


ESOPHAGEAL OBSTRUCTION IN LARGE ANIMALS





Esophageal obstruction (choke) occurs when the esophagus is obstructed by food or foreign objects. It is the most common esophageal disease in large animals.

Horses most commonly obstruct on grain, beet pulp, or hay. Esophageal obstruction can also occur after recovery from standing chemical restraint or general anesthesia. Cattle tend to obstruct on a single solid object, eg, apples, beets, potatoes, turnips, corn stalks, or ears of corn.

CLINICAL FINDINGS:

In **horses**, clinical signs associated with esophageal obstruction include nasal discharge of feed material or saliva, dysphagia, coughing, or ptyalism.

The horse may appear anxious and/or appear to “retch” by stretching and arching the neck. Affected horses may continue to eat or drink, worsening the clinical signs.

In **cattle**, clinical signs include free-gas bloat, ptyalism, or nasal discharge of food and water. Ruminants may be bloated and in distress or recumbent, or there may be protrusion of the tongue, extension of the head, bruxism, and ptyalism.

Acute and complete esophageal obstruction is an emergency because it prohibits eructation of ruminal gases, and free-gas bloat develops.

Severe free-gas bloat may result in asphyxia, because the expanding rumen puts pressure on the diaphragm and reduces venous return of blood to the heart.

DIAGNOSIS:

The clinical signs of esophageal obstruction are usually diagnostic.

Physical examination findings compatible with esophageal obstruction include nasal discharge of feed material and water, bruxism, ptyalism, and palpable enlargement of the esophagus; in some instances, foreign objects lodged in the cervical esophagus may be located via palpation.

Subcutaneous emphysema, cervical cellulitis, and fever may be associated with esophageal rupture. The inability to pass a stomach (ruminants) or nasogastric tube (horses) can also confirm the diagnosis.

An endoscopic examination helps localize the site of esophageal obstruction, type of obstructing material, and extent of esophageal ulceration.

Because of the risk of aspiration pneumonia, the respiratory tract should be evaluated carefully, including auscultation of the heart and lungs and thoracic radiography. In complicated or chronic cases, a CBC and serum biochemistry profile should be performed.

CBC abnormalities include leukocytosis, left shift, toxic neutrophils, and hyperfibrinogenemia. Biochemical abnormalities include hyponatremia, hypochloremia, and hypokalemia secondary to excessive loss of saliva.

TREATMENT:

In **horses**, many cases of esophageal obstruction may resolve spontaneously if feed and water are withheld. Spontaneous resolution can be aided by IV administration of sedatives (such as xylazine and detomidine).

Oxytocin (0.11–0.22 mg/kg, IV) has proved useful to relax esophageal smooth muscle. To ensure that the esophageal obstruction has resolved completely, all horses with suspected obstruction should have a nasogastric tube passed into the stomach or an endoscopic examination.

Waiting >4–6 hr before passing a nasogastric tube is not recommended because of the risk of esophageal mucosal ulceration and aspiration pneumonia.

Horses that do not respond to conservative management (withdrawal of feed and water, IV sedation or oxytocin) should be initially treated with esophageal lavage as follows:


After IV sedation, a nasogastric tube is inserted to the level of the obstruction.

Water is delivered to the obstruction site with a stomach pump, and the tube is slowly inserted and withdrawn to lavage the esophagus. The head must be lower than the torso to minimize aspiration of water into the lungs. Lavage via nasogastric tube is successful in at least 90% of cases.

For horses unresponsive to standing esophageal lavage, general anesthesia should be considered, with the horse positioned in lateral recumbency and orotracheally intubated.

Again, the head must be positioned lower than the torso to prevent water passing into the lungs.

A cuffed endotracheal tube (18–22 mm) is inserted into the esophagus as far as possible or to the level of the esophageal obstruction, and the cuff inflated



A nasogastric tube is inserted through the endotracheal tube, and the esophagus is lavaged as previously described.

Again, resolution of obstruction should be confirmed with endoscopy or passage of the nasogastric tube into the stomach. An esophagotomy to resolve esophageal obstruction is rarely required.

All chronic cases of esophageal obstruction should be evaluated endoscopically after successful resolution.

These horses frequently have esophageal ulceration that can be circumferential.

Severe mucosal ulceration can result in esophageal stricture and repeat obstruction.

Endoscopy is also useful to exclude esophageal diverticula, which can predispose to esophageal obstruction. Esophageal diverticula can also be diagnosed with contrast esophagograms

Horses without mucosal ulceration should be fed water-soaked, complete pelleted feed for at least 7–14 days to minimize the likelihood of repeat esophageal obstruction.

Horses with mucosal ulceration should be fed this diet for 60 days, after which follow-up endoscopy should be performed to evaluate whether mucosal ulceration has resolved and esophageal stricture has occurred.

Horses with chronic mucosal ulceration with stricture may require surgical management.


Aspiration pneumonia should be managed with IV or oral antimicrobials and anti-inflammatory drugs.

Commonly used antimicrobials include potassium or procaine penicillin G (22,000 U/kg, IV [potassium] or IM [procaine], bid-qid), trimethoprim-sulfamethoxazole (30 mg/kg, PO, bid), and gentamicin sulfate (6.6 mg/kg/day, IV or IM). Metronidazole (15 mg/kg, PO, qid) is useful for management of anaerobic infections.

The most common anti-inflammatory drugs used are phenylbutazone (2.2–4.4 mg/kg, PO or IV, bid) and flunixin meglumine (1.1 mg/kg, IV, bid).

