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Inferior hip dislocation after falling from height: A case report



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ABSTRACT

INTRODUCTION: Traumatic inferior hip dislocation is the least common of all hip dislocations. Adult inferior hip dislocations usually occur after high-energy trauma, very few cases are reported without fracture.

PRESENTATION OF CASE: A 26-year-old female was brought to the emergency department with severe pain in the left hip, impaired posture and restricted movement following a fall from 15 m height. The hip joint was fixed in 90° flexion, 15° abduction, and 20° external rotation. No neurovascular impairment was determined. On radiologic examination, a left ischial type inferior hip dislocation was detected. Hemorrhagic shock which developed due to acute blood loss to thoracic and abdominal cavity and patient died at third hour after she was brought to the hospital.

DISCUSSION: Traumatic hip dislocations have high morbidity and mortality rates due to multiple organ damage, primarily of the extremities, chest and abdomen. In the treatment of traumatic hip dislocation, closed reduction is recommended through muscle relaxation under general anesthesia or sedation. This procedure should be applied before any intervention for concomitant extremity injuries. A detailed evaluation on emergency presentation, a multi-disciplinary approach and early diagnosis with the rapid application of imaging methods could be life-saving for such patients.

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1. Introduction

The hip joint is inherently stable via configuration of bony structure and the strong ligaments that surround it and a large amount of force is needed for dislocation of hip joint [1,2].

Traumatic inferior hip dislocation is the least frequently seen of all hip dislocations and is generally an injury of the adults. In literature, it has been reported to occur generally following high-energy trauma and commonly seen with a concomitant femoral head or neck fracture [3,4].

This is a case of a 26-year-old female with a traumatic isolated inferior hip dislocation that is reported in line with the CARE criteria [5]. Even if there's no concomitant lower extremity injury and need for surgical treatment, the situation may be life-threatening despite early diagnosis and intervention.

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2. Case report

A 26-year-old female was brought to the emergency department with severe pain in the left hip, impaired posture and restricted movement following a fall from 15 m height. On the initial examination of patient, severe tenderness was determined in the thoracic and abdominal region with a superficial respiration. The hip joint was fixed in 90° flexion, 15° abduction, and 20° external rotation. No neurovascular impairment was determined. There was also tenderness and restricted motion in her right wrist. Glasgow coma score was 12 and injury severity score was 25.

After the first intervention of patient, achieving the vascular access, patient was redirected to radiological examination. In the X-rays, multiple fractures were observed in the distal end of the right radius, right clavicle, ribs (6–12 in the right side and 10–12 on left side) and inferior dislocation of the left hip (Fig. 1). Abdominal ultrasonography did not reveal any particular pathology in solid organs. In the whole body CT scans, multiple rib fractures, haemopneumothorax in the right lung, pneumothorax in the left lung, fractures in the right transverse process of the thoracal 4–6 vertebrae and bilateral transverse process fractures between in the thoracal 12th and lumbar 3rd vertebrae, contusion in the retroperitoneal renal bed and left inferior hip dislocation were detected (Fig. 2). In emergency room, tube thoracostomy was performed for the haemopneumothorax and closed reduction was applied to the



Fig. 1. Direct radiography of the dislocated left hip: AP view.



Fig. 2. CT images of the dislocated left hip.



Fig. 3. Direct radiography of the left hip after closed reduction.

left hip joint under sedo-analgesia. Close reduction achieved by axial traction followed by longitudinal traction while the patient was lying in supine position (Figs. 3 and 4). For the right distal radius fracture, a splint was applied.

After emergency interventions, the patient was transferred to the intensive care unit (ICU). During hourly monitoring of

haemoglobin level, a decrease was observed in the 1st hour to 3 g/dL. Despite massive transfusion, in the 3rd hour after admission to hospital, the patient was accepted as exitus due to hemorrhagic shock which developed due to acute blood loss to thoracic and abdominal cavity.

