conventional open repair or mini-open repair, and patient preferred the surgical repair with mini-open technique.

The advantages of mini-open repair are less wound complication, adhesion, and infection compared to conventional open repair. Risk of sural nerve injury is less than the percutaneous repair because mini-open technique works beneath the fascia. However, the surgery should be done within 2 weeks before the formation of fibrous tissue at rupture site and obstruct the end-to-end healing.



The mini-open repair using Dresdner instrument (INTERCUS GmbH, Germany) to pass the suture materials from distal stump to proximal surgical wound (**fig.4**)

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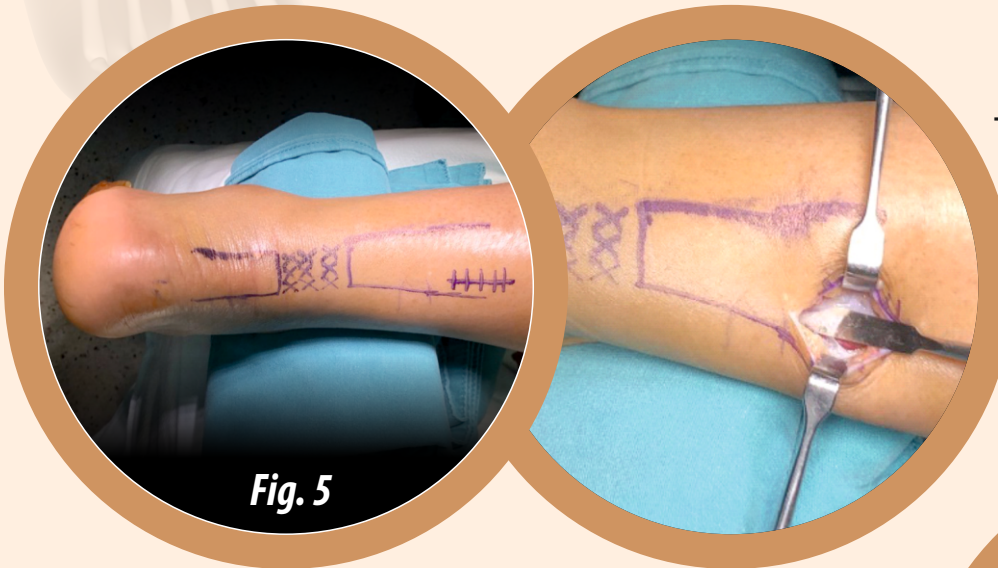
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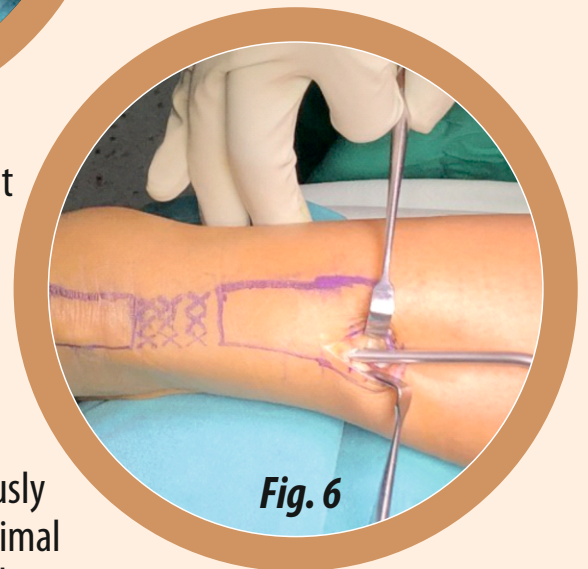
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**Fig. 5**

The patient was placed on prone position and the 3 cm dorsomedial skin incision was done at 3 cm proximal to rupture site (**fig.5**)

The lower leg fascia was opened and the 1st Dresdner instrument was passed from the proximal surgical wound to distal stump in the layer between fascia and peritenon, medial to the tendon and stop at 1 cm proximal to calcaneal insertion (**fig.6**)



**Fig. 6**

The straight needle with fiberwire was inserted percutaneously through the hole at tip of the instrument to the tendon at maximal cross-section. The 2nd Dresdner instrument was inserted along lateral side of the tendon to the same level as the 1st one, then the fiberwire was passed through the hole of 2nd instrument to the skin (**fig.7**)



