

Anatomy

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The surgical anatomy of the pelvis is key to the understanding of pelvic injuries. The pelvic inlet is circular. It is a structure that is immensely strong, but routinely gives way at more than one point should sufficient force be applied to it. Therefore, isolated fractures of the anterior or posterior pelvic ring are uncommon. The forces required to fracture the pelvic ring do not respect the surrounding organ systems. The pelvis has a rich collateral blood supply, especially across the sacrum and posterior part of the ileum. The cancellous bone of the pelvis also has an excellent blood supply. Most pelvic haemorrhage emanates from venous injury and fracture sites. However, in the haemodynamically unstable patient with severe pelvic injury, arterial bleeding is more frequent. Important for the treatment is that the surgeon has to deal with both arterial and venous bleeding. Marvin Tile, b. 1933, orthopaedic surgeon, Sunnybrook Medical Centre, Toronto, Canada. Postmortem examination has shown that the extrapelvic peritoneal space can accommodate more than 3000 mL. However, in the case of a severe pelvic fracture where the retroperitoneal compartment is disrupted and the external bony barrier is not stable, haematoma may extend upwards towards the mediastinum ('chimney effect') or downwards into the medial thigh in case of rupture of the pelvic floor. All iliac vessels, the sciatic nerve roots (including the lumbosacral nerve) and the ureters cross the sacroiliac joint; disruption of this joint may cause severe haemorrhage and sometimes cause arterial obstruction of the internal iliac artery and sciatic nerve palsy. Injuries to the ureters are rare. The pelvic viscera are suspended from the bony pelvis by condensations of the endopelvic fascia. Shear forces acting on the pelvis will transmit these to pelvic viscera, leading to avulsion and shearing injuries. The pelvis also includes the acetabulum, a major structure in weight transfer to the leg. Inappropriate treatment will lead to severe disability.

Type A Type B Type C Figure 29.11 Tile classification of fractures of the pelvis.

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