

# Luxatio erecta of the hip in a 64-year-old man: a case report

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## Case report

In March 2021, a 64-year-old man who was injured in a fall was brought to our emergency department. He had lost his balance and fallen while harvesting avocados from a tree. He reported severe right hip and right lateral chest pain and was unable to move his right hip. His vital signs were unremarkable. He held his right hip in flexion and abduction (Fig 1a). The limb was neurologically intact and good distal arterial pulses were present. Plain anteroposterior radiograph of the pelvis revealed an inferior dislocation of the femoral head (Fig 1b).

Computed tomography (CT) scan of the chest (not shown) revealed an ipsilateral nondisplaced rib (8-10) and scapular spine fractures. A CT scan of the

pelvis (Fig 2) demonstrated an empty acetabulum with no associated fractures. Later, the patient was brought to the operating theatre and 0.5 mg/kg propofol and 0.5 µg/kg remifentanyl administered intravenously for the first 90 s. Thereafter, further doses of both propofol 0.25 mg/kg and remifentanyl 0.25 µg/kg were administered. After 3 to 4 minutes the patient was adequately sedated and pain-free.

The dislocation was reduced under sedation and fluoroscopy by manual traction in the line of deformity, initially followed by adduction of the femur, resulting in an uneventful reduction (Video 1). Fluoroscopy confirmed that the hip range of motion was safe after reduction; the hip was safe at 90° of flexion, 20° of adduction, 30° of abduction, and 30° of internal or external rotation.

After clinic follow-up the next day, the patient was discharged home and advised to remain on bed rest for 3 weeks, and to use a walker (with toe-touch weight-bearing) solely for going to the toilet.

To prevent heterotopic bone formation and thromboprophylaxis, 25-mg indomethacin orally 3 times daily and 0.4-mL enoxaparin sodium daily were prescribed for the first 2 weeks after surgery. The use of indomethacin for prophylaxis is well documented in the literature and its use to prevent heterotopic ossification following treatment for posterior hip dislocation with acetabular fractures has been reported by Mitsionis et al.<sup>1</sup> Deep venous thrombosis has rarely been reported after an isolated hip dislocation.<sup>1</sup> Nevertheless, indomethacin for prophylaxis was prescribed to our patient in view of the need for prolonged bed rest and his relatively advanced age.

At follow-up examination 3 weeks after reduction, the patient was able to bear weight with a mildly antalgic gait (Video 2). The observed antalgic gait prompted us to be more conservative so the patient was advised to avoid strenuous activity and to use crutches with partial weight-bearing. At the same visit, a post-reduction radiograph and CT scan was performed to rule out chip or flake fractures of the femoral head or acetabulum during reduction; if hip pain persists, a magnetic resonance imaging scan can be performed to look for evidence of a labral tear. No associated acetabular or femoral head fracture was observed (Fig 3). The patient will continue to

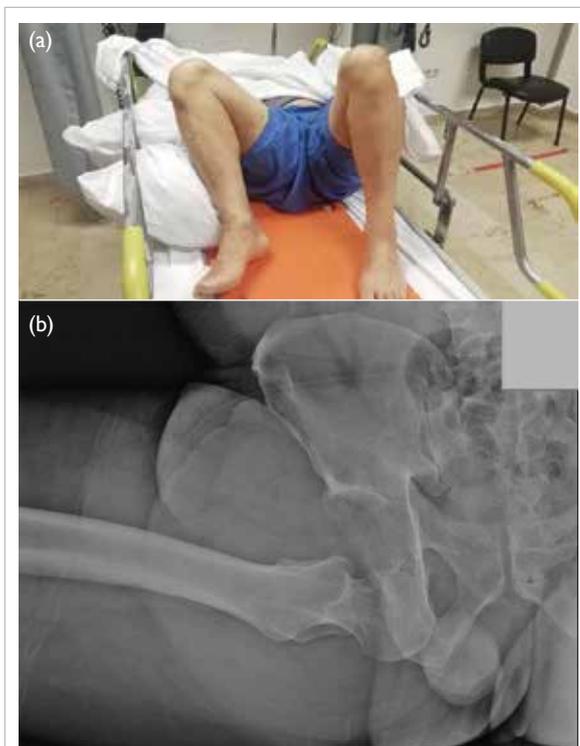


FIG 1. (a) Clinical photograph showing the patient with right hip in flexion and abduction. This position of the lower limb is typical luxatio erecta of the hip (inferior dislocation of the hip). (b) Plain anteroposterior radiograph of the pelvis taken before reduction showing the femoral head dislocated inferiorly

