



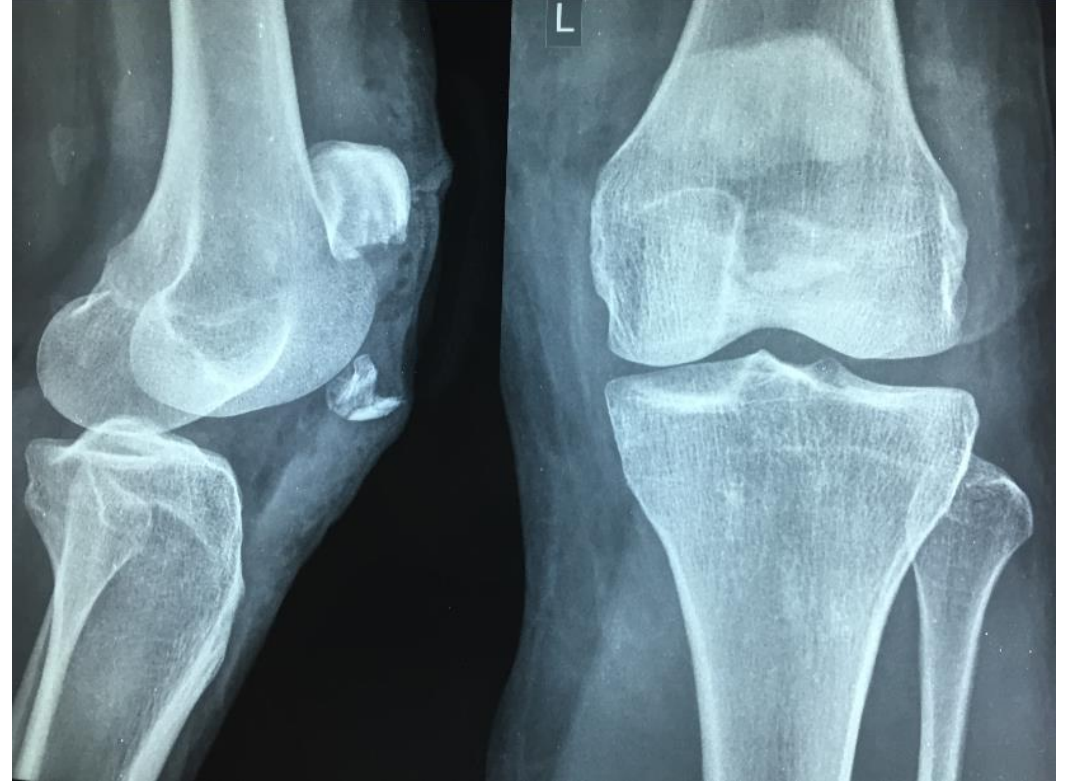
INFERIOR POLE PATELLAR FRACTURE

NHUAN VIET NGO, MD

2017

Case Presentation

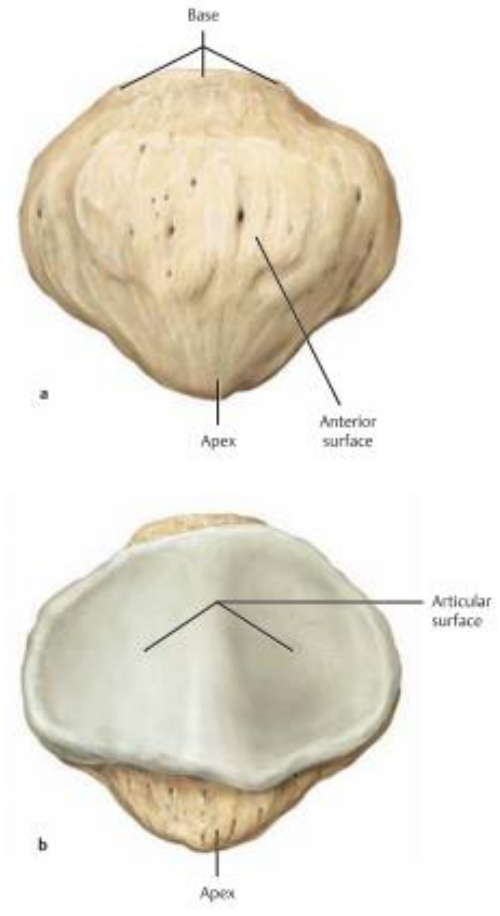
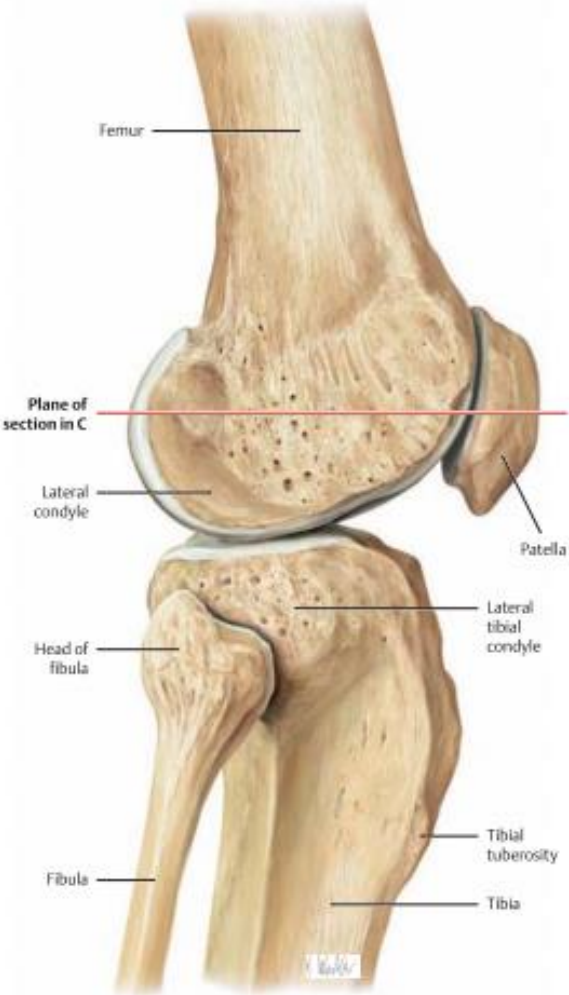
- 50 years old woman
- Motor vehicle accident
- 10 cm wound in the L knee
- Xray



