Overview of Traumatic Fractures

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A fracture is traumatic for both the pet and pet owner and requires compassionate care and expertise from the veterinary team. Clients should immediately seek attention if they suspect their pet has a fracture. Fracture patients should be completely evaluated for more extensive trauma, regardless of the fracture origin. Stabilization of the fracture site and appropriate pain management are the mainstays of treatment. The prognosis for return to function depends on the type of fracture, method of stabilization, and postoperative care. The team’s ability to provide exceptional care and communicate effectively with clients will determine a successful outcome.

FRACUTURE LOCATIONS
The most common fractures reported in trauma cases affect:

- Forelimbs¹
  - Scapula
  - Elbow (luxation)
  - Radius
- Hindlimbs¹
  - Pelvis
  - Femur
  - Hip (luxation)
  - Distal limb
- Axial skeleton¹²
  - Ribs
  - Spine
  - Sacral (luxation or fracture)

BLUNT TRAUMA
Blunt (eg, vehicular) trauma patients often experience multiple injuries (Figure 1). Patients are often only treated for the obvious fracture, causing additional traumatized tissues or disease processes to go unnoticed and untreated. Signs may not show for hours or days, which could alter the outcome of the treatment plan.³ Common additional injuries (affecting 25%–50% of blunt trauma patients) include:

- Soft tissue trauma (eg, abrasions, lacerations, degloving injuries)
- Thoracic trauma (eg, pulmonary contusions, hernias, fractures); hemorrhage may be present.
- Abdominal trauma (eg, hemoabdomen, uroabdomen, hernias)
- Head trauma (eg, skull fractures)²³; signs may include epistaxis and neurologic abnormalities.

Figure 1. Lateral radiograph of an adult basset hound presented for inability to walk on its hind legs, without evidence of superficial abrasions or bruises. The arrows mark a distal femoral fracture and a proximal tibial fracture.
Open fractures are best treated with wound and bone debridement within 8 hours, but repair may be delayed 24–48 hours.

**FRACTURE REPAIR**

The goal of fracture repair is to stabilize the fractured bone, enabling rapid healing and return to full function. Surgical repair should be performed as early as possible in stable patients.

- Open fractures are best treated with wound and bone debridement within 8 hours, but repair may be delayed 24–48 hours.
- Closed fractures are best treated within 1–4 days.\(^4\)
- For complex fractures (eg, spinal, articular, distal radial and ulnar in small breed dogs), consider consultation with a boarded veterinary surgeon or referral to a specialty practice.

**OTHER OPTIONS**

Alternatives to primary bone repair include external coaptation and amputation.

- External coaptation may be successful in fractures below the elbow or stifle, where the joints above and below the fracture can be fully immobilized.\(^3\)
- Ensure the chosen splint or bandage will withstand bending, rotation, and distractive and compressive forces, and will adequately immobilize the site without causing complications (Figure 2).
- Before choosing external coaptation, discuss the implications with the client:
  - Financial commitment (costs of bandage changes, sedation, analgesia, materials, multiple radiographs)
  - Time commitment (weekly rechecks)
  - Potential for bandage-associated wounds with long-term use
  - Risk of failure: As many as 80% of splinted distal radial or ulnar fractures result in nonunion or delayed union because of variations in blood supply to the distal bone and difficulty immobilizing the elbow, thereby impeding healing of the fracture line.\(^5,6\)
- Need for appropriate compliance (eg, proper confinement).
- Clients may choose amputation for financial reasons.
- Contraindications for amputation include:
  - A fracture that is amenable to external coaptation or cage rest
  - Severe orthopedic or neurologic disease affecting other limbs
  - Extreme obesity
  - Previous limb amputation
  - Evidence of other existing orthopedic issues (eg, hip or elbow dysplasia, osteosarcoma).

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Figure 2. A spica splint can be used to immobilize the elbow joint for a proximal fracture of the radius and ulna.