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= Abstract =

## Surgical Treatment of Displaced Acetabular Fractures

- focused on Complications after open reduction -

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Management of displaced fractures of the acetabulum represents one of the greatest challenges in fracture surgery. The results had been proved to be successful after anatomical reduction and stable internal fixation.

The purpose of this study is to analyze the clinical results and complications of open reduction of the displaced acetabular fractures to minimize the complications, and to present suggestions for the treatment of these fractures.

We reviewed our experience with 23 displaced acetabular fractures which had been treated by open reduction to evaluate the clinical results and complications.

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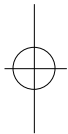
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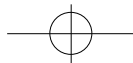
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The results were as follows;

1. The most common type of elementary fractures was posterior wall fractures according to Letournel's classification.
2. Excellent or good results were obtained in 88% among the satisfactory reduction group, and it means that accurate reduction was the most reliable factors contributing to successful clinical outcomes.
3. Complications were 1 deep infection, 2 ectopic bone formation, 1 intraarticular hardware, and 1 chondrolysis.
4. In the treatment of displaced acetabular fractures, careful initial assessment using radiograph, angiogram and 3-D CT, appropriate selection of surgical approach and accurate surgical technique for the stable internal fixation should be undertaken and these would improve clinical outcome and minimize the complication rate.

**Key Words :** displaced acetabular fracture, open reduction, complication

가 , 1 1 3 5  
1 9 .  
1.  
가 23 가 21 , 가 2 ,  
34 20 40 가 17 74%  
가 ,  
가 가 2.  
가 (concentric reduction) 18 가  
11 ,  
4 , 3 ,  
1993 9 1 , 1  
1996 12 가 3 .  
1 가가 23 3.  
Letournel 11)  
(elementary fracture) 14 , (associated  
fracture) 9 11  
가 3 ,  
1 가가 23 3 (Table 1).

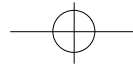


Table 1. Fracture Type \*

Elementary fracture	14
posterior wall	11
posterior column	1
anterior column	1
transverse	4
Associate fracture	9
T shape	2
posterior column with posterior wall	1
transverse with posterior wall	3
both column	3

\* Judet and Letournel, 1964

4.

7.4 (range, 0-20 ) 가

9 (39%)

Kocher-Langenbeck 17 , ilioinguinal  
 1 , iliofemoral 2 , extended iliofemoral  
 2 , posterior transtrochanteric 1  
 (Table 2).<sup>18)</sup> 3mm  
 가 가 ,  
 가  
 (Concentric reduction) roof arc

가<sup>21)</sup>

Table 2. Surgical approaches

Surgical approach	No.
Kocher-Langenbeck	17
Ilioinguinal	1
Iliofofemoral	2
Extended iliofemoral	2
Transtrochanteric	1
Total	23

16) 1mm  
 가 9 , 1-3mm  
 8 , 3mm 가  
 6 (Table 3). Matta가  
 d 'Aubigne Postel<sup>18)</sup>  
 3mm  
 6 가 , 9  
 3mm  
 , 2  
 가 6 4  
 가  
 .  
 1 , 2 , 1  
 1 가 (Table

4).

Table 3. Reduction (Residual Displacement)

Residual Displacement	No.
Anatomic ( < 1 mm)	9
Satisfactory (1 - 3 mm)	8
Unsatisfactory ( > 3 mm)	6
Total	23

Table 4. Complications

Complication	No.
Deep infection and osteomyelitis	1
Ectopic bone formation	2
Chondrolysis	1
Intraarticular hardware	1
Total	5

1  
 35  
 Langenbeck

Kocher-

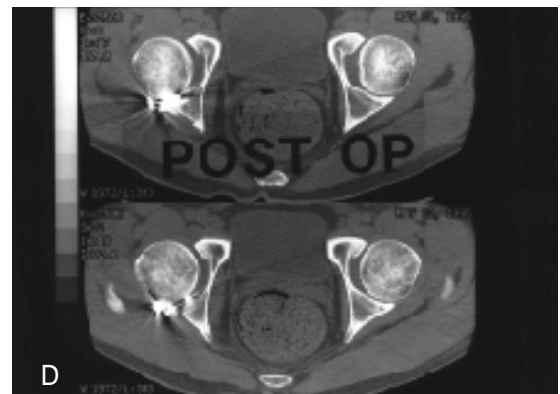
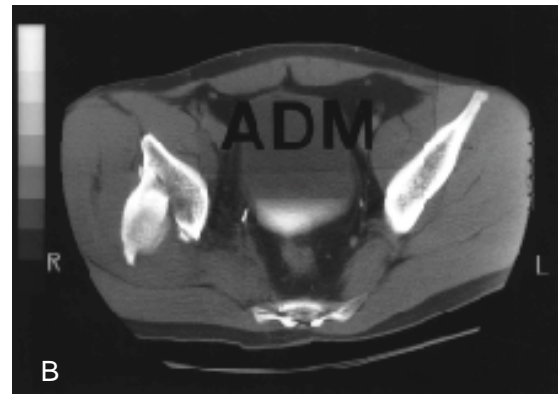
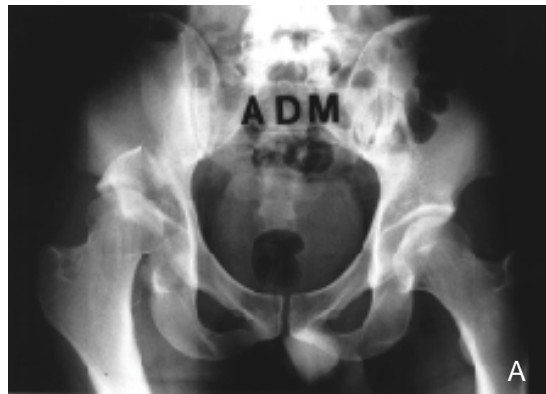
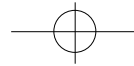


Fig 1-A,B. AP pelvis radiograph and CT scan showing transverse and posterior wall fracture in a 35 year-old man.  
C,D. Postoperative radiograph and CT scan showing subluxation of femoral head and intraarticular placement of screw on right hip joint.  
E. AP pelvis radiograph 11 months postoperatively showing a normal joint except a screw loosening with good functional result.

(Fig 1-A,B,C,D,E).

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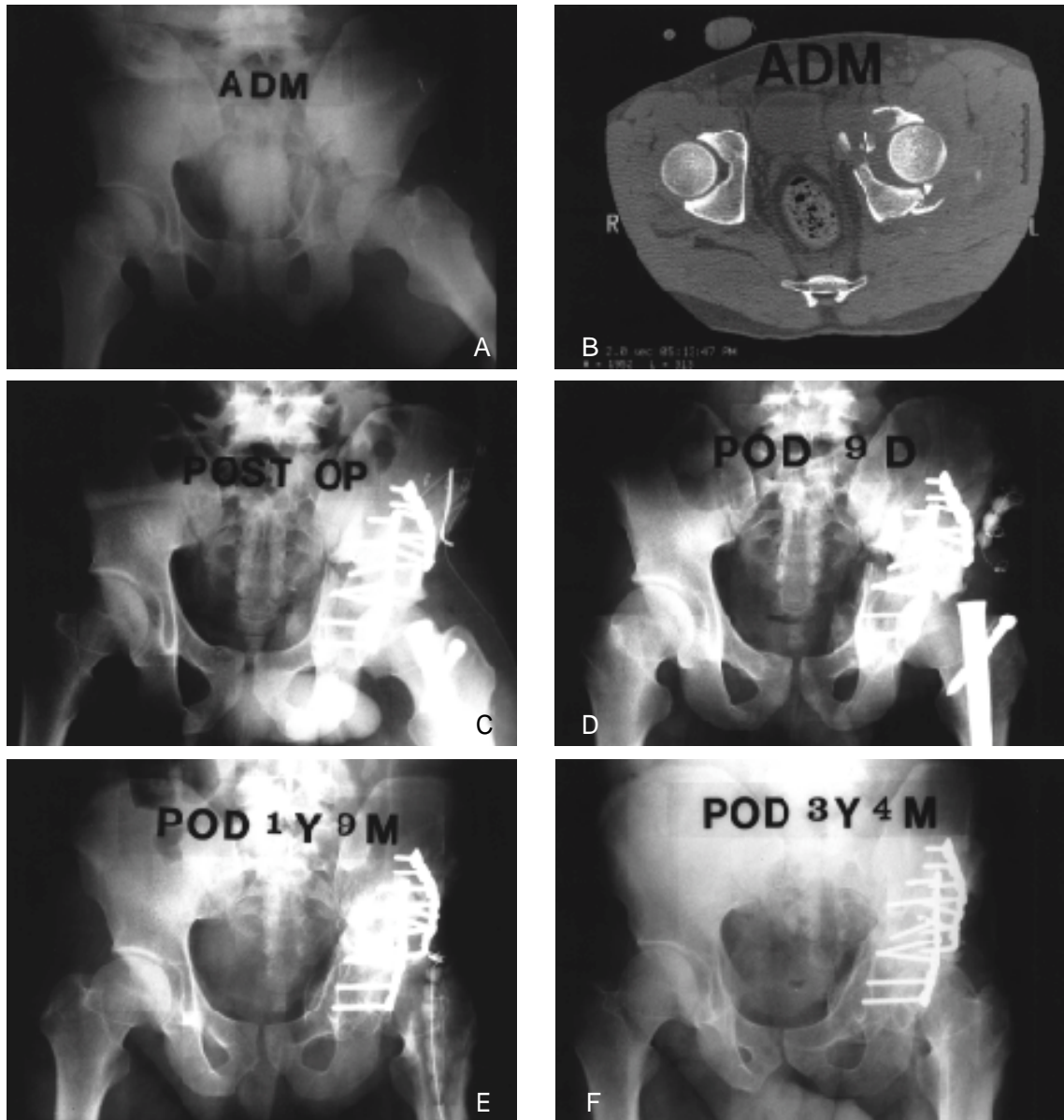
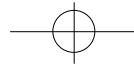
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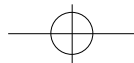
(both column fracture)