Diagnosis: Open inferior pole of L patellar fracture

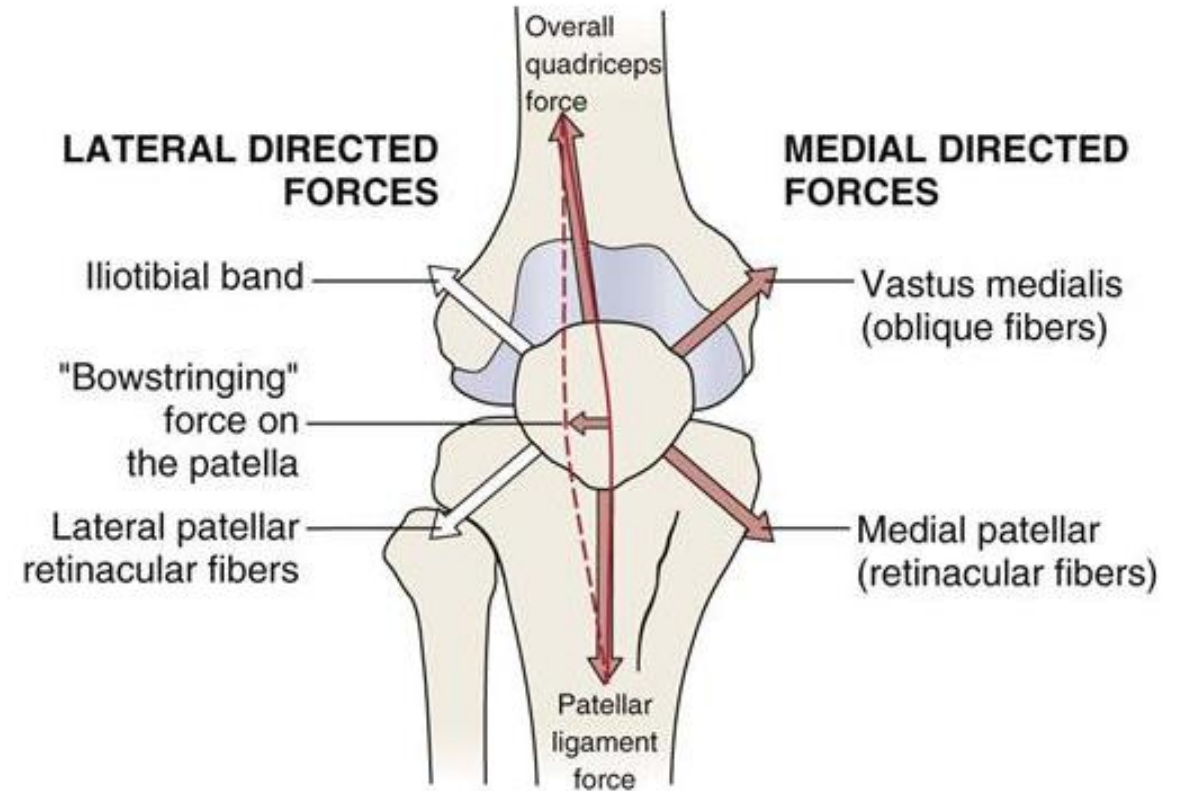
Treatment: Debridement + Fixation

Anatomy

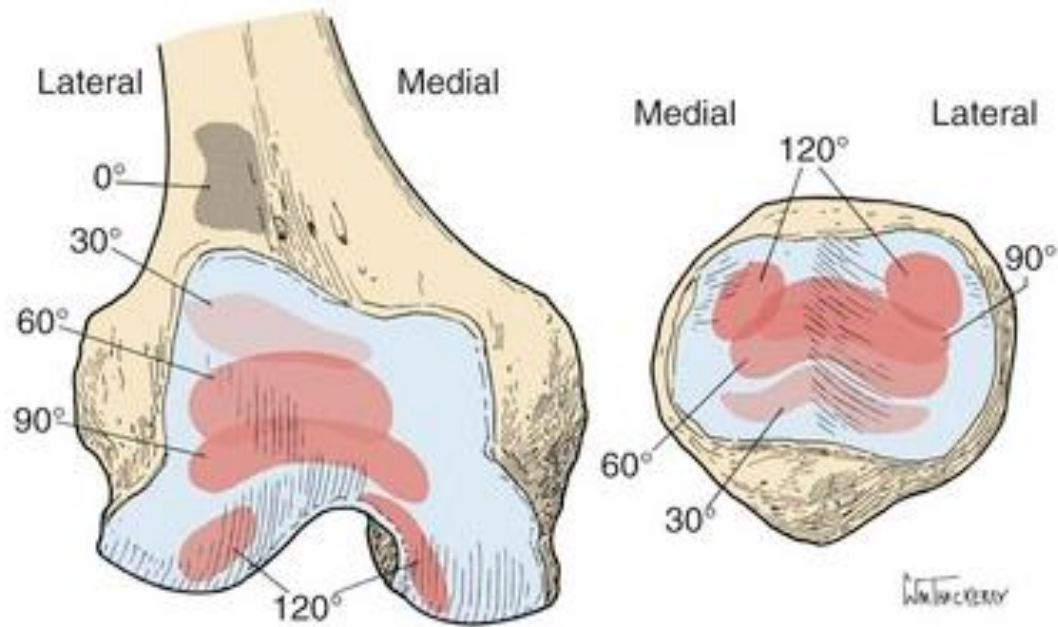


Function

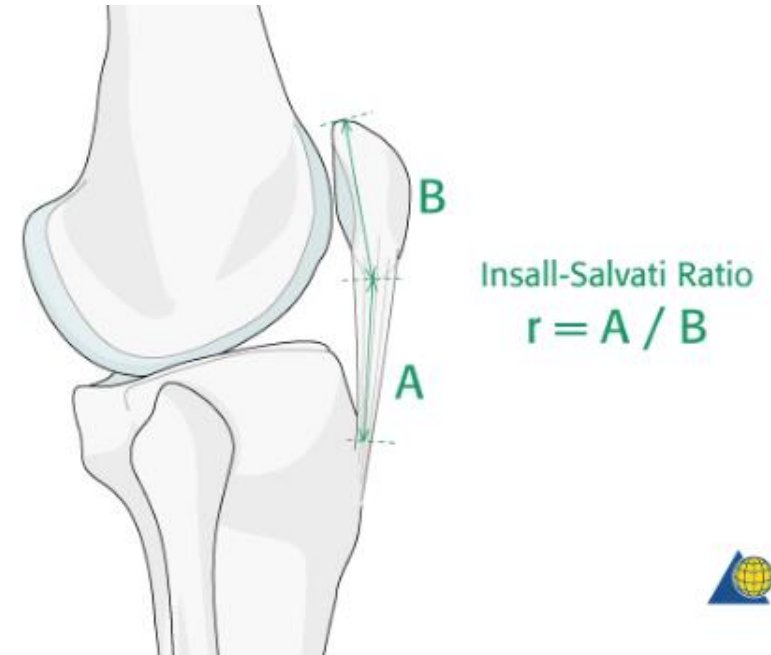
- Pulley
- Guiding forces
- Protection



Function



Patellofemoral contact zones



Patellar height

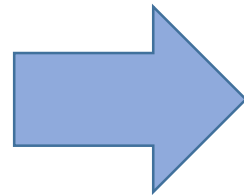


1. Aglietti, P., Insall, J. N., Walker, P. S., & Trent, P. (1975). A New Patella Prosthesis: Design and Application. *Clinical orthopaedics and related research*, 107, 175-187.

