

Lower pole renal cut injury due to the iliac wing fracture: A rare case report

Caglar Yildirim, Ozgur Haki Yuksel, Serkan Akan, Ahmet Urkmez, Ayhan Verit

Fatih Sultan Mehmet Research & Training Hospital, Dept. of Urology, Istanbul, Turkey

DISCUSSION

Every year 25% of the general population are exposed to traumas of different types and degrees of severity. Nearly 50% of them necessitate referrals to hospitals and 12% of the hospital admissions require in hospital treatment. Fifteen percent of the hospitalized patients consist of high grade trauma patients. Three percent of them die and 8% of the victims live with permanent disabilities (5). Rapid increase in traffic density, widespread use of highly sophisticated technologies in daily life and increase in acts of violence result in a rapid rise in the number of trauma patients. Among causes of death, trauma ranks first in the 0-40 age group and takes the fourth place among individuals aged ≥ 45 years (6).

Urogenital injuries are frequently accompanied by other organ traumas and the trauma patients usually die because of other organ injuries. Detailed clinical evaluation and timely intervention are important measures aiming at prevention of urogenital injuries. Renal injuries are seen in 3-10% of blunt abdominal traumas (7). Traffic accidents, falls from a height, sudden deceleration injuries of kidneys because of direct blows on the lumbar region have been prevalently accepted pathogenic mechanisms of blunt renal traumas (8). The *American Association for the Surgery of Trauma* (AAST) has described a scale which use both imaging modalities and explorative surgery and graded renal traumas from I to V (Figure 3). Many cases of blunt traumas are minor traumas and they are followed up using conservative measures. Only 10% of them are severe requiring surgical intervention (9). In renal injuries due to sudden deceleration traumas, renal pedicle and ureteropelvic junction are more frequently damaged and thus require surgical exploration (9).

Pelvis is composed of bony structures and connective tissue. It is surrounded posteriorly by sacrum, from both sides by a bony integrity consisting of ilium, ischium and pubis. In addition vascular, visceral and neural structures that are contained within the pelvis can be damaged in cases with pelvic fractures. Main branches of the iliac arterial system course immediately in front of the sacroiliac joints. Symphysis pubis is located in front of the bladder and urethra and rectum is adjacent to the anterior aspect of sacrum. These structures are also exposed to the risk of injury if forces are capable of inducing pelvic fracture. In a study, intestinal laceration

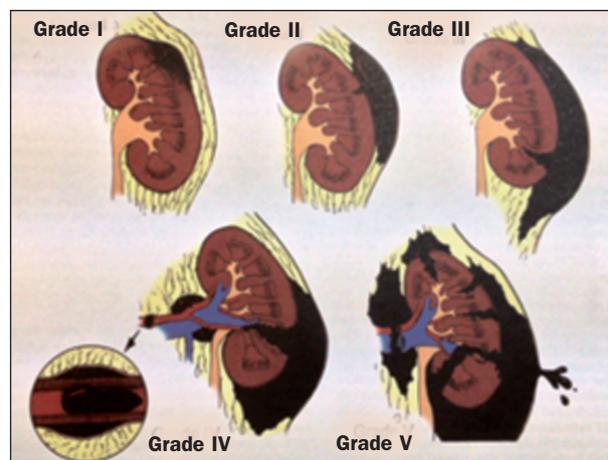
secondary to iliac wing fracture caused by blunt trauma because of inappropriately fastened seat belt was reported in 2 pediatric cases (10).

Pelvic fractures are not seen prevalently. They constitute 2-8 % of all skeletal system injuries. They are observed at a rate of 20-37/100.000 in overall population (11, 12). In patients with secondary multiple traumas, incidence climbs up to 20 percent (12). Among young patients, incidence is higher in young men, however after the age of 55, an increase in its incidence is observed in both genders (12). The severity of these injuries demonstrates a wide range of distribution from low-energy stable to high-energy instable patterns. In advanced age, most of the hip fractures consist of osteopenic fractures due to low-energy traumas, in youngsters it occurs secondary to high-energy traumas as traffic accidents and falls from a height. Ayalon et al. reported iliac wing secondary fracture secondary to a minor trauma within 2 weeks after primary total hip arthroplasty procedure in an 87-year-old osteoporotic female patient (13).

In the literature mortality rates range widely between 5 and 60% with higher rates of concomitant morbidities (14). Despite new developments in the management of trauma patients, complex pelvic ring fractures have con-

Figure 3.

Classification of renal injuries - The American Association for the Surgery of Trauma scale (AAST).



siderable mortality rates (15). Based on the data retrieved from *Trauma Audit and Research Network* (TARN) pelvic fractures are accompanied with chest traumas (21.2%), head traumas (16.9%), liver and spleen injuries (8%) and fractures of ≥ 2 long bones (7.8%). Decrease in the survival rates is dependent on the patient's age, premature physiological imbalance and other concomitant injuries (16, 17).

Classification systems can be helpful in the determination of the severity and prognosis of injury. In pelvic fractures, generally Tile and Young-Burgess classification systems have been used. Both of them have been designed based on radiological images of pelvic fractures. In Tile's classification, pelvic fractures are categorized on the basis of their location as anterior (anterior acetabulum) and posterior (posterior acetabulum) pelvic fractures. Therefore during treatment planning, this classification can be used as a guiding tool (Table 1).

Table 1.

Tile's classification of pelvic fractures.

<p>Type A: stable (posterior arch intact)</p> <p>A1 - Avulsion injury.</p> <p>A2 - Iliac wing or anterior arch fracture.</p> <p>A3 - Transverse sacrococcygeal fracture.</p>
<p>Type B: rotationally unstable (incomplete disruption of posterior arch)</p> <p>B1 - External rotation open-book type fracture. Rotation hinges on an intact posterior SI complex. Disruption of the anterior pelvic arch through the symphysis pubis or rami.</p> <p>B2 - Internal rotation lateral compression injuries with a combination of anterior and posterior arch fractures.</p> <p>B3 - Bilaterally rotationally unstable.</p>
<p>Type C: rotationally and vertically unstable (complete disruption of posterior arch)</p> <p>C1 - Unilateral.</p> <p>C2 - Bilateral, with one side type B, one side type C.</p> <p>C3 - Bilateral.</p>

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