The Pararectus Approach in the Treatment of Acetabular Fractures – is it Learnable?

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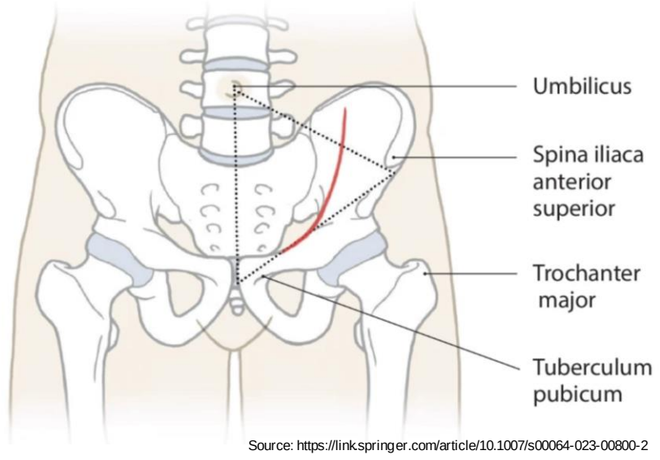
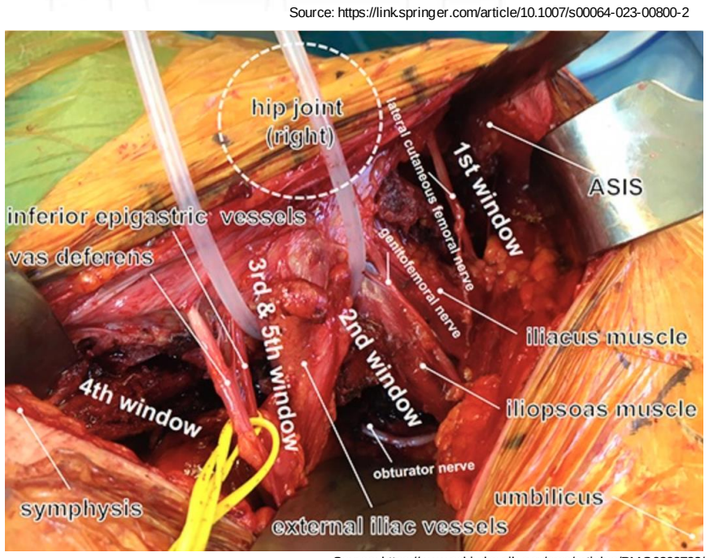
Background

The gold standard for the treatment of acetabular fractures has been the ilioinguinal approach that was first described in the 1950s by Judet and Letournel. The pattern of acetabular fractures has changed within the last decades, mostly due to the ageing population. The Pararectus approach is a less-invasive approach that enables optimal visualization of acetabular fractures with involvement of the quadrilateral plate, fractures of the anterior column and fractures with superomedial impression of the acetabular dome.

For the past 15 years the Pararectus approach has proven to be safe and reliable. So far, no study has been conducted regarding its learnability. The aim of this study is to compare the surgical results of the first 50 patients of the inventor (Surgeon 1, MJBK) with those of a lesser experienced surgeon (Surgeon 2, JDB).



Source: https://linkspringer.com/article/10.1007/s00064-023-00800-2



Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6292723/

Methods

Two sets of 50 patients with displaced acetabular fractures were treated by two different surgeons using the Pararectus approach. Operating time, intraoperative blood loss, intraoperative complications (vascular lesion, peritoneal lesion, screw misplacement), mortality rate and conversion rate to total hip arthroplasty within the first 2 years were assessed and compared between both surgeons.