2. Ruedi, T. P., & Buckley, R. (2007). *AO principles of fracture management*. New York: Thieme, 2007.

Treatment goals

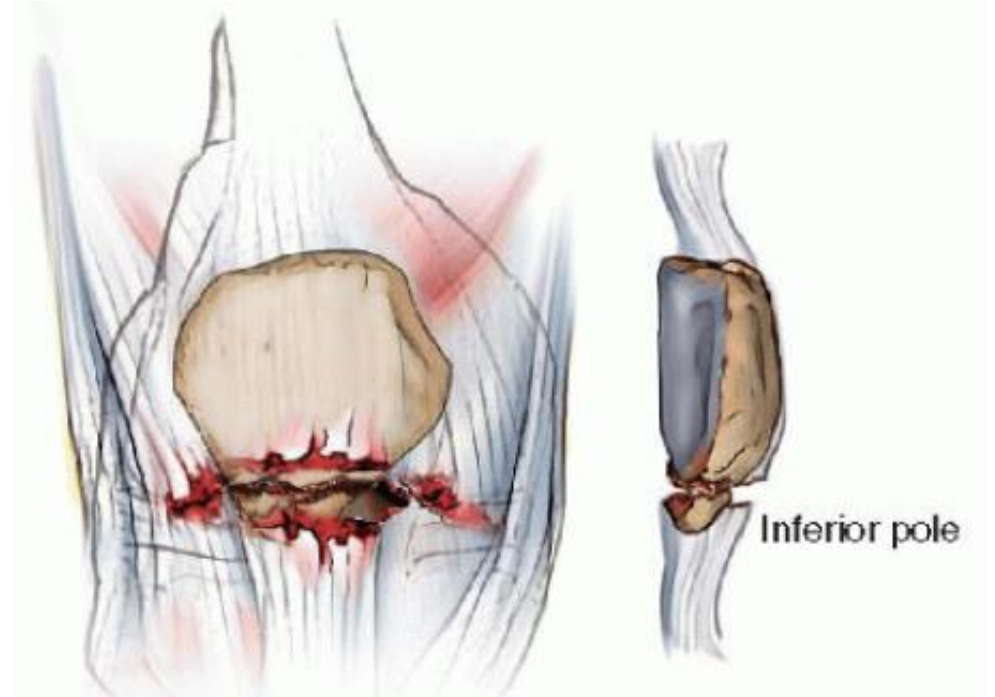
- Pulley
- Guiding forces
- Protection



- Restore extensor mechanism
- Minimizing bone loss
- Maximizing articular congruity
- Early mobilization

Treatment

- Modified tension band wiring
- Tension band wiring + screw
- Partial patellectomy
- Suture anchors
- Basket plate
- Vertical wiring
- Suture fixation



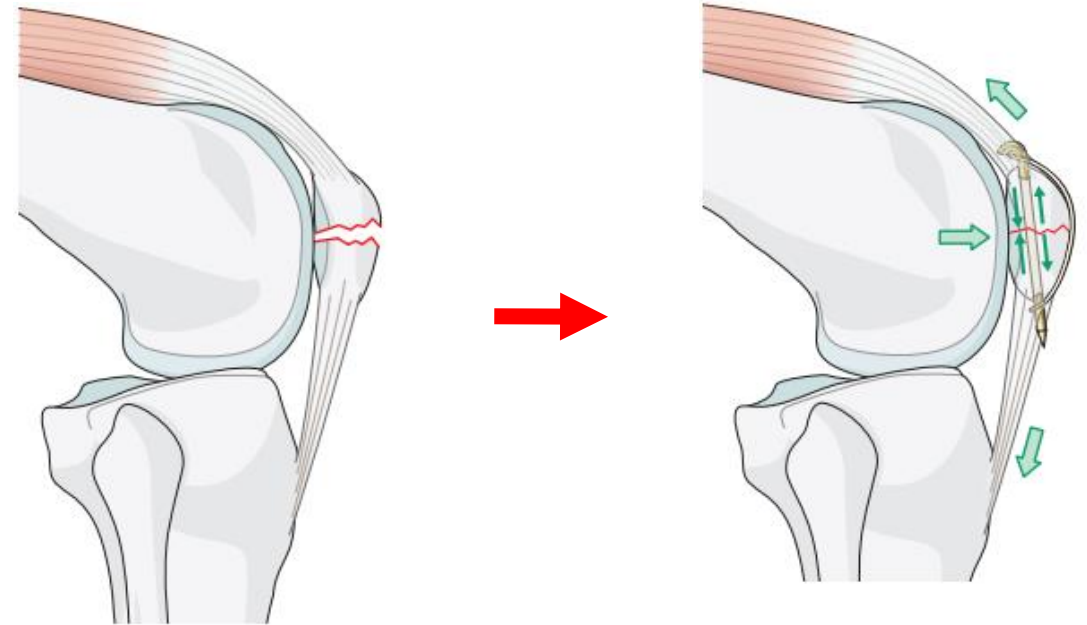
AO 34-A1

What is the appropriate treatment?

