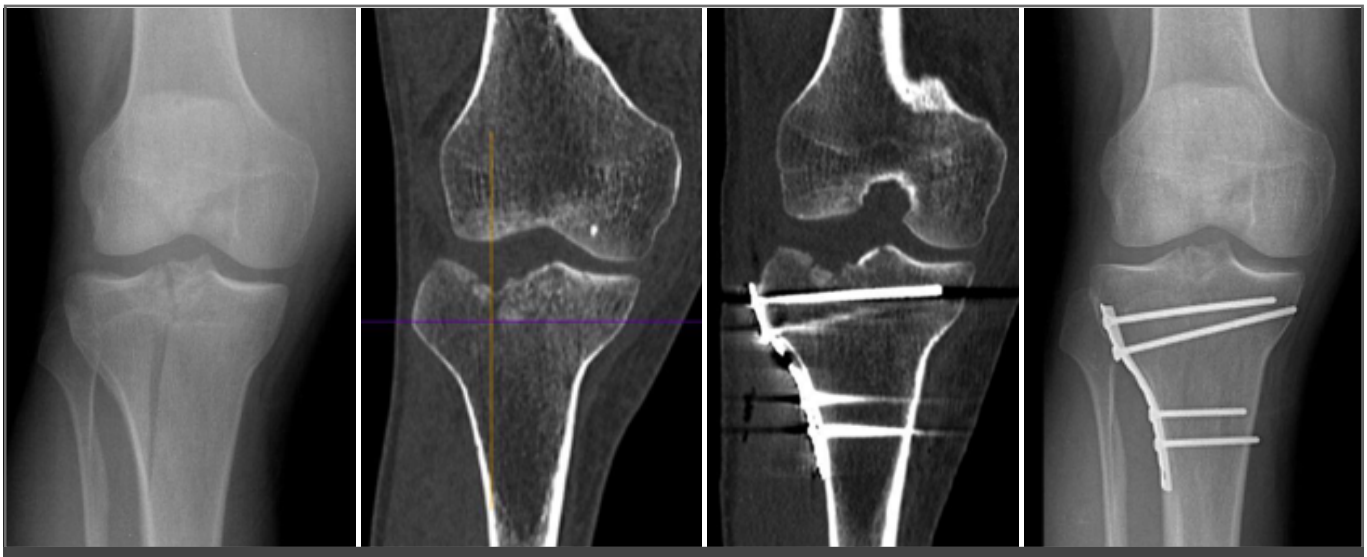
Tibia Plateau Fractures
Case analysis: comparing plan and result

P. Regazzoni, T. Nizegorodcew, A.Fernández

May 2020



ICUC® ID: 41-PA-272 / 45 years old

Preoperative data help to define the problem list of a case and define the treatment plan.

The indication for advanced imaging (CT) is still disputed, except for articular lesions.

Based on the list of problems, usually, different, valid solution options exist.

If there are differences between the preoperative plan and the immediate result of surgery difficult questions arise:

When are consequences to be expected and will they be serious?

Should improvement be tried by re-operation and which is the price? "Balancing Chances of Success and Risk" becomes fundamental. (....).

What does the result teach me for my next surgery of a similar case?

