

13, 1, 2000 1

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3D CT

. . .

< >

:

CT

CT

3

: 1994 7 1998 12

92

40

, inlet and

outlet view
3mm

CT
3D

GE HSA(General Electrics High Speed Advantage) CT
가

CT

Letournel

: 40

32

3D

12

가

3D

. 9

3D

5

T

3

6

, 3

2

8

3D

: 3

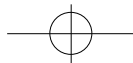
: , 3D-CT

: Poong-Taek Kim
50 Samdok-2Ga, Chung-Gu, Taegu, 700-721, Korea
Kyungpook National University Hospital
Department of Orthopedic Surgery
Tel : (053) 420-5632
Fax : (053) 422-6605

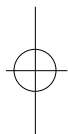
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43





1 12
가
, CT
Letoume¹⁷⁾
Judet⁵⁾
, inlet and outlet view
40 32
3D
(posterior wall) 12 가
3D
(both column) 9 가
CT
(quadrilateral plate)
(posterior wall) (hip joint
congruity) (sacroiliac joint)
1). T 5 3D CT (Fig.
(quadrilateral plate)
T
(Fig. 2).
3
6
3
(anterior wall
and posterior hemitransverse fracture)
(Fig. 3).
8 3D
3D
axial CT
1994 7 1998 12
92 40
outlet view CT 3D
CT GE HSA(General Electrics High
Speed Advantage, USA) CT 3mm
45-55 slices
3D



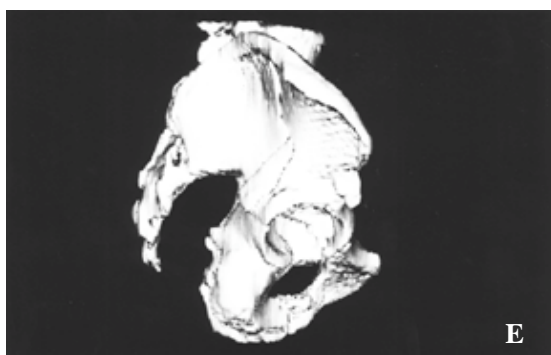
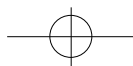


Fig 1. Both column acetabular fracture of right side

A. AP view that shows fracture line in anterior column.

B. Iliac oblique view. The iliac wing fracture extended into the posterior column of the acetabulum.

C. Obturator foramen view that shows disruption of the iliopectineal line and spur sign.

D. Posterior 3D image that clearly shows fracture lines in posterior column.

E. Acetabular lateral images. The shape of the fracture line and relationship of the major bony fragments are particularly well seen on the 3D CT images.

Judet

45 °

Scott ¹⁰⁾

70%(36/45)

50%(21/45)

