Nothing to Sneez...
Avoiding a STICKy Situation: Canine impalement injuries

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In small animals, wooden sticks are the primary cause of impalement injury. Oropharyngeal injury most commonly occurs with retrieving, carrying, catching, or chewing sticks. Penetrating injury to the trunk, however, is typically associated with running in a wooded area. Although entrance wounds may appear minor, beware! Stick injuries may result in extensive deep tissue trauma, contamination of tissue, retention of foreign material, and subsequent infection.

Stick injuries are categorized as acute or chronic in nature. Acute cases tend to have a history of stick-associated behavior that may be followed by vocalization or oral irritation (often demonstrated by gagging and pawing at the mouth). Clinical signs at the time of presentation may include hyperalgesia with blood tinged saliva, discomfort or reluctance upon opening or closing the mouth, dysphagia, and dyspnea. Following initial impalement, the stick may break off or be partially removed by the dog allowing the incident to go unnoticed by owners. Alternatively, owners may remove the exposed portion of the stick themselves and due to the lack of clinical signs, fail to present the dog to the veterinarian. Unfortunately, the deeply penetrated tissue may harbor residual foreign material and bacteria, which may lead to delayed clinical signs. In these cases, the most common presenting complaint is cervical/facial swelling or an intermittently discharging draining tract.

When a patient is presented with impalement injury, initial efforts should be focused on stabilization. The first priority should be to provide an unobstructed airway by removing blood, tissue, or debris from the pharynx, and controlling hemorrhage. Supplemental oxygenation and fluid resuscitation may also be needed. Then, a general, orthopedic, neurologic, and if relevant, a sedated oral examination should be performed. Diagnostic imaging plays an important role in the evaluation of patients with suspected impalement injury and may include radiography, sinography, ultrasonography, CT, MRI, and endoscopy. Unfortunately, due to its consistency, and ability to take on water, wood isn’t always visualized on plain radiography and false negatives are possible. Conservative management of stick impalement injuries should be reserved for specific situations only. It may be considered if the patient presents acutely and in stable condition, examination reveals evidence of oral injury only, radiographs confirm the absence of subcutaneous and cervical emphysema, the stick can be removed cleanly per os, and the owners decline further treatment.

Imaging should be used to guide surgical treatment. In general, the approach may be directly over the stick (acute cases), or over the draining tract (chronic cases), or via ventral midline (cervical, thoracic, or abdominal). Once the foreign material has been identified, it should be removed asatraumatically as possible, taking care not to disturb local vasculature. The wound should be copiously lavaged, additional debris removed, and compromised tissue debrided. An aerobic and anaerobic culture should be obtained. In acute cases, the surgical site can often be closed over a drain. However, in chronic cases, the site should be left open for several days and managed with wet-to-dry bandages, honey or sugar dressings, or negative pressure wound therapy. Once a healthy wound is achieved, the surgical site may be closed over a drain or left to heal by second intention.

Oropharyngeal mucosa may be closed primarily if drainage is provided to the retropharyngeal tissues. Regardless of the treatment option employed, analgesia, anti-inflammatory therapy, and broad-spectrum antibiotics, preferably based upon the results of culture and sensitivity, should be provided. Early recognition and prompt, aggressive treatment is recommended to improve outcome and to avoid the problems associated chronic cases, which often require advanced imaging and multiple exploratory surgeries. Additionally, it is important to note that dogs with esophageal injury carry a guarded prognosis and requires intensive care. Therefore, an attempt should be made to distinguish these injuries from those with other forms of pharyngeal trauma, which carry a better prognosis.

We thank our colleague from BluePearl Minnesota, Heather Hadley, DVM, DACVIM, for letting us use this article for Companion.
**THE CRYSTALLINE LENS** is an avascular, transparent and highly structured “fine-tuning” refractive tissue that focuses light rays on the retina, which is the beginning of image transmission to the brain. The lens is composed of mostly water and protein arranged in a manner that keeps it transparent, thereby enabling light to pass through it.

Any opacity within the lens or its associated lens capsule that is causing loss of transparency is termed a cataract. Cataracts are among the most common intraocular lesions in dogs and are the leading cause of vision loss in this species.

Cataract formation results from denaturation and clumping of lens proteins causing an opacity within the lens that obstructs light from passing and being focused on the retina. They are frequently progressive. As the opacity progresses, a loss of visual acuity occurs. People with cataracts report a loss of sharpness to objects, and less vivid colors. A glare is sometimes described and probably occurs due to the scattering of light in different directions by the abnormal lens. Ultimately, vision will be lost.

**Cataract Etiologies**

Most cataracts in dogs are inherited and can occur at any age. The cataract may develop rapidly over weeks, or slowly over years, and occur in one or both eyes.

Different breeds of dogs have different characteristics of cataract development.

The second most common cause of cataracts in dogs is diabetes mellitus. Over 75% of diabetic dogs will develop blinding cataracts within the first year of diagnosis; 60% of dogs have cataracts at initial diagnosis of diabetes mellitus. Diabetic cataracts can develop VERY fast - sometimes within a few days - and may be considered medical and surgical emergencies in certain situations.