Results

Variable	Surgeon 1 (MJBK)	Surgeon 2 (JDB)	P value
Sex (male (m)/female (f))	41 m, 9 f	43 m, 7 f	0,786
Age at trauma (years)	64,36	73,06	0,010
Age groups (<80 years, ≥80 years)	< 80: 37, > 80: 13	< 80: 32, > 80: 18	0,387
BMI (kg/m²)	25	24	0,107
ASA-Level	ASA-1: 6; ASA-2: 21; ASA-3: 16; ASA-4: 7	ASA-1: 4; ASA-2: 18; ASA-3: 21; ASA-4: 7	0,728
Abdominal pre-operation (with mesh)	8 (5)	11 (7)	0,799
Trauma high/low energy	27 low, 23 high	44 low, 6 high	0,0003
Fracture type (elementary/ associated)	8/42	8/42	1,000
Intraoperative complications	10 (4 vascular, 2 peritoneal lesions, 4 screw misplacments)	5 (1 vascular, 2 peritoneal lesions, 2 screw misplacements)	**< 0.05**
Blood loss (ml)	1492	1069	0,126
2-year-mortality rate	10%	24%	**< 0.05**
Conversion to THA (within 2 years)	13%	7%	0.472

Conclusion

Both surgeons were able to achieve very good surgical results with a safe surgical technique. The Pararectus approach is a learnable approach because the surgeon 2 achieved comparable results to the more experienced surgeon 1.

Limitations: The surgical technique was continuously evaluated and optimized by the inventor. Adaptations were already established at the beginning of JDBs independent activity.

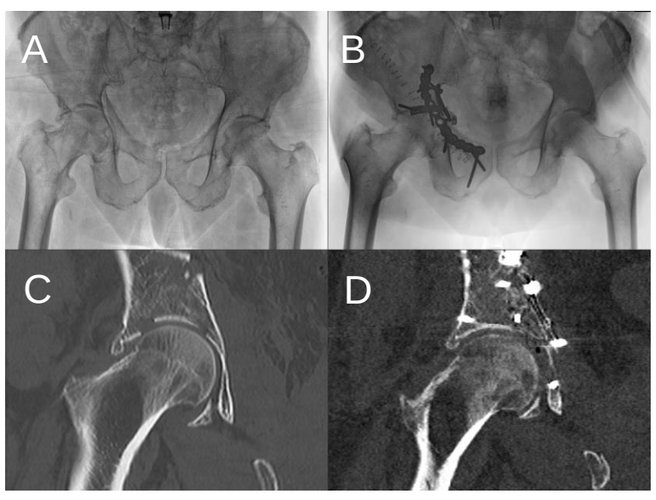


Fig. 3
Surgery performed by Surgeon 2 JDB (A) preoperative ap-radiograph; (B) postoperative ap-radiograph with desimpaction, allograft impaction and buttressing horizontal screws; (C) coronal section of the CT scan showing the dislocated acetabular fracture with dome impaction; (D) postoperative CT scan

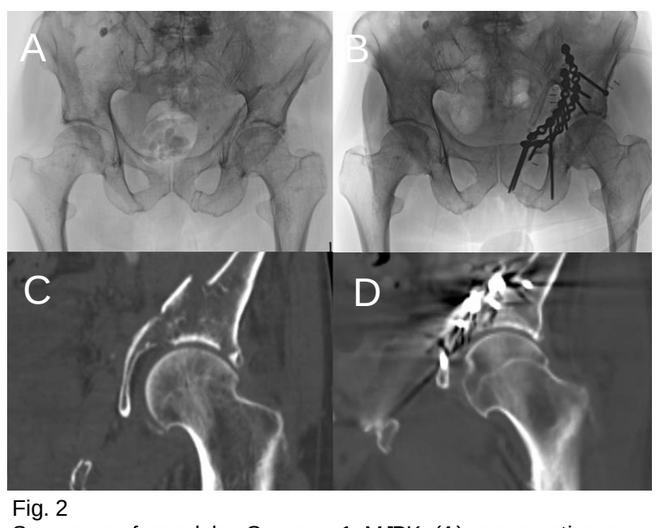


Fig. 2
Surgery performed by Surgeon 1 MJBK (A) preoperative ap-radiograph; (B) postoperative ap-radiograph with desimpaction, allograft impaction and buttressing horizontal screws; (C) coronal section of the CT scan showing the dislocated acetabular fracture with dome impaction; (D) postoperative CT scan