

Pelvic fractures

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Pelvic fractures play a prominent role in traumatic injury of dogs and cats in that they comprise at least 25% of all fractures seen by the small animal practitioner (1,2). The box configuration of the pelvis insures that any trauma sufficient to produce a fracture will always cause more than one. On the positive side, the major muscle groups around the pelvis provide significant inherent stability to most fractures, which frequently eliminates the need for surgical repair (1–3).

Pelvic fractures are nearly always the result of major trauma, such as automobile accidents. Animals hit from behind commonly have combinations of 1 or both sacroiliac joints luxated, an associated sacral fracture or fractures, and long, oblique fractures of 1 or both ilia due to powerful shearing forces. Impacts from the side may drive the femoral head into the acetabulum, resulting in acetabular fracture with associated fractures of adjacent portions of the ilium and pubis (1).

Because of the major trauma associated with pelvic fractures, other injuries are the rule rather than the exception. Thoracic trauma of some sort will occur in 50% of all patients with pelvic fractures (1): 39% will have trauma to their urinary tract (4), and 11% will have peripheral nerve damage (2). Evaluation of the entire animal with emphasis on these “at risk” areas is of paramount importance. While analgesia is a priority, nonsteroidal anti-inflammatory drugs might best be avoided, or at least used with caution, owing to the significant numbers of pelvic fracture cases with trauma to the urinary tract or with hypovolemia (3). Stabilization of the patient may take several days, which may become an issue if surgical repair is an option. Fractured pelvic bones are best immobilized and reduced within 48–72 h after the injury occurs. If the animal’s condition does not permit surgery, or it is not presented within this time frame, early fibrous healing and muscle rigidity will make surgical reduction and repair increasingly difficult. Seven days after the occurrence of the injury, primary surgical repair may no longer be possible (2,3,5).

Diagnosis of pelvic fractures can begin at the time of physical examination, including digital rectal examination, but it relies on hip-extended and lateral radiographs to determine the nature of the injuries (1–4). Occasionally, oblique views may be helpful (5).

Once the patient is stable, the most pressing question is, can the pelvic fractures be managed conservatively or will surgery be required? Most animals (75%) with pelvic fractures will recover without surgery. This is especially the case in smaller dogs and cats (3). The most common criteria for recommending surgical repair of a pelvic fracture include the following: displaced acetabular fractures, especially involving the cranial 2/3 of the acetabulum; greater than 1/3 narrowing of the pelvic canal

diameter by fracture fragments; neurologic impairment, including intractable pain attributable to the fracture; ipsilateral fractures of the ilium, ischium, and pubis, resulting in an unstable hip joint; or contralateral orthopedic injuries requiring early weight-bearing on the pelvic fracture side (1–4).

Conversely, minimally displaced fractures, fractures outside the cranial 2/3 of the acetabulum, cases where pain is well-managed, or fractures more than 7–10 days old are frequently best managed with cage rest (1). Nursing care is critical in such cases in order to keep the animal comfortable, clean, and in good condition. While “cage rest” is the standard recommendation, it is not always necessary, or even desirable, in all cases. Rather, restricting the animal’s movements to a confined area for at least the first 2 wk, combined with massage and passive range of motion exercises involving the hind limbs, will work well (2–4,6). Many patients will begin to stand within 1 wk, or sooner in cats and small dogs. At this point, the patient should be encouraged to stand and walk for short periods. If the animal is not standing voluntarily, the owner can assist by means of a sling. After 4 wk of severely restricted movement, the animal can be exercised on a leash for short periods. The exercise can be gradually increased, gradually as tolerated, for the following 3–4 wk (2–4,6).

The most common pelvic fractures where surgery might be considered are sacral fractures or sacroiliac luxations, iliac body fractures, and acetabular fractures.

Sacroiliac luxations or fractures are a source of pain, instability, and the most common pelvic fracture associated with neurologic compromise (2). The fracture or luxation results in the craniodorsal displacement of the ilium. Surgical repair can be accomplished with bone screws or a transilial stabilizing device, but it is not always needed unless the patient’s fracture falls within the criteria for surgical repair outlined previously.

Fractures of the ilium, the most common fractures seen in the pelvis, account for 46% of all pelvic fractures (4,5). Fractures of the body of the ilium are invariably oblique, with the caudal fragment displaced cranially and medially. These fractures can pose 2 potential problems that would require surgery to correct: 1) significant narrowing of the pelvic canal by the caudal fragment, sometimes with compromise of bladder or bowel; and 2) trauma to the lumbosacral nerve trunk, which branches into the sciatic nerve just medial to the midbody of the ilium. Bone plate repair is the most common and successful means of surgical management (1–5).



Acetabular fractures comprise 12% of pelvic fractures in dogs and 7% in cats (4). Traditionally, acetabular fractures have represented one of the main indications for surgical repair of pelvic fractures; however, some uncertainty, even some controversy, exists in this regard. The cranial 2/3 of the acetabulum has been considered the weight-bearing surface in the dog and cat, and it has been suggested that fractures in the caudal, or even middle, third can be successfully treated conservatively (1,3–5,7). However, significant degenerative joint disease has been noted in caudal acetabular fractures that have been treated conservatively, and a biomechanical study in the cat has suggested that the weight-bearing surface in the acetabulum may be more towards the middle or even caudal 1/3 (8). Surgical repair of acetabular fractures with bone plates (4) or bone screws, interfragmentary wire, and polymethylmethacrylate (9) can produce good clinical results, if rigid fixation and anatomic reduction are achieved. If surgical repair is not possible, salvage procedures, such as femoral head and neck ostectomy, will provide alleviation of pain and good function of the limb (2). Minimally displaced acetabular fractures, particularly physeal fractures in immature animals, may respond well to conservative therapy. Stress radiography, where the affected hip is placed down against the radiographic cassette and the femoral head is

pushed dorsally against the acetabular rim with the stifle flexed, will demonstrate whether the fracture line is truly stable and the fragments nondisplaced (5).

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