**Fig. 7**



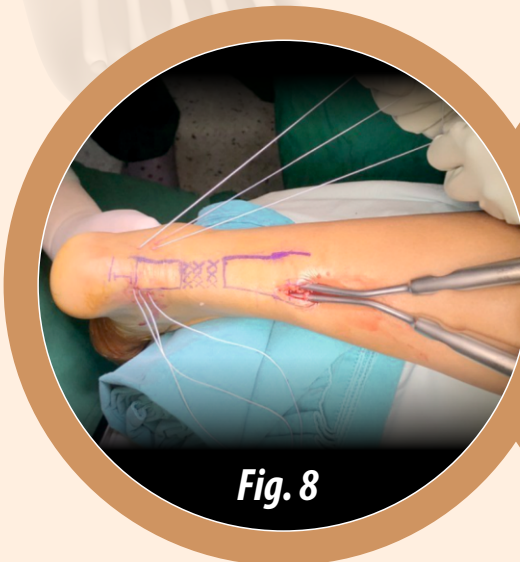
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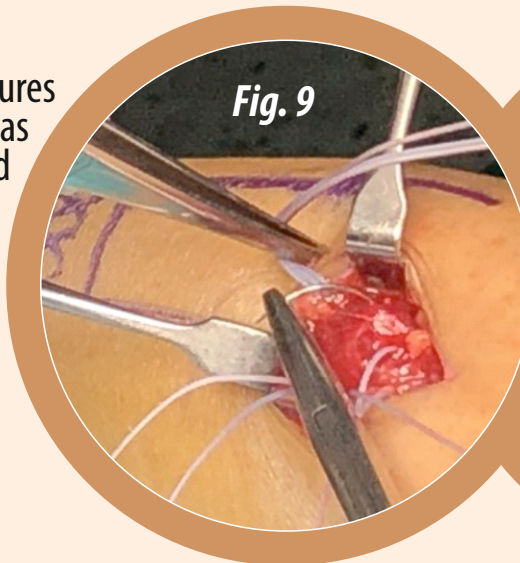


**Fig. 8**

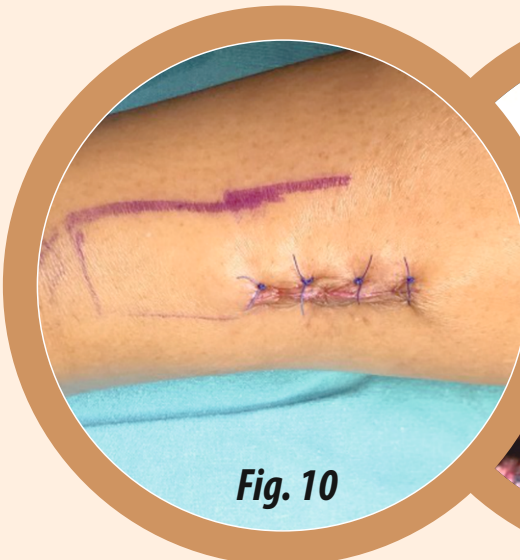


The 2<sup>nd</sup> and 3<sup>rd</sup> fiberwires were placed in the same manner as the 1<sup>st</sup> one with the distance from each other about 5 mm. One ends of FiberWire were fixed and the other ends were pulled through by instrument to proximal wound. Then the other instrument was pulled out along with fiberwires.(fig.8)

After the strength of each sutures were tested, each fiberwire was threaded to a curved needle and suture to the proximal stump with the distance from each other about 5 mm. The desired position of ankle plantarflexion was set by assistant during the knot tightening.(fig.9)



**Fig. 9**



**Fig. 10**



The fascia and skin were closed and short leg slab was applied in comfortable equinus position. After 2 weeks, the slab was removed, the CAM boot with heel lifts (3 Achilles wedges) was applied. At 4th week, one of the wedge was removed and passive range of motion was allowed. At 6th week, the 2nd wedge was removed and active motion was allowed. At 8th week, the 3rd wedge was removed and full wedge bearing was allowed.(fig.10)



# Upcoming Event

## Advanced Foot & Ankle Course: APOA Foot & Ankle Section Initiative

December 3<sup>rd</sup>, 4<sup>th</sup> & 5<sup>th</sup>, 2021



**Arvind Puri**  
Course Director  
& Secretary,  
APOA Foot & Ankle Section



**Gowresson Thevendran**  
Course Director  
& Council Member,  
APOA Foot & Ankle Section

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