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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2026, 43(6):864

Surgery Quiz – Case 62

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A 55-year-old man presented to the emergency department after a motor vehicle crash. His vital signs were blood pressure 135/75 mmHg, heart rate 88 bpm, oxygen saturation 98%, and Glasgow Coma Scale 15/15. The patient reported severe pain with every movement. Clinical examination revealed bruising and swelling over the pelvic region. The pelvic X-ray findings were pathognomonic. The image was the following (fig. 1).

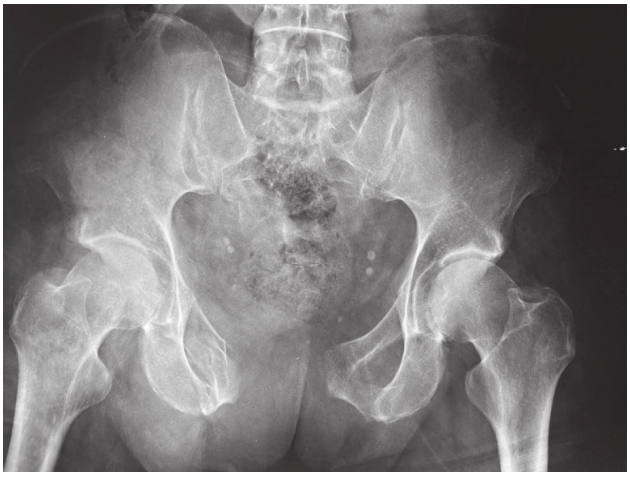

Figure 1

Comment

An open-book fracture is a severe pelvic ring injury in which the two halves of the pelvis are forced apart anteriorly at the pubic symphysis and posteriorly at the sacroiliac joints, resembling the opening of a book. Pelvic fractures account for approximately 3% of all fractures but are associated with significant mortality, reported at approximately 10.4% in unstable patients.[2] This mechanism of injury typically results from high-energy trauma such as motor vehicle collisions, motorcycle accidents, or high-impact falls, where an anteroposterior compression force is applied to the pelvis.

According to the Young-Burgess classification system, open-book injuries are categorized under anteroposterior compression (APC) patterns. APC I injuries involve symphyseal widening of less than 2.5 cm without significant posterior ligament disruption. APC II injuries demonstrate symphyseal widening greater than 2.5 cm with disruption of the anterior sacroiliac ligaments and partial posterior injury. APC III injuries represent complete disruption of both anterior and posterior ligament complexes, resulting in complete instability and displacement of one hemipelvis. Clinically, patients with open-book fractures present with severe pelvic or lower abdominal pain, mechanical instability, visible pelvic deformity, and inability to bear weight. Because these injuries may cause substantial internal hemorrhage, signs of hypovolemic shock such as tachycardia, hypotension, pallor, and dizziness may develop. Associated urogenital injuries may manifest as hematuria or urinary retention. In hemodynamically stable patients, contrast-enhanced computed tomography (CT) is considered the gold standard imaging modality, as it allows accurate assessment of pelvic ring disruption and detection of active arterial bleeding with high sensitivity. Initial trauma assessment follows the principles of Advanced Trauma Life Support (ATLS®), including chest radiography to exclude pneumothorax, hemothorax, or rib fractures, and pelvic radiography for rapid identification of pelvic instability.

Management prioritizes early hemodynamic stabilization because hemorrhage is the leading cause of early mortality. Immediate application of a pelvic binder reduces pelvic volume and tamponades venous bleeding. Intravenous fluid resuscitation and blood transfusion may be required in unstable patients. Definitive treatment often involves surgical fixation using plates, screws, or external fixation devices to restore pelvic ring stability and prevent long-term complications such as chronic pain or gait disturbance. Postoperative care includes thromboprophylaxis, infection surveillance, adequate analgesia, and structured rehabilitation to optimize functional recovery.

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Diagnosis: *Pelvic open book fracture*