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**Fig 2-A,B.** AP pelvis radiograph and CT scan showing both column fracture in a 24 year-old man who had multiple fractures.

- C. Open reduction and internal fixation was performed through extended iliofemoral approach.
- D. Radiograph at postoperative 9 days showing deep infection, which was treated by debridement with antibiotics-impregnated cemented bead insertion.
- E. Radiograph at postoperative 1 year 9 months showing osteomyelitis of the femur which was treated by same procedure.
- F. AP pelvis radiograph 3 years 4moths postoperatively showing ectopic bone formation. The functional result was fair.



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10 extended Kocher-

Iliofemoral Langenbeck

9 antibiotics-impregnated cemented bead 12

1 1

1 9 (Fig 3-A,B,C).

acrylic cement 4

2 4

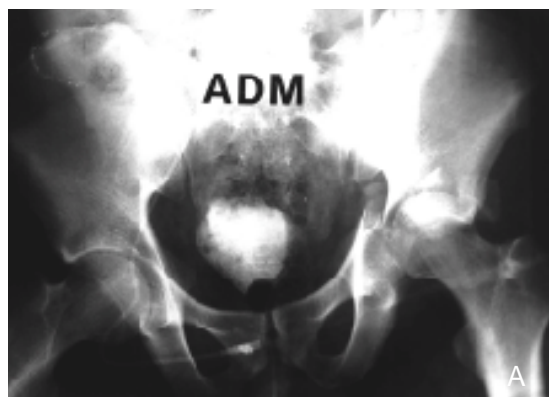
(Fig 2-A,B,C,D,E,F).

24

(both column fracture)

3 transtrochanteric

23 1 Hamilton screw



**Fig 3-A.** AP pelvis radiograph showing a transverse & posterior wall fracture in a 23 year-old man.

**B.** Radiograph at postoperative 1 year showing a chondrolysis with arthritis of right hip joint after open reduction through a Kocher-Langenbeck approach. He complained severe hip joint pain.