In **cattle**, esophageal obstruction accompanied by ruminal tympany is an emergency, and if clinical signs of distress indicate, the bloat must be relieved by trocarization through the left sublumbar fossa.

Once tympany has been relieved, solid objects (eg, potatoes) may often be massaged free or spontaneously dislodge as their outer surfaces are softened by saliva. Caution should be used if any attempt is made to push an offending object down the esophagus using a probang; esophageal rupture and fatal septic mediastinitis may result.



Esophageal obstruction in ruminants can be managed with standing esophageal lavage via orogastric tube or while under general anesthesia

Large foreign bodies can often be pushed into the rumen without further problems. Rare cases of esophageal obstruction with foreign bodies may be treated with esophagotomy.

COMPLICATIONS OF ESOPHAGEAL OBSTRUCTION

In horses and cattle, aspiration and septic pleuropneumonia may be complications of esophageal obstruction, especially in chronic cases.

Chronic esophageal obstruction (>24 hr) may be associated with pressure necrosis of the esophageal mucosa due to prolonged contact with the foreign body.

Circumferential mucosal damage may contribute to esophageal stricture.

An often fatal complication of chronic esophageal obstruction is esophageal rupture. Cervical esophageal rupture can lead to localized cervical cellulitis or septic mediastinitis or pleuropneumonia.

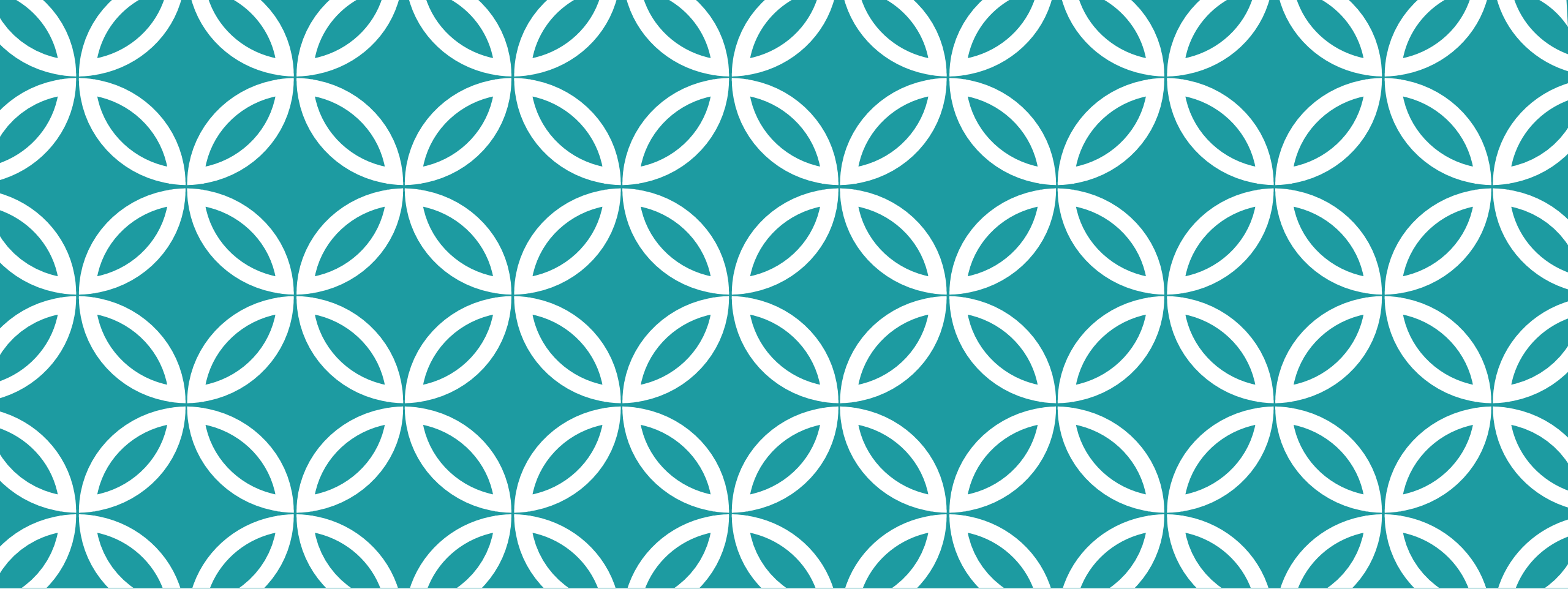
Intrathoracic esophageal rupture is typically fatal. Cervical esophageal rupture can be managed by local drainage, wound lavage, and insertion of a nasogastric tube into the rupture site.

A traction diverticulum is allowed to form, and the nasogastric tube is removed. Esophageal rupture managed with extraoral alimentation rarely results in esophageal stricture. In cases of septic mediastinitis or pleuropneumonia, euthanasia should be considered because of the difficulty in successfully resolving the bacterial infection.

ESOPHAGEAL OBSTRUCTION SECONDARY TO EXTRAESOPHAGEAL DISEASE

Cervical and prethoracic trauma may result in periesophageal or esophageal fibrosis involving the muscular layer. This can result in esophageal stricture and intermittent or recurrent esophageal obstruction.

In some cases, there is no external evidence of cervical or prethoracic trauma. In cases of suspected extraesophageal trauma, endoscopic examination of the esophagus and a contrast esophagogram can be useful diagnostic tools. Once the site of esophageal stricture is identified, some cases of muscular stricture can be resolved with esophageal myotomy or removal of fibrous connective tissue surrounding the esophagus.



ESOPHAGEAL STRICTURES IN LARGE ANIMALS

