Clinical History:

Our patient sustained an injury to his right groin. Although his plain radiographs of the pelvis and hip did not reveal any obvious fractures, clinically there was a suspicion of a fracture. He underwent a Multiplanar CT scan, which helped in diagnosing and characterising the acetabular fracture.

Imaging Findings:

A 32-year-old male patient who was involved in a road traffic accident was brought to the emergency department. He was the (lap seat belt) back seat passenger when the car had a frontal collision with another car. He sustained a minor head injury and was complaining about pain in the right groin region and over the right iliac crest. Plain radiographs of the pelvis (AP) and right hip (lateral) did not show any obvious fractures.

The patient however was unable to bear weight and had persistent pain in the groin while movement of his hip joint. He underwent a CT scan of the pelvis, which showed a minimally displaced fracture affecting the posterior column of the right acetabulum. He was treated conservatively and had further radiographs including the AP and Judet (oblique) views, which did not show any further displacement of the fracture fragments. He was subsequently discharged for an outpatient follow up.

Discussion:

For the purpose of classification of fracture patterns, the acetabulum is divided into an anterior and posterior column. The anterior column comprises the anterior border of the iliac wing, the entire pelvic brim, the anterior wall and the superior pubic ramus. The posterior column comprises the greater and lower sciatic notches, the ischial tuberosity, the posterior wall, and the entire retroacetabular surface.

According to Judet and Letournel classification [1] and column theory, acetabular fractures are classified into simple and complex patterns.

The 5 simple patterns are the following: (account for 20% of acetabular fractures)
1. Posterior wall fractures - posterior wall fractures always involve posterior articular surfaces, often accompanied by a portion of the retroacetabular surface and sometimes the entire surface. The ilioischial line remains intact.
2. Posterior column fractures - bony strut running from PSIS to inferior pubic ramus, and includes the posterior wall. It involves not only the posterior articular surfaces, but also the ilioischial line.
3. Anterior wall fractures.
4. Anterior column fractures - bony strut running from ASIS to superior pubic ramus, and includes anterior wall. The iliopubic line is involved.
5. Transverse acetabular fractures - involve both anterior and posterior acetabulum: dividing the innominate bone into superior segment containing acetabular roof and intact ilium, and inferior segment consisting of single ischiopubic fragment.

The 5 complex patterns are combinations of the simple patterns: (account for 80% of acetabular fractures)
1. Posterior column with a posterior wall fracture
2. Transverse with a posterior wall fracture
segment into the anterior and posterior columns.
4. Anterior column with a posterior hemitransverse fracture
5. Both-column fracture - all segments of the articular surface are detached from the ilium.

Acetabular fractures must be classified before an appropriate surgical approach can be chosen. Because the Letournel scheme is an anatomic classification, acetabular fracture classification easily follows the radiographic assessment. Such assessment must include AP and Judet views (internal (obturator) oblique and external (iliac) oblique views). CT scans with coronal and sagittal reconstruction are useful in defining the morphologic characteristics of acetabular disruption [2].

Some studies [3] have revealed that MR imaging of acetabular fractures can be used to detect subclinical injury of the sciatic nerve and occult injuries of the femoral head not readily apparent on CT scans. However, intraarticular fragments may be obscured.

**Differential Diagnosis List:** Displaced fracture affecting the posterior column of the right acetabulum

**Final Diagnosis:** Displaced fracture affecting the posterior column of the right acetabulum

**References:**

Description: Lateral hip radiograph. No obvious fractures noted. Origin:
Description: Selected axial images from superior to inferior aspect showing a posterior column fracture.
Origin:
**Figure 3**

**a**

Description: Selected coronal images from anterior to posterior aspect showing a minimally displaced fracture of the posterior column. Origin:

**b**

Description: Origin:
Description: AP radiograph not showing any displacement of the fracture fragment Origin:
Description: Obturator (internal) oblique view showing no further displacement of the fracture fragments. Origin:
Description: Iliac (external) oblique view showing no further displacement of the fracture fragments.
Origin: