FELINE TRAUMA

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Trauma can be divided loosely into blunt and penetrating trauma, with blunt trauma including motor vehicle accidents and penetrating trauma most commonly including bite wounds. While some cats live entirely indoors, others are live a combination of indoors and outdoors, others primarily outside. As veterinarians, it is wise to advise owners that the risk of trauma is greater outdoors, and that if possible cats should be kept indoors. It is also helpful to the bird and local small mammal population to have cats remain indoors. However, not all owners or all cats are willing to follow this advice! Additionally, cats may easily slip out an open door or window, or be injured at home by dogs, children or household accidents. Cats should be microchipped to improve the likelihood of finding their families.

After traumatic accidents, cats are more likely to hide and to not show evidence of their injuries. Cats are often found a few hours to a few days after an injury. Due to their smaller body size, blunt trauma, like HBC, is apparently more likely to result in either head trauma or pelvic fractures as trauma to the chest or abdomen is likely to result in death.

Head trauma

The most common triad of injuries in head trauma is a damaged eye or eyes, maxillary fracture, and mandibular fracture. Some cats, but less than guessed, also have traumatic brain injury with altered mentation. Cats will commonly present with increased respiratory rate and effort; this may be from concurrent pneumothorax and pulmonary contusions, or may be due to skull fractures resulting in open mouth breathing. Open mouth breathing results in drying of the secretions (including blood) in the mouth, and this can contribute to apparent respiratory distress.

Treatment of these cats is supportive. The first step may to be to encourage the family to give the affected kitty a bit of time. Facial trauma looks dramatic, particularly proptosis, and occasionally the knee-jerk response is to request euthanasia. Most clients can be convinced to continue treatment and most cats will recover well. The next step is to identify what can be repaired in house and what might require referral and /or advanced imaging. The best approach is what is decided between the primary care veterinarian and the cat's family and will vary regionally and between practices.

Skull films or CT scanning may be helpful to better characterize the injuries. CT scanning is MUCH better than Skull films to evaluate the bony characteristics, due to superimposition of bones around the skull. However, the main question that needs to be answered is "What is the occlusion"- meaning does the jaw close normally and can it be pushed closed with good occlusion of the maxilla and mandible. If the jaw can be closed, but stays open on its own, often this will resolve as the swelling decreases. The most common fracture is a symphaseal fracture of the mandible, this fracture can easily be repaired in most practices that have access to a 14 or 16 ga needle, some wire and a wire twister or needle driver! However, other fractures, such as mandibular body fractures, may require more complex surgery to return normal alignment. The TMJ may also be dislocated or fractured. A dislocation may be repaired using the "pencil trick", which involves placing a pencil or wooden dowel in the mouth (like a horse bit) perpendicular to midline and as far caudal as possible. Then the mouth is pushed as closed as possible, and this will reduce the luxation. If there is a fracture, this will not be effective. Maxillary fractures are rarely surgical, and require rest and soft food to heal. In some cases of multiple severe fractures, surgical repair is very challenging, and occasionally you can potentially treat these cats by simple supportive care and then after healing, pull any teeth that are preventing normal occlusion.

Enucleation can be performed for severely injured/blind eyes, or a temporary tarsorrhaphy may be performed if the eye appears like it may be salvaged. In almost all cats with injuries more involved than a simple fracture that can be wired, placement of an e-tube at the time of surgery is advised. Most cats will begin eating voluntarily within 7-14 days from the time of the accident; however, an e-tube will remove the fear of the cat not eating, and also make medication of the cat much easier, as it is far easier to administer liquid medicine via an e-tube than to try to pill a cat with a painful mouth.

Pelvic fractures

Pelvic fractures are also quite common in cats. Fractures are considered surgical if they affect a weightbearing surface or if the pelvic canal is collapsed. Cats will recover more quickly with orthopedic repair, but cage rest will also permit recovery in most cats. The decision to repair the fractures surgically should be based on a discussion between the cat's owner and the primary care veterinarian.

Bite wounds

Bite wounds are seen frequently in cats, and may be divided into bite wound from other cats, which are typically not deep, but may abscess or rarely result in a pyothorax and bite wound from dogs, which may be immediately life-threatening. Recall that most bite wound are much worse under the surface than they first appear, and wounds from large dogs typically have four puncture wounds from the canine teeth. Wounds should be carefully explored, and equipment and supplies to enter body cavities readily available. The rabies vaccination status of the patient should be confirmed. Other animal-animal interactions may also result in trauma. **Blood transfusions**

In most cats with severe trauma, anemia develops quickly in association with blood loss, sampling and fluid therapy. In particular, recall that cats can lose a fair bit of blood associated with pelvic fractures, and transfusions may be required during recovery. Cat have pre-formed antibiotics against foreign blood types, and care should be taken to type and/or cross-match cats prior to transfusions.

Occult cardiomyopathy

Cats, particularly large male cats who are more prone to trauma, may be similarly prone to hypertrophic cardiomyopathy, which may complicate recovery. Auscultation provides little useful information, but a gallop should be considered evidence of cardiac disease. Cardiac enlargement may be visualized on routine thoracic radiographs, but may be absent as well. Careful monitoring is advised if there is any inkling of heart disease, and echocardiography or NT pro-BNP assessment may prove useful in higher risk cats.

Diaphragmatic hernia

DH may occur in cats, particularly those with roll-over injuries. Similar to dogs, DHs should be repaired as soon as practical. Chronic DH are associated with a higher rate of complications, including death from re-expansion pulmonary edema.



Figure 1. A cat with a diaphragmatic hernia found incidentally after routine neuter. The cat had been apparently injured years before and recently adopted.

Un-owned/Found cats

In ER practice, unknown/stray cats may be presented from time to time by Good Samaritans; it is reasonable to have a practice policy and arrangement with local animal control to help care for these cats. Owned cats can travel some distance, and stabilization therapy is warranted.