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Case Report

Open pelvic fracture associated with lumbosacral dislocation and extensive perineal injury

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KEYWORDS

open pelvic fracture
lumbosacral dislocation
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ABSTRACT

Open pelvic fractures are caused by high-energy trauma. Injuries to other organs are common and the mortality rate can be as high as 50%. Perineal injury is reported in 5% of open pelvic fractures. We report a case of a 31-year-old man that had an open pelvic injury with Denis zone III fracture of the sacrum, lumbosacral dislocation, symphysis dislocation, bilateral pubic rami fractures and an extensile perineal wound. He underwent an early diverting colostomy in order to prevent pelvic sepsis and subsequent stage reconstruction of the pelvic ring. At a 4-year follow-up a full recovery was present. The aim of this paper is to underline the importance of a safe, approach to manage open pelvic fractures.

Introduction

Open pelvic fractures are caused by high-energy trauma, they are often associated with lesions of other organs and have a mortality of up to 50%. Perineal injury with the wounds extending into buttocks, bladder, urethra, rectum and external genitalia is reported in 5% of open pelvic fractures [1]. Pelvic sepsis is the most frequent and serious complication of perineal injury and a mortality rate up to 26% of cases has been reported [2].

Lumbosacral dislocation in association with a pelvic fracture has been described with a U or H fracture of the sacrum while no reports of lumbosacral dislocation with open pelvic fracture of the sacrum in Denis zone III has been reported. These fractures have a high incidence of neurological lesions with saddle anesthesia and loss of sphincter function. The treatment of choice remains ileo-lumbar fixation [3]

In the herein presented case we report on the rarity of this injury, the need of a multidisciplinary management of the perineal injury in order to prevent the occurrence of pelvic sepsis and describe the surgical treatment of the pelvic fracture.

Case report

A 31-year-old man had an open left pelvic fracture as a result of a high energy motorcycle accident with direct trauma against the guardrail (Fig. 1). Following intubation at the scene of the accident, he arrived at our emergency room in a state of shock (blood pressure 65/32 mmHg and heart rate of 115 beats/min). He was managed according to the ATLS protocol with aggressive resuscitation. Chest radiograph and FAST were unremarkable, while the pelvic radiograph showed an unstable open book pelvic fracture (Fig. 2) with a large perineal wound and extrusion of the left testicle. Initial surgical management included irrigation and debridement of the pelvic wound, pelvic packing through the wide zone of injury, suturing of the wound of the scrotum with repositioning of the testicle and application of a Tpod pelvic binder. After surgery, angiography and embolization for bleeding of small arterial branches of the left internal iliac artery was performed. CT scan of the chest and abdomen showed an open book pelvic fracture with Denis zone III fracture of the sacrum, lumbosacral dislocation, symphysis dislocation and bilateral pubic fractures (Fig. 3).

Four hours later he was admitted to intensive care department in a hemodynamically stable condition with blood pressure of 150/64 mmHg and heart rate of 100 beats/min. Other injuries sustained included an anterior cruciate and medial collateral ligament injury of the left knee and a left fibula fracture. The ISS was calculated to be 34. Resuscitation during the first 24 hours necessitated 4500 ml of crystalloid, 1500 ml of colloids, four units of fresh frozen plasma, seven units of packed red blood cells and 2 units of platelets.

After three days, diverting colostomy was performed, and two days later definitive stabilization of the pelvic fracture in two stages. The first surgery involved a posterior approach with ileolumbar fixation and plate fixation of the fracture of the sacrum, followed by the anterior plate fixation of the symphysis and the pubic fractures. An anterior external fixator was also used for additional support (Fig. 4). Twenty-four hours later the patient was extubated without complications.

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Fig. 1. Extensive left perineal injury as consequence of a high energy motorcycle accident with direct trauma against the guardrail.

Fig. 2. X-ray of AP pelvis in ER shows an unstable pelvic fracture.

Aggressive irrigation and debridement of the perineal wound were daily performed to clean up this injury. VAC therapy was not used because it was impossible to apply due to the location and type of wound. The final closure of perineal injury was performed 16 days after the trauma.

Twenty-six days after trauma he developed a Pseudomonas Aeruginoso and Enterobacter cloacae sepsis that was treated successfully within 10 days with appropriate antibiotic therapy. Three weeks after definitive surgery the external fixator was removed. Thirty-seven days after trauma the patient was

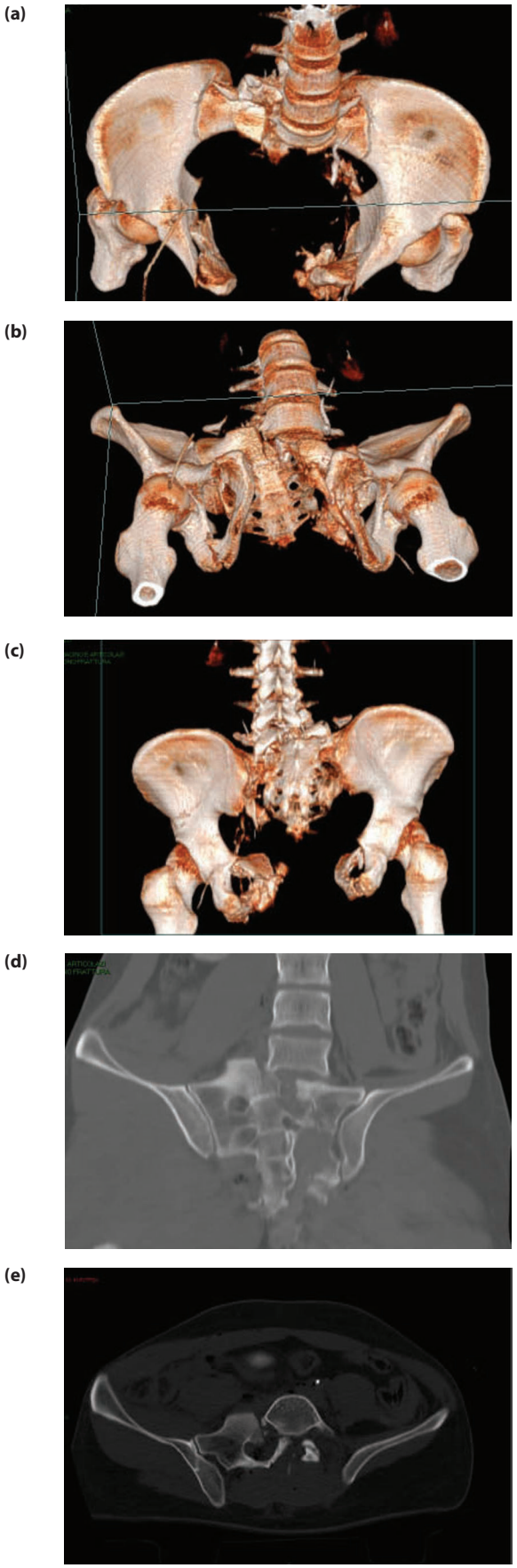

Fig. 3. CT scan 3D (a–c) and 2D (d and e) showed a pelvic fracture with Denis zone III fracture of the sacrum, lumbosacral dislocation, symphysis dislocation and bilateral pubic fractures.