The third most common cause of cataracts in dogs is a toxic reaction in the lens secondary to an underlying primary ocular disease or (much less commonly) due to a drug reaction. These are called “toxic cataracts.” Toxic cataracts caused by ocular disease are quite common in dogs and can be caused by

1. Retinal degeneration, especially progressive retinal atrophy (PRA)
2. Uveitis (intraocular inflammation) of any cause, including trauma; and
3. Glaucoma (increased intraocular pressure) of any cause.

Cataracts can also develop due to penetrating trauma (cat scratches to the lens), nutritional deficiencies (puppies on an artificial milk-replacer diet), age-related onset of cataract formation (senile cataract) and many other potential causes, such as birth defects, infection and radiation therapy to the head. Discussion of these causes is beyond the scope of this article.

**Treatment**

Once a lens has developed a cataract, there is no known medical method to increase transparency in the lens. Immature, mature and hypermature cataracts can be removed surgically via phacoemulsification. The sooner a cataract is removed the better the postoperative outcome. A cataract becomes surgical if it is deemed progressive and is starting to cause visual behavior changes (vision loss).

A small incision is made in the cornea, and an opening is created in the anterior lens capsule. Phacoemulsification is then performed during which a special probe ultrasonically emulsifies and removes the cataract (all of the lens contents inside the capsule). After the cloudy lens is removed, the empty lens capsule remains and is called the capsular bag. An artificial replacement lens, called an intracapsular lens, or IOL, is placed in the bag to refocus the light onto the retina. The eye is closed with small absorbable sutures.

The success rate of uncomplicated cataract surgery with intraocular lens implantation in dogs is approximately 90-95%. Short and long-term complications include glaucoma, uncontrolled uveitis and retinal detachment, with a prevalence from 5-10%. Not having a cataract removed can also cause the same complications as described above, even to a higher percentage rate. Regardless of whether or not a patient receives cataract surgery, long-term topical anti-inflammatory treatment is necessary to control intraocular inflammation.

“If your patient has cataracts, additional diagnostics including electroretinography (ERG) and ocular ultrasound will be performed prior to surgery to ensure that the patient is a good candidate for surgery,” says Kevin Donnelly, DVM, DACVO. “BluePearl in Oklahoma is equipped to perform all of these procedures, and we are happy to assist in any way to help ensure the continued ocular health of your patients.”

**What is lenticular sclerosis (nuclear sclerosis)?**

Lenticular sclerosis is a normal, age-related clouding of the lens of the eye, which is not a cataract. Lens epithelial cells located on the anterior lens capsule are continually producing new protein fibers compressing older fibers in the center of the lens. The denser lens center causes light to scatter giving the lens a hazy grayish-blue appearance to the observer. Unlike cataracts, light can still penetrate the lens to reach the retina producing a visible tapetal reflection. Lenticular sclerosis is not believed to significantly affect vision, and therefore treatment is not recommended.

**We thank our colleague from BluePearl in Sarasota, Florida, Anja Weihiakoy, DVM, DACVO, for letting us use this article for Companion.**
Sudden collapse in a pet is a relatively common client complaint. Possible causes include heart disease, brain disease, spinal disease, acute hemorrhage and metabolic abnormalities. Frequently, the pet owner’s description of the incident is not useful in differentiating the causes. A multi-disciplinary diagnostic approach to the problem may be necessary. Should there be non-specific abnormalities noted on physical exam and lab work, then further evaluations which might include abdominal ultrasound, cardiac ultrasound, Holter cardiac arrhythmia monitoring, and neurologic imaging studies should be considered. Our specialists work together to get to the source of a pet’s problem. Please don’t hesitate to give us a call should you be presented with a dog or cat whose signs remain vague and whose illness proves difficult to localize.

Rhinoscopy is useful for evaluating the nasopharynx and mucosal surface. Rhinoscopic view of a cuterebra in the soft palate of a cat; note that everything is upside down on rhinoscopy, so the palate is on the top of the image.

PHOTO COURTESY OF DR. MICHAËL LORA-MICHIELS, BLUEPEARL VETERINARY PARTNERS IN NEW YORK

Can you diagnose respiratory viruses in cats?

Studies have shown that antibody testing is of limited value in confirming the presence of a viral cause for feline nasal signs. Positive results merely indicate that the cat was exposed to the virus at some point in its life. Polymerase chain reaction (PCR) testing (typically a pharyngeal or conjunctival swab) is more specific for the condition as it represents detection of viral antigen. That being said, the swabbing can miss the virus or, depending on the lab, vaccination can give a false positive result. Also, normal asymptomatic cats may harbor the virus, so its presence doesn’t entirely exclude another potential cause for the signs.

Rhinoscopy is useful for evaluating the nasopharynx and mucosal surface. Rhinoscopic view of a cuterebra in the soft palate of a cat; note that everything is upside down on rhinoscopy, so the palate is on the top of the image.

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