The following case illustrates the above statements

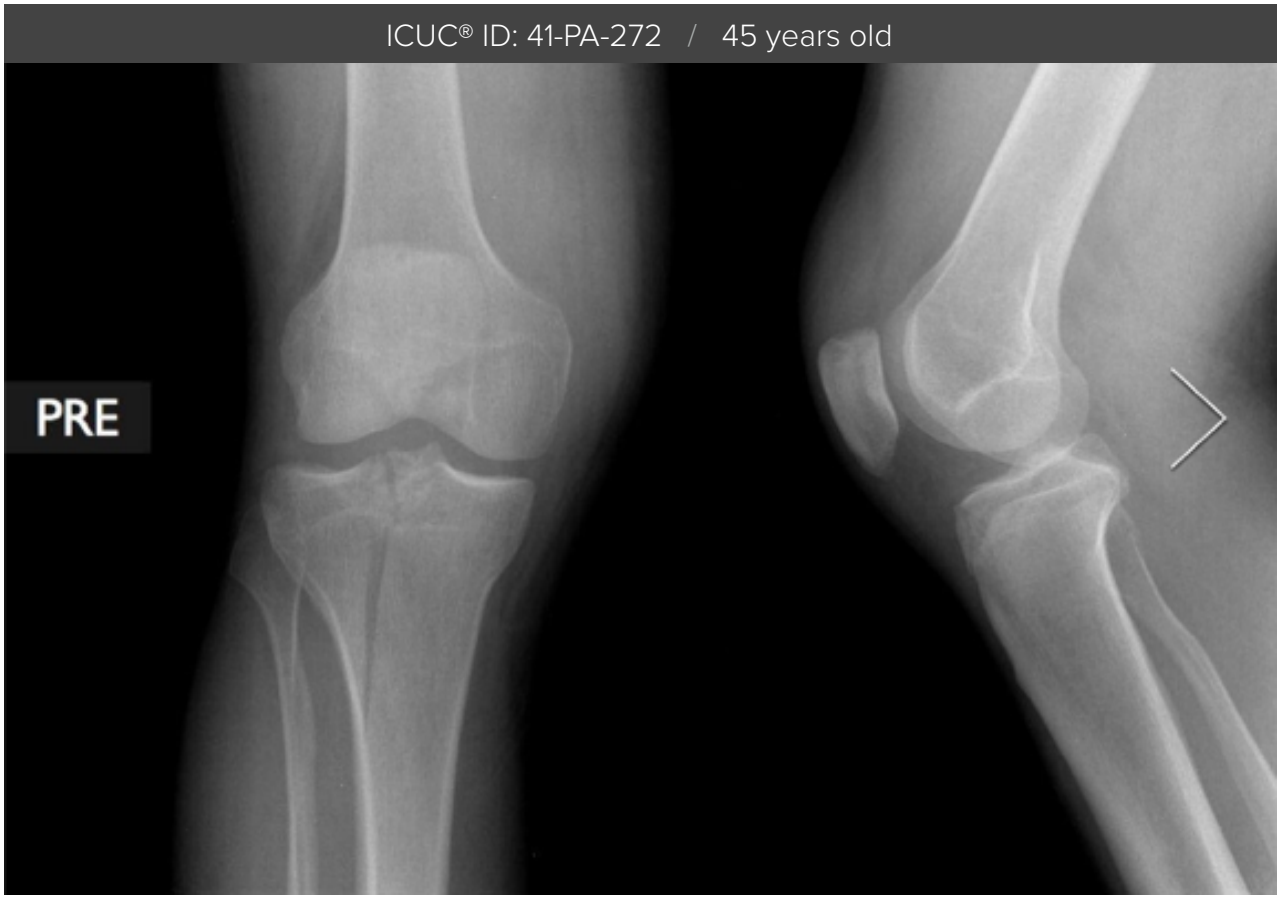


Fig. 1. Partial articular fracture. Careful analysis of conventional X-ray reveals important intercondylar comminution. Is a CT indicated? (Fig. 2)

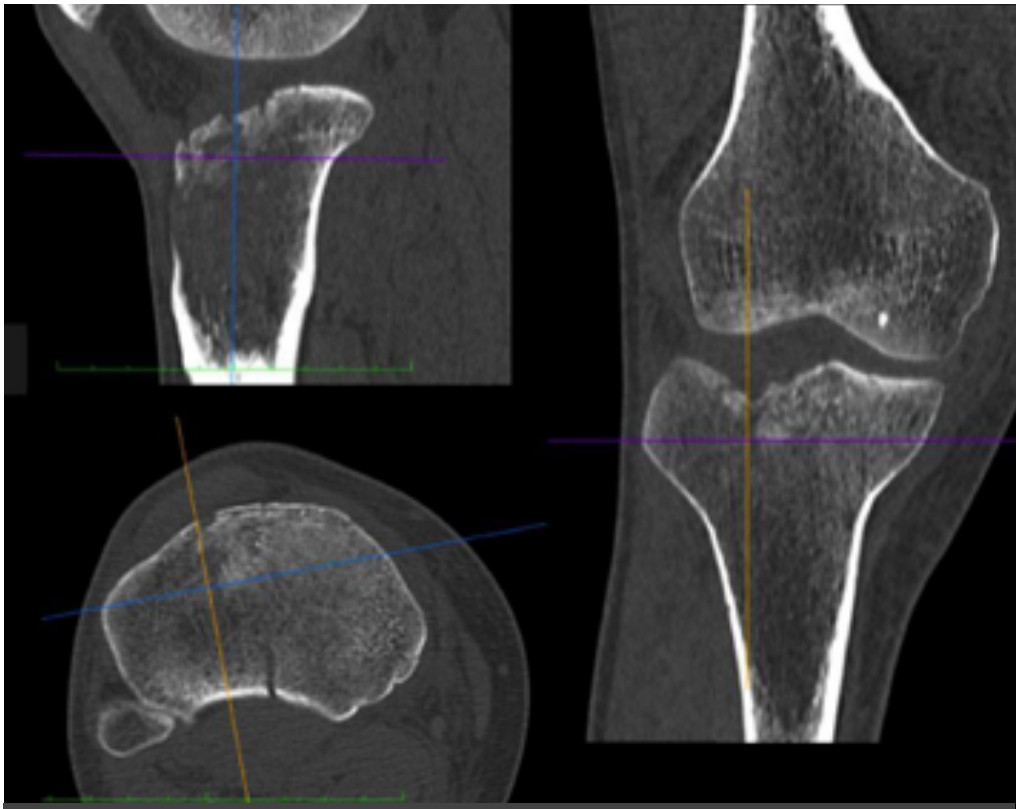


Fig. 2. CT shows Important comminution involving lateral plateau, not clearly visible on conventional X-rays. How much reduction needed?

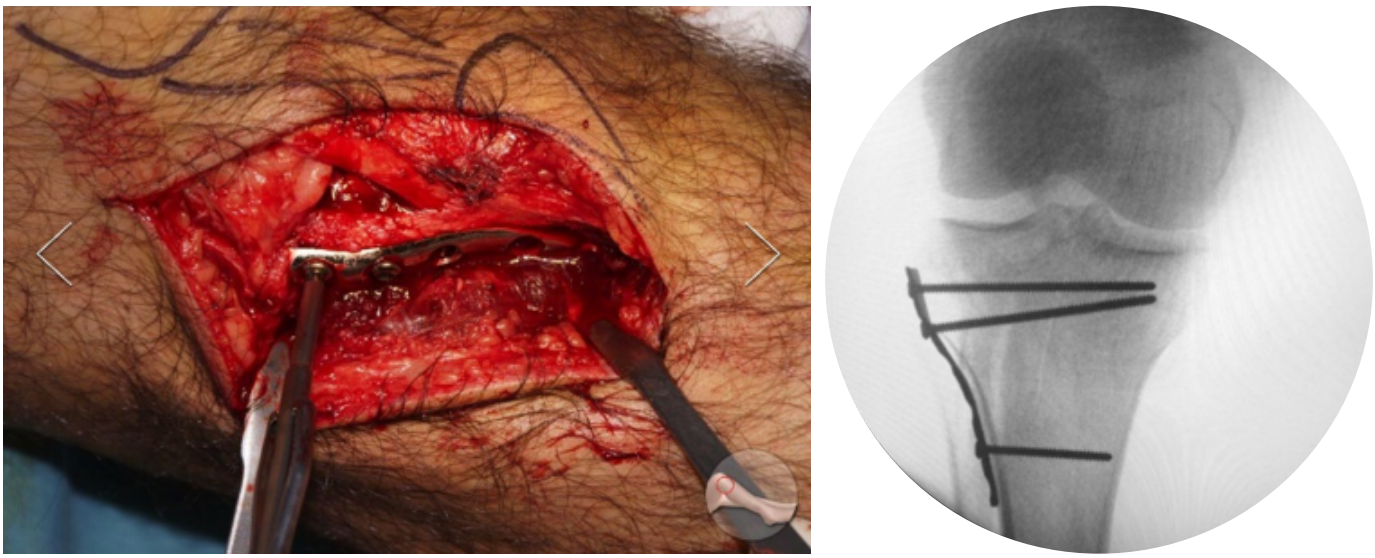


Fig. 3. No direct visualisation of comminution zone. Fixation with 1/3 tubular plate. Details of result difficult to evaluate with conventional X-ray.

Fig. 4. Post-operative CT shows important remaining impression zone.

Clinical relevance?

Indication for reoperation?

Long term risk?

Fig. 5. Radiological and functional result after 23 weeks.

Summary and remaining questions:

- Generous indication for CT in articular fractures is almost undisputed.
- Literature about “limits of acceptable imperfection” are scarce.
- ***what are the indications for post-operative CT?***
- ***does it help to compare surgical result with preoperative plan?***
- if there are differences between plan and result, balancing chances of success and risk of new surgery is difficult.

Further readings:

Giannoudis PV et Al.: Articular step-off and risk of post-traumatic osteoarthritis. Evidence today; Injury, 2010, 41.986-995. Hake ME, Goulet JA

Open reduction and Internal fixation of the posteromedial tibial plateau via ther Lobenhoffer approach. J Orthop Trauma 2016, suppl 2 35-36

Krause M, Müller G, Frosch KH. Surgical Approaches to tibial plateau fractures. Unfallchirurg, 2018, 121, 569-582

Marshall SC, Will the 3-Dimensional Classification of Tibial Plateau Fractures Be the New Standard?; JBJS, 2020,e2(1)

Marti RK et Al.: Correction of Tibial Plateau Depression and Valgus Malunion of the Proximal Tibia; Oper Orthop Traumatol, 2007; 19(1):101-13

Peters AC et Al.: The Effect of Articular Reduction after Fractures on Posttraumatic Degenerative Arthritis - A critical Analysis Review; JBJS Reviews, 2013, Vol.1 (2)

P. Regazzoni, S.M. Perren and A. Fernandez. Balancing Success and Risk in Orthopedic Trauma Surgery. Acta Chir Orthop Traumatol Cech. 2016, 83, 9-15

Singleton N, Sahakian V, Muir D. Outcome after tibial plateau fracture: How important is restoration of articular congruity? J Orthop Trauma, 20p17 , 31 , 158-163