Lasda ⁶⁾

⁴⁾ Mark ⁸⁾

(S-I joint),
(superior dome),

Burk ²⁾ 30 °

CT가

. CT

Harley

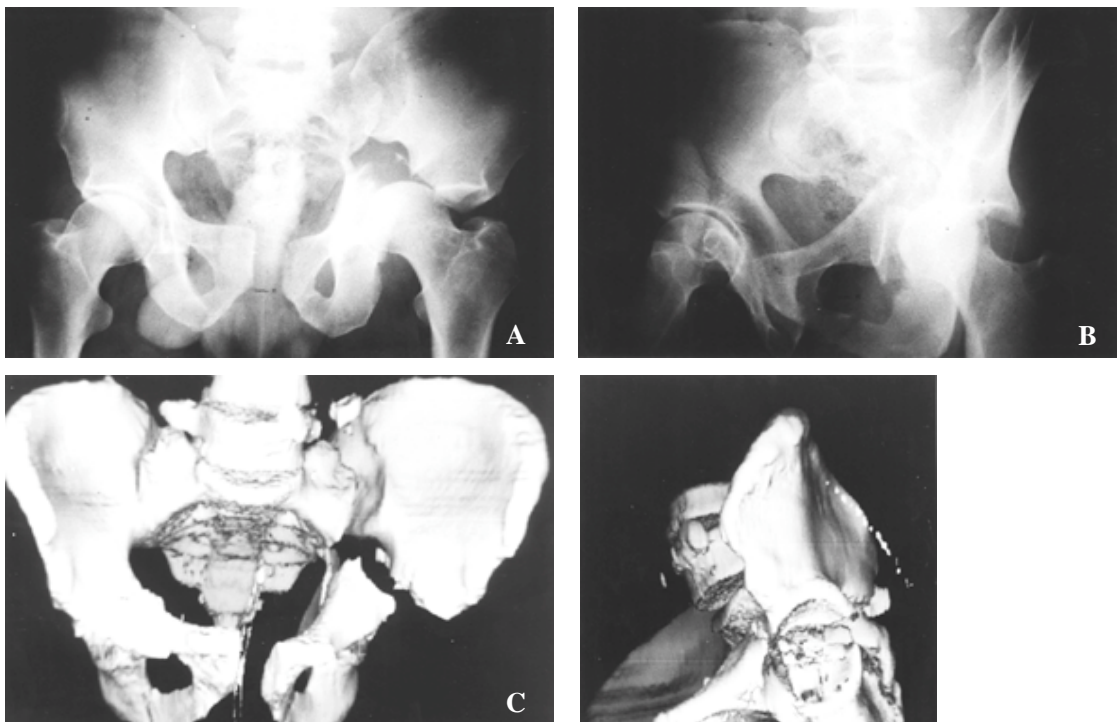


Fig 2. Displaced T-shaped fracture

- A.** AP view. The displaced fracture through both column is easily appreciated. Vertical component of the fracture is not demonstrated.
- B.** Obturator foramen view that shows vertical fracture line.
- C.** Anterior 3D image. The displaced fracture line and vertical fracture line in quadrilateral plate are well demonstrated.
- D.** Acetabular lateral image with femoral head removed. The vertical component characteristic of a T-shaped fracture is well demonstrated.

CT (image)

CT

3

2

3D CT

3D

3D CT
2mm

White¹²⁾

Totty Vannier¹¹⁾

Burk¹⁾ Pozzi Mucelli⁹⁾

.3D CT

Guy³⁾

CT scan

axial

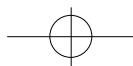


Fig 3. Anterior wall and posterior hemitransverse fracture

A. AP view. An segment of the iliopectineal line is driven by the anterior displaced femoral head.

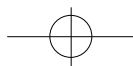
B. Obturator foramen view that shows anterior wall fragment.

C. Acetabular lateral image with femoral head removed. The displaced anterior wall fragment and posterior hemitransverse fracture is well demonstrated.

CT 40 3D CT 3D

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Abstract

Three-Dimensional Computed Tomography of Acetabular Fractures

**Poong-Taek Kim, M.D., Joo-Chul Ihn, M.D.,
Chang-Wug Oh, M.D., Seung-Hoon Oh, M.D.**

*Department of Orthopedic Surgery, College of Medicine
Kyungpook National University, Taegu, Korea.*

Purpose : In the evaluation of acetabular fractures, conventional radiography is limited by distortion, magnification, and overlap of fracture fragments. Computed tomography(CT) has already been shown to be superior in this field. The purpose of this paper was to use 3D reformations for classification of acetabular fractures and planning of operation.

Materials and Methods : From July 1994 to December 1998, we reviewed 40 acetabular fractures. We evaluated fractures as plain X-ray(inlet & outlet view, AP view, obturator foramen & iliac wing view), axial CT with 3 mm slices, and 3D reformations. We classified fractures by classification of Letournel.

Results : 32 cases of 40 cases were displaced fractures, We recognized fracture easily in 3D reformations. 12 cases were posterior wall fracture. 9 cases were both column fractures. We interpreted both column fractures difficultly in plain X-ray, but we had many informations about rotation & displacement of fracture fragment by 3D reformations. Undisplaced fracture was 8 cases. We interpreted undisplaced fracture difficultly in 3D reformations and distinguished difficultly from normal 3D reformations.

Conclusion : 3D reformations were useful for analysis of complex displaced fracture but not useful for analysis of undisplaced fracture. Acetabular internal oblique view was useful for analysis of quadrilateral space & posterior wall fractures. Acetabular external view was useful for decision of surgical approach.

Key Words : Acetabulum, fracture, computed tomography, three-dimensional