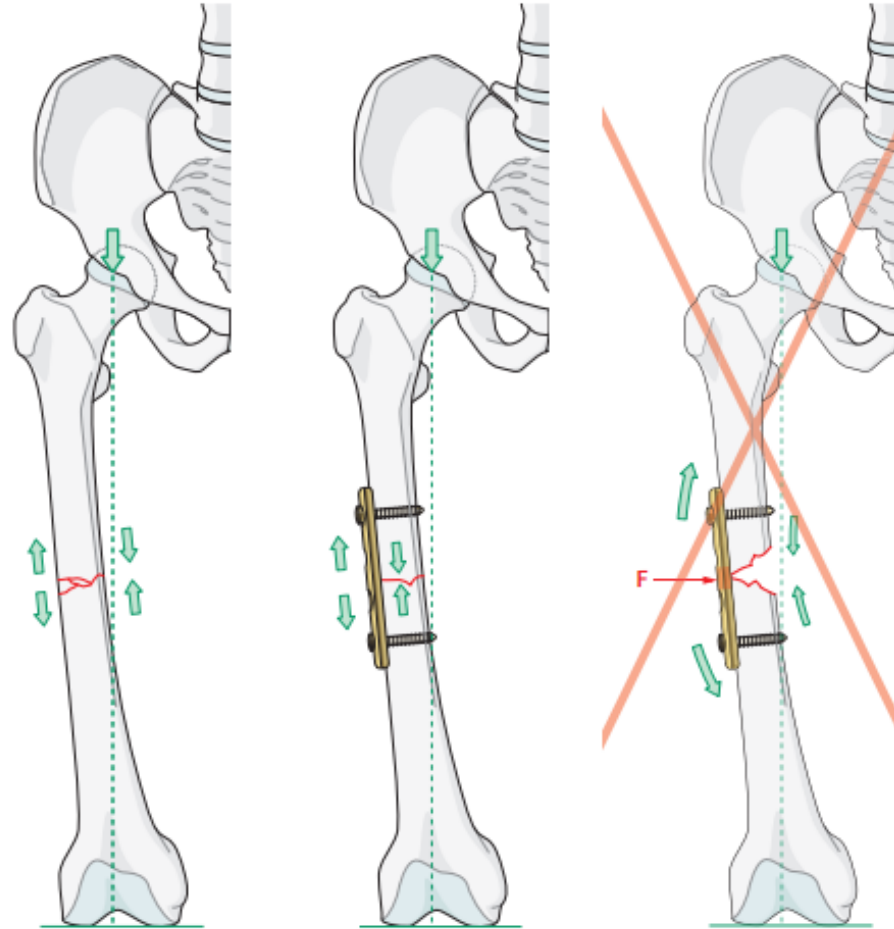
Modified Tension Band Wiring

Prerequisites:

- A fracture bone - withstands compression
- Intact cortical opposite to the tension band
- A fixation - withstands tensile forces