3. Discussion

Hip dislocation often occurs with high-energy trauma, since the hip joint is stabilised by surrounding thick, strong muscles and ligaments [1,2,6]. There are two distinct mechanisms of injury in an inferior dislocation [7]. Dislocation could be resulted from a high-fall, leading to an axial load to the femur in a flexed position or from an injury that forces the hip into wide abduction [7]. Secondly, the force that is applied to an abducted thigh, in flexed and externally rotated hip drives the femoral head out of the acetabulum [7].

Posterior dislocations in the hip region are seen more often than anterior dislocations. Traumatic anterior dislocations, which account for 15% of all hip dislocations are rarely reported in the literature. Inferior hip dislocation is a sub-group of anterior dislocation [8,9]. There are two types of inferior hip dislocation; the ischial type and the obturator type [7]. In the obturator type, when a force is applied to femur while the hip joint is in abduction and flexion, the femoral head dislocates anteriorly and inferiorly to the obturator foramen. In the ischial type, a force is applied to femur while hip and knee joints are in hyperflexion without abduction or external rotation. The femoral head dislocates inferiorly next to the ischium. The ischial type is more common than the obturator type [4].

In the treatment of traumatic hip luxation, closed reduction is recommended through muscle relaxation under general anesthesia or sedation. This procedure should be applied before any intervention for concomitant extremity injuries [10,11]. Concomitant intertrochanteric and femoral neck fractures could also be seen and these fractures should be treated after reduction of the hip joint [10].

Traumatic hip injuries have high morbidity and mortality rates due to multiple organ damage, primarily of the extremities, chest and abdomen [1,12,13]. In our case, the situation was life-threatening due to the additional vital organ injuries sustained in the severe high energy trauma. A detailed evaluation on emergency

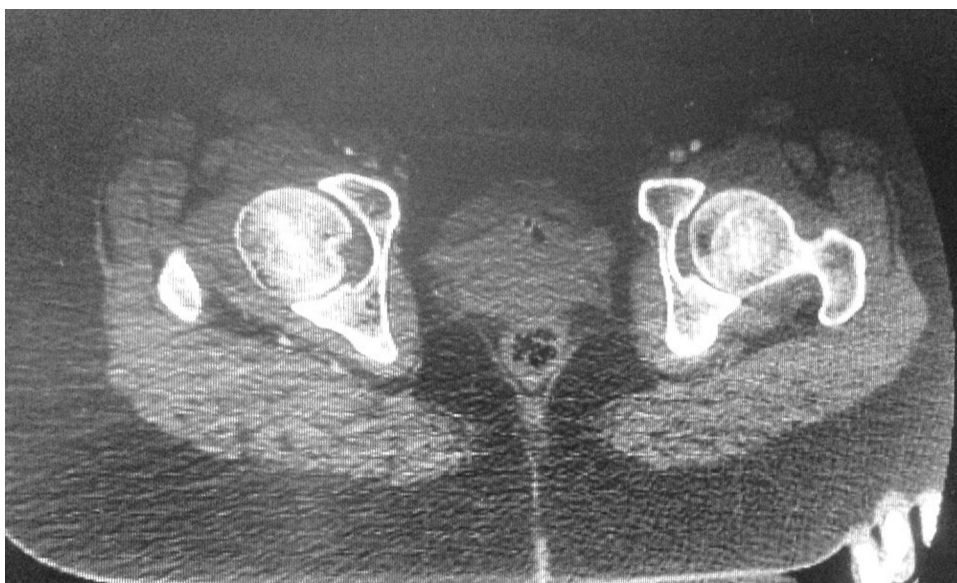


Fig. 4. Axial CT image of the left hip after reduction.

presentation, a multi-disciplinary approach and early diagnosis with rapid diagnostic imaging modalities could be life-saving for such patients.

4. Conclusion

Inferior hip dislocations are very rarely seen injuries with severe high energy trauma. Concomitant extremity fractures with additional vital organ injuries may lead to life-threatening condition. A detailed evaluation on emergency presentation, a multi-disciplinary approach and early diagnosis with the rapid application of imaging tools could be life-saving for such patients.

Conflict of interest

None.

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Nothing to declare.

Ethical approval

None.

Consent

Written informed consent was obtained from the patient's first degree relatives for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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