Trauma examination and stabilization

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In most patients the presence of a limb injury is readily apparent. Whilst it is easy to focus attention on the obvious, it is essential to assess the entire patient as soon as they are presented after the trauma, to determine the presence of potential life-threatening injuries. The initial ABCD protocol should be undertaken with any significant airway, breathing or circulatory disturbances being identified, addressed and the patient stabilized. Consideration should also be given to the timely administration of appropriate analgesia. Subsequently a detailed assessment for other body system injuries should be performed. It is useful to consider a body system-/organ- or region-based approach in order to undertake a methodical and comprehensive assessment. Both the thorax and abdomen should be carefully examined, with further investigations (e.g. abdominal ultrasonography, urinary tract imaging studies, abdominal or thoracic drainage, electrocardiogram, blood work) ideally being dictated by the examination findings. As a minimum thoracic radiography and assessment of packed cell volume and total solids should be undertaken. It should be remembered and communicated to the client that even with thorough and systematic initial assessment, some issues may only become evident in the days following the trauma. For example, it can take time for pulmonary contusions, traumatic myocarditis or abdominal effusion to develop, and repeated patient assessment in the days following the trauma is important.

When appropriate, orthopaedic examination should be undertaken. As with initial triage, a detailed and methodical approach to orthopaedic examination is required; not all fractures are easily identifiable and in some patients injuries may be present in multiple limbs. If considered appropriate, allowing the patient the opportunity to ambulate can be helpful in determining the likelihood of multiple limb injuries. As well as identification of the fracture within a limb, it is also of importance to assess for potential vascular and/or neurological injury. The former is rare, but if encountered is most likely to be present with distal limb injuries. Assessment of neurological function when a limb fracture is present can be challenging, and assessment of segmental spinal reflexes and/or proprioception may not be possible; in such cases assessment of cutaneous sensation will be possible and should be undertaken. Neurological assessment in patients with pelvic fractures is imperative, not only of the limbs, but also assessment for urinary continence. In patients with spinal fractures, detailed neurological examination is imperative to facilitate lesion localization.

Of huge importance is to assess for the presence of deep pain sensation, the absence of which indicates a hopeless prognosis.

For fractures below the elbow and the stifle, application of either a Robert Jones or splinted bandage should be considered, to provide temporary stabilization of the fracture before definitive management. This can improve patient comfort and protect the affected region from further injury.

KEY LEARNING OBJECTIVES

- Systematically approach the traumatized patient to create a complete problem list
- Identify and prioritize management of life-threatening injuries
- Recognize the importance of thorough orthopaedic and neurological assessment

MULTIPLE CHOICE QUESTIONS

1. For which one of the following fractures would temporary stabilization using external coaptation be least appropriate?
(A) Metatarsal fractures
(B) Humeral diaphyseal fracture
(C) Radius and ulnar fracture
(D) Hock fracture
2. You are presented with a Border Terrier who has fallen from a cliff. Neurological assessment reveals the patient to be paraplegic, have normal to increased hindlimb segmental spinal reflexes but to have absent nociception in the hindlimbs. Radiography has revealed a thoracolumbar fracture. What course of action would you recommend?
(A) Cage rest and observation to see if nociception returns before progressing with definitive fracture management
(B) Referral for vertebral fracture repair as the prognosis for neurological recovery should be good
(C) Euthanasia as the absence of nociception indicates a hopeless prognosis
(D) Application of back splint as the prognosis for neurological recovery should be good
3. You suspect the possibility of a pelvic urethral injury in a cat who has sustained a pelvic fracture. Which of the following would be the most suitable diagnostic procedure to perform?
(A) Positive-contrast retrograde urethrogram
(B) Abdominal ultrasonography
(C) Intravenous urogram
(D) Plain abdominal radiograph