Modified Tension Band Wiring



Modified Tension Band Wiring

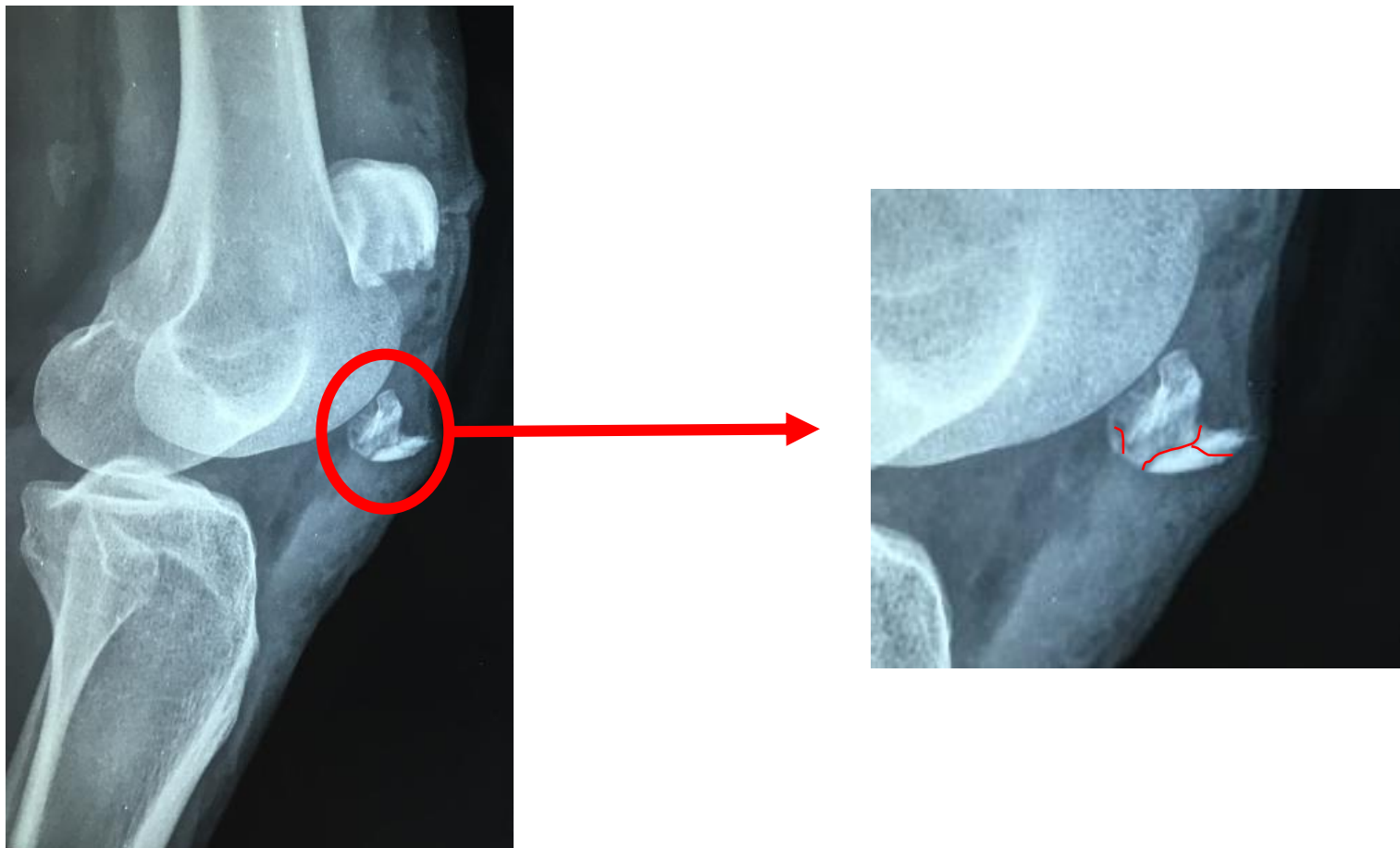


PreOP

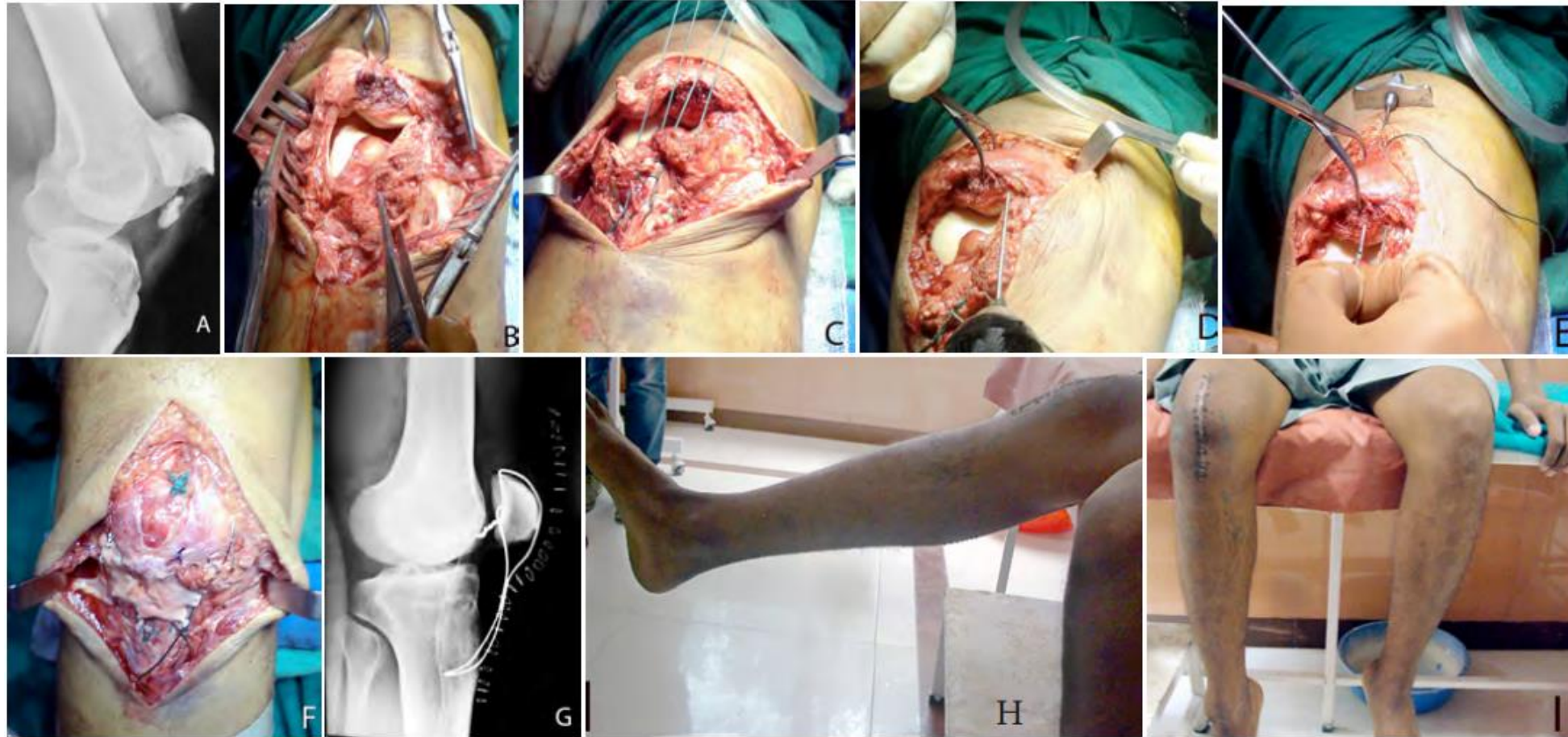
PostOP

6 months FU

Modified Tension Band Wiring



Partial Patellectomy



Partial Patellectomy

	No of Patients	FU (moths)	Results
Choudry (2014) ¹	10	6	Good : 100%
Bonnaig (2015) ²	26	35	PP = ORIF
Joshi (2016) ³	10	?	Bostman scale : 14.9

1.Choudry, A. R., Iqbal, M. Z., Iqbal, M., Azeem, M., & Malik, A. R. Outcome of Inferior Pole Patellar Fractures Treated by Surgical Excision.

2.Bonnaig, N. S., Casstevens. (2015). Fix it or discard it? A retrospective analysis of functional outcomes after surgically treated patella fractures comparing ORIF with partial patellectomy. *Journal of orthopaedic trauma*, 29(2), 80-84.

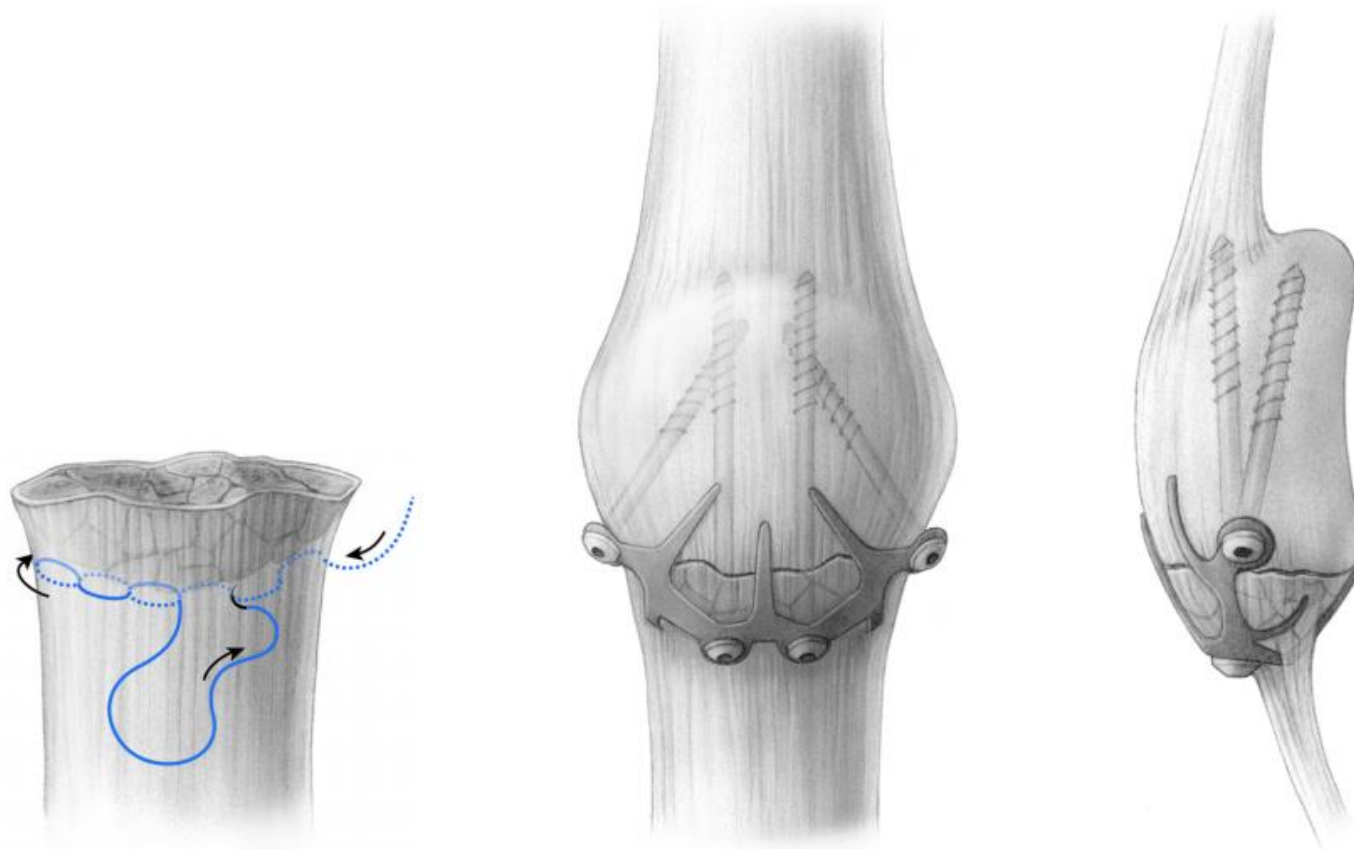
3.Joshi RR, Dwivedi R, Byanjankar S, Shrestha R. Outcome of inferior patellar pole avulsion fractures: a comparative study. *Journal of Lumbini Medical College*. 2016

Partial Patellectomy

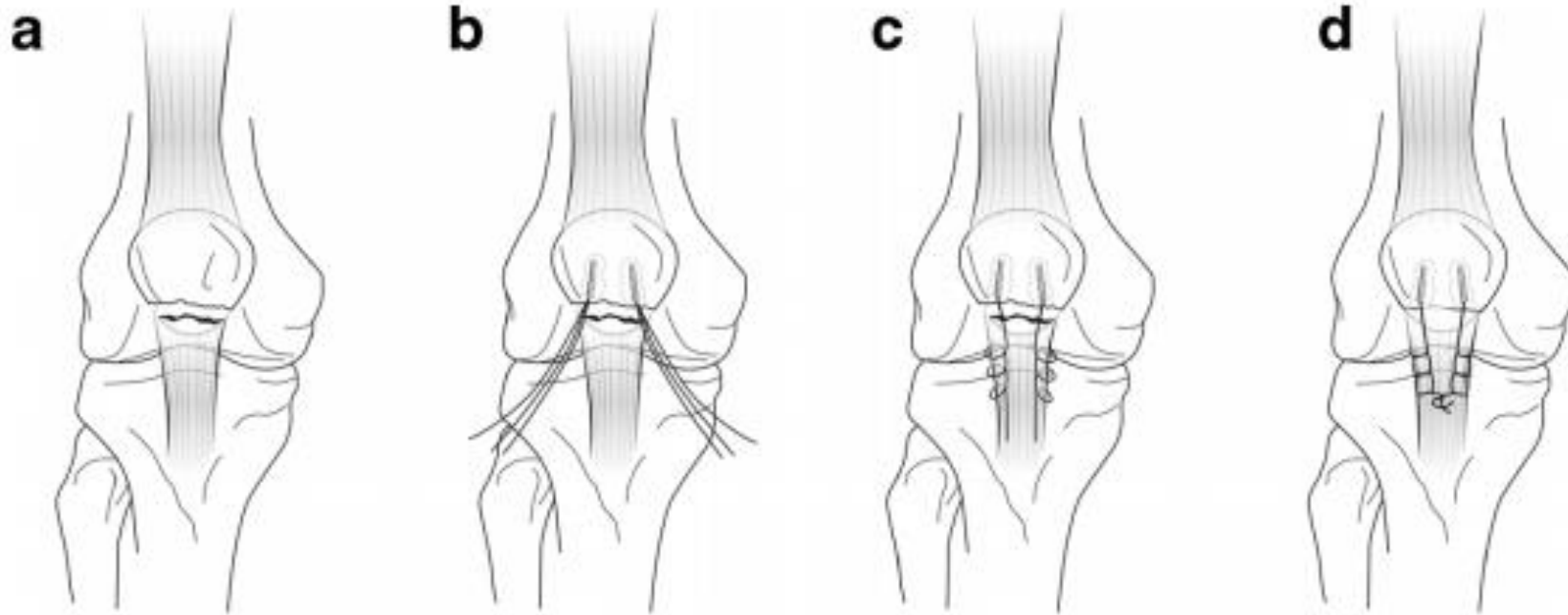


Radiograph of the knee of 71 year-old man, 2.5 years after inferior pole resection, showing decreased patellar height and arthritis of the patellofemoral joint on the affected side.