**C.** Total hip arthroplasty was performed 14 month postoperatively.

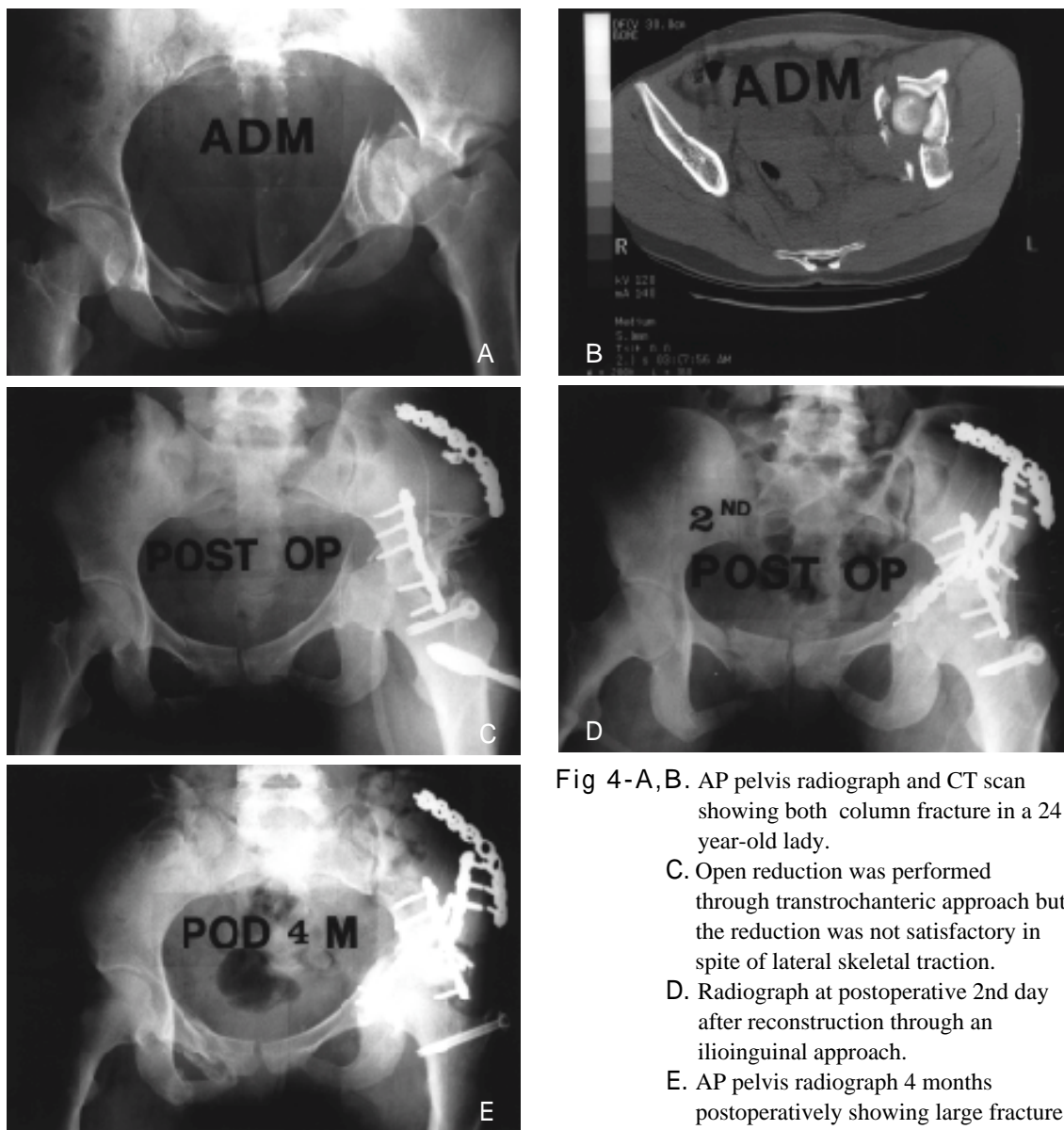


Fig 4-A,B. AP pelvis radiograph and CT scan showing both column fracture in a 24 year-old lady.

- C. Open reduction was performed through transtrochanteric approach but the reduction was not satisfactory in spite of lateral skeletal traction.
- D. Radiograph at postoperative 2nd day after reconstruction through an ilioinguinal approach.
- E. AP pelvis radiograph 4 months postoperatively showing large fracture gap with poor concentric reduction.

ilioinguinal

(Fig 4-A,B,C,D,E).

2

5mm

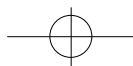
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Matta<sup>14)</sup>

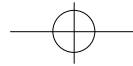




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