Fractures: When to Cast, When to Cut?

Matthew Barnhart DVM MS
Diplomate American College of Veterinary Surgeons
MedVet Medical & Cancer Centers for Pets
Worthington, Hilliard, Dayton, Cincinnati, Toledo, OH
Mandeville and New Orleans, LA
Indianapolis, IN, Lexington, KY, Chicago, IL, and Mobile, AL
2 Methods of Fracture Fixation

Indirect fixation
• Splints and casts

Direct fixation
• IM pins, ESF, interlocking nails, bone plates, etc.
Indirect Fixation - Pros

• Noninvasive
  • Less iatrogenic injury, infection
  • No disruption of soft tissues

• Cheaper (?)

• Less painful

• Shorter healing time in some cases
Indirect Fixation - Cons

- Limited use
- Cast/splint morbidity
  - Joint immobilization
  - Soft tissue injury/atrophy
- 63% complication rate!*

Indirect Fixation - Cons

- Cheaper not cheap
  - Sedation?
  - Material costs?
  - Your time?!?
  - Owner’s time?
Indications for Indirect Fixation

- Closed fractures below elbow or knee
- Fractures amenable to closed reduction
- Young patients
Indications for Indirect Fixation

- Certain fracture configurations
  - Incomplete fractures
  - Periosteal sleeve intact
Indications for Indirect Fixation

- Financial constraints
  - Be careful!!
- Intact “internal splint” (fibula, ulna, metatarsals/carpals)
- Compliant owners and patients
Contraindications for Indirect Fixation

- Distal radius/ulna fractures in toy/small breeds
  - 80% nonunion rate with indirect fixation
  - Tenuous distal osseous blood supply
Contraindications for Indirect Fixation

- Concurrent injuries
- Soft tissue trauma, open fractures
- Articular fractures
Contraindications for Indirect Fixation

- Conical limb shape (bulldogs!)
- Comminuted fractures
- Extremes in patient size
Pelvic Fracture Considerations

• 40% of have urinary tract trauma

• 40-50% of HBC animals with orthopedic injuries have thoracic trauma

• 20-30% of all fractures are pelvic
Pelvic Fracture Considerations

- 10-15% have sciatic nerve injury
- 40% have bilateral fractures
- Orthopedic injuries are rarely life threatening
Pelvic Fracture Considerations

• Neurologic Exam
  • Local reflexes, sensation, proprioception, motor

• Orthopedic Exam
  • Stand/walk patient
    (unless spinal injury suspected)
Surprises Suck...
Pelvic Fracture Categories

- Sacroiliac fracture/luxation
- Ilial wing fracture
- Ilial body fracture
- Acetabular fracture
- Ischial fracture
- Pubic fracture
Nonsurgical Candidates

- Little or no displacement of fractures
- No disruption of weight transferring segments
- Intact hemipelvis
Nonsurgical Candidates

- Caudal 1/3 of acetabulum fractures (?)
- Small patient (?)
- Financial constraints
Nonsurgical Treatment

• Aggressive pain management
• NSAIDs, tramadol, fentanyl patches, comfortable environment

• Strict cage rest for 6-8 weeks
Nonsurgical Treatment

- Supportive care
- Slings, urinary catheters, etc.
- Recheck PE and X-rays in 5-7 days to ensure no changes
Complications of Inappropriate Management

- Chronic pain
- Chronic lameness
- Obstipation
- Dystocia
- Nerve entrapment
Surgical Candidates

- Decrease in size of pelvic canal
- Acetabular fractures
- Instability of weight transferring segments
Surgical Candidates

- Concurrent injuries
- Soft tissue injury
- Large dogs (?)
Surgical Treatment
Surgical Treatment
Surgical Treatment
Surgical Treatment
Surgical Treatment
Conclusions

- Strongly consider true costs of “conservative” care
- Delays in proper treatment can adversely effect outcomes
- When in doubt - ask!