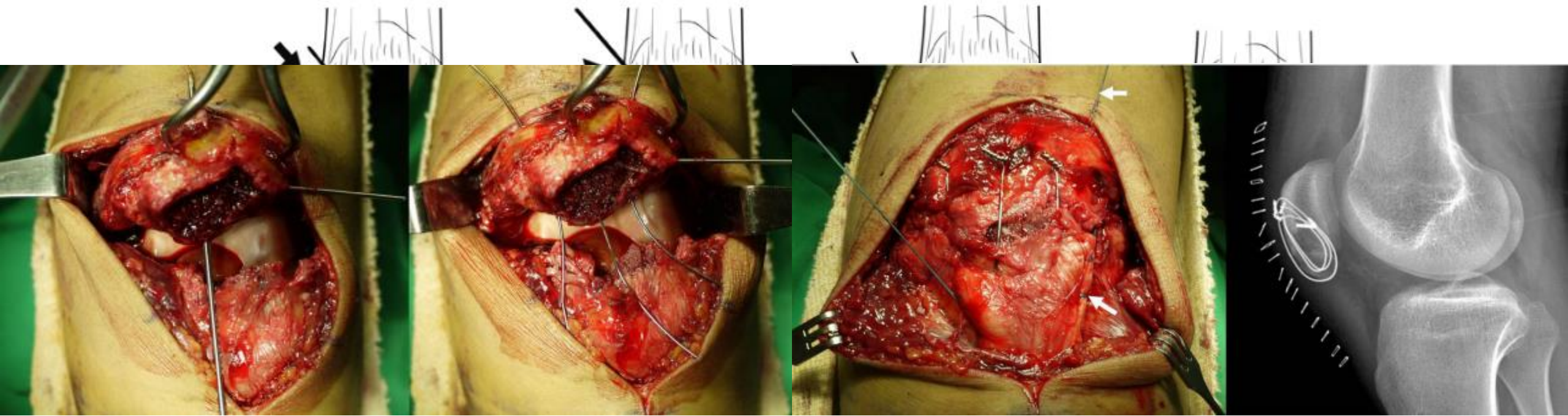
Basket plate



Suture anchors



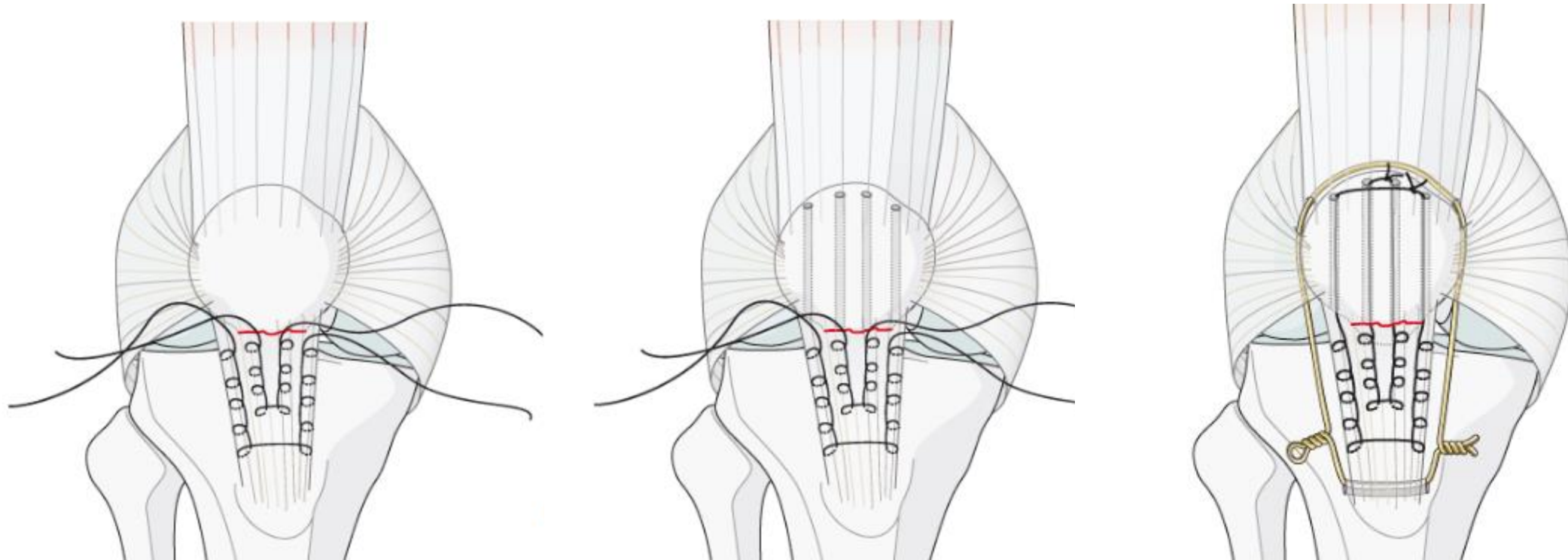
Vertical wiring



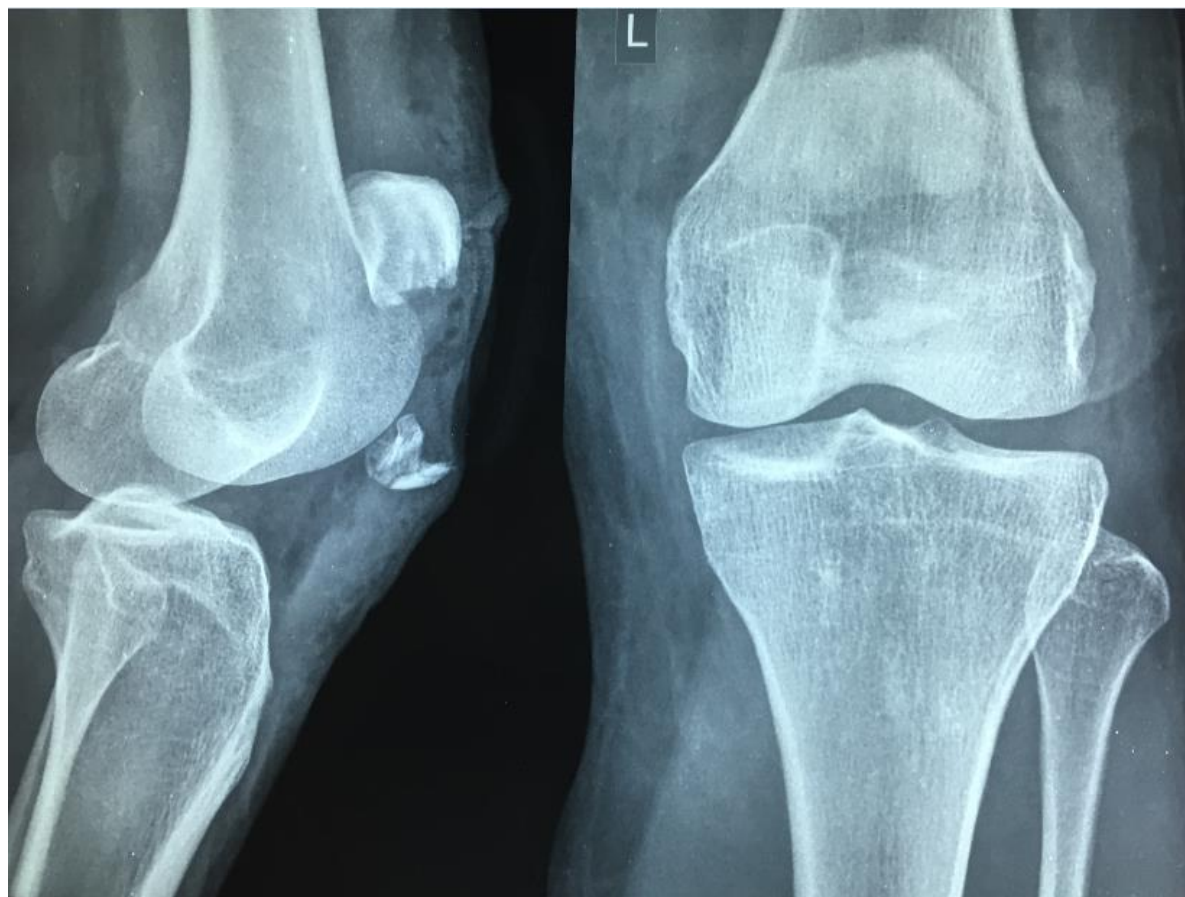
1.Song, H. K., Yoo, J. H., Byun, Y. S., & Yang, K. H. (2014). Separate vertical wiring for the fixation of comminuted fractures of the inferior pole of the patella. *Yonsei medical journal*, 55(3), 785-791.