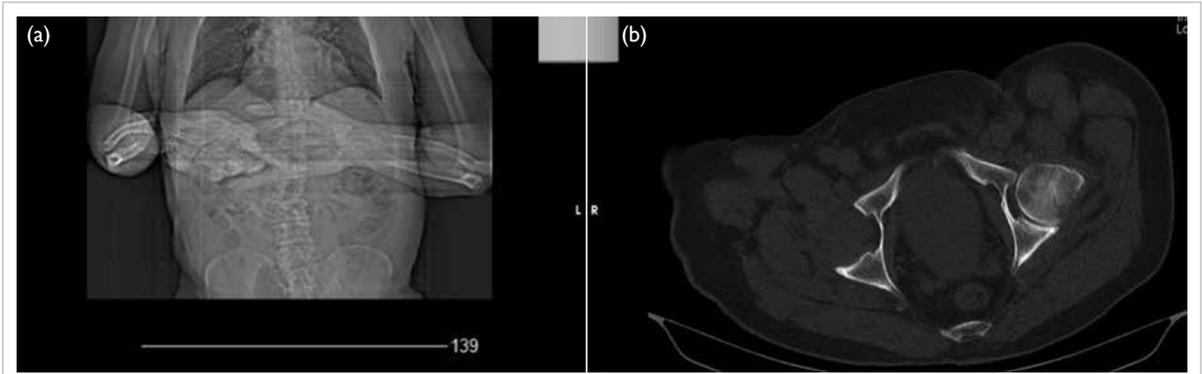


FIG 2. (a) Coronal and (b) axial computed tomography scans showing the empty acetabulum without associated fracture. Because the patient could not bring his hip into adduction, it was not possible to obtain an image at the level of the dislocation



FIG 3. Follow-up examination at 3 weeks after reduction of the hip dislocation. (a, b) Plain anteroposterior radiographs of the pelvis showing concentric reduction without concomitant acetabular or femoral head fracture. (c) Coronal and (d) axial computed tomography scans showing no associated acetabular or femoral head fracture

be monitored for a year for possible aseptic necrosis and myositis ossificans.

### Discussion

There are two types of inferior hip dislocation: obturator and ischial. Parvaresh et al<sup>2</sup> analysed acetabular development and concluded that between

the ages of 12 and 16, the three ossification centres and triradiate cartilage are ossified in both sexes. It is realistic then to consider it an adult hip if the patient is >16 years.<sup>2</sup> Few cases of inferior (ischial type) hip dislocation have been reported. We reviewed the English-language literature search and found only five reported cases of inferior hip dislocation in adult patients (age >16 years).<sup>3-7</sup> Among them, our

patient is the oldest case reported with uneventful reduction.

Traumatic hip dislocation can cause complications that include avascular necrosis (6%-27% for early closed reduction), post-traumatic osteoarthritis (17%-48%), heterotopic ossification (up to 32%),<sup>1,8</sup> and sciatic nerve injury (approximately 10%).<sup>9</sup> To avoid complications, early and uneventful reduction is critical. In our patient, reduction was achieved within 2 hours of initial presentation. Our patient may be the only case documented with radiographic imaging performed before and after the reduction (including CT) and video of the reduction manoeuvre and a clinical video of the patient (demonstrating the patient walking in the third week after the reduction).

Brogdon and Woolridge<sup>10</sup> described the mechanism of ischial and obturator injury. In the ischial type, the person falls on the trunk with the hip flexed and lands on the flexed knee. The accumulated force from further flexion of the upper trunk and body weight may create the momentum to push the femoral head inferiorly through the shallow and relatively rimless inferior margin of the acetabulum. Treatment consists of closed reduction under sedation or general anaesthesia with axial traction, together with gradual extension of the femur with additional internal rotation manoeuvres.<sup>9</sup>

The common obturator type of dislocation occurs when the femur is physically abducted and twisted outwards when the patient slips or when another force is applied. If the forcible abduction and external rotation continue with flexion against the pelvis, the femur is levered anteriorly out of the acetabulum. Treatment comprises closed reduction under sedation/general anaesthesia with longitudinal traction in the direction of the femoral axis and gentle adduction and flexion of the hip with additional internal rotation manoeuvres.<sup>10</sup>

There is a strong consensus in the literature that CT examination be performed prior to reduction to assess a probable acetabular wall fracture or head split fracture of the femoral head.<sup>8</sup> In the present case, we could not complete all markings on the CT scan because the abducted hip automatically blocked the CT platform. Fortunately, we evaluated the anterior and posterior acetabular walls and confirmed no remnants in the acetabular fossa nor any fractures on the acetabular walls. Based on the reduction and stability confirmed by physical examination after the reduction, radiographic examination after reduction and CT was postponed until 3 weeks after reduction, when the patient was allowed to fully weight bear for the first time.

Inferior hip dislocation is rare and can be successfully treated with closed reduction.

Orthopaedic surgeons must be able to diagnose and optimally treat this type of dislocation. This report and videos serve as a teaching tool for this reduction manoeuvre.

### Author contributions

Concept or design: Both authors.

Acquisition of data: Both authors.

Analysis or interpretation of data: Both Gokkus.

Drafting of the manuscript: K Gokkus.

Critical revision of the manuscript for important intellectual content: All authors.

Both authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

### Conflicts of interest

Both authors have no conflicts of interest to disclose.

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### Ethics approval

The patient was treated according to the principles of the Declaration of Helsinki. The patient provided informed consent for all treatments, procedures, and consent for publication.

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