2.Oh, H. K., Choo, S. K., Kim, J. W., & Lee, M. (2015). Internal fixation of displaced inferior pole of the patella fractures using vertical wiring augmented with Krachow suturing. *Injury*, 46(12), 2512-2515.

Krakow whip stitch - Suture Repair

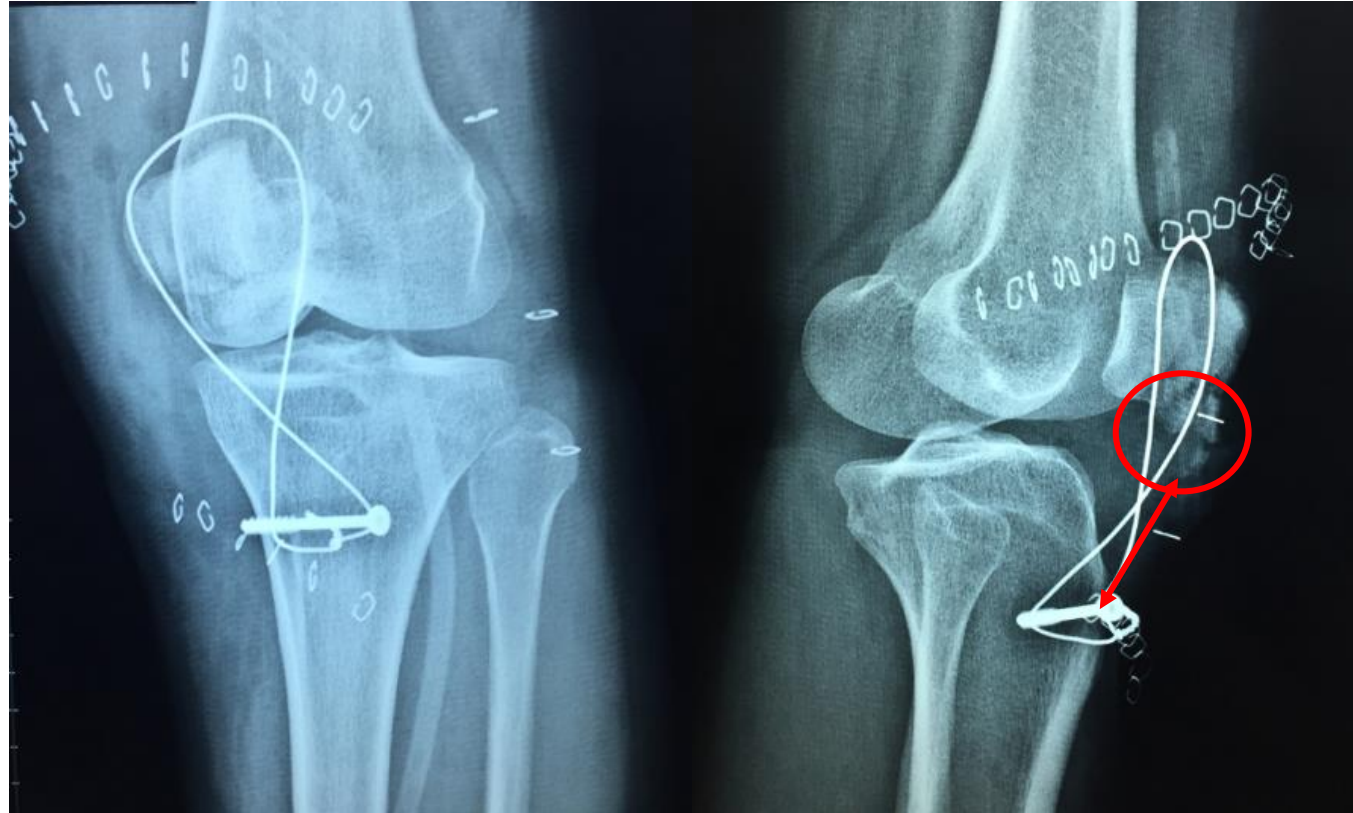


Treatment



PreOP

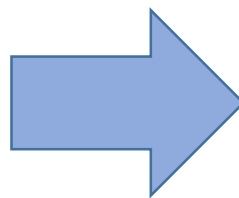
Treatment



PostOP

How can we improve the result?

Improve the result



Take home message

- Inferior pole patellar fracture: 9 – 22% - usually comminuted
- Various methods to fix but the ideal has not been identified



“Surgery went well, Mr. Moore. I had a lot of fun rebuilding your knee joint.”

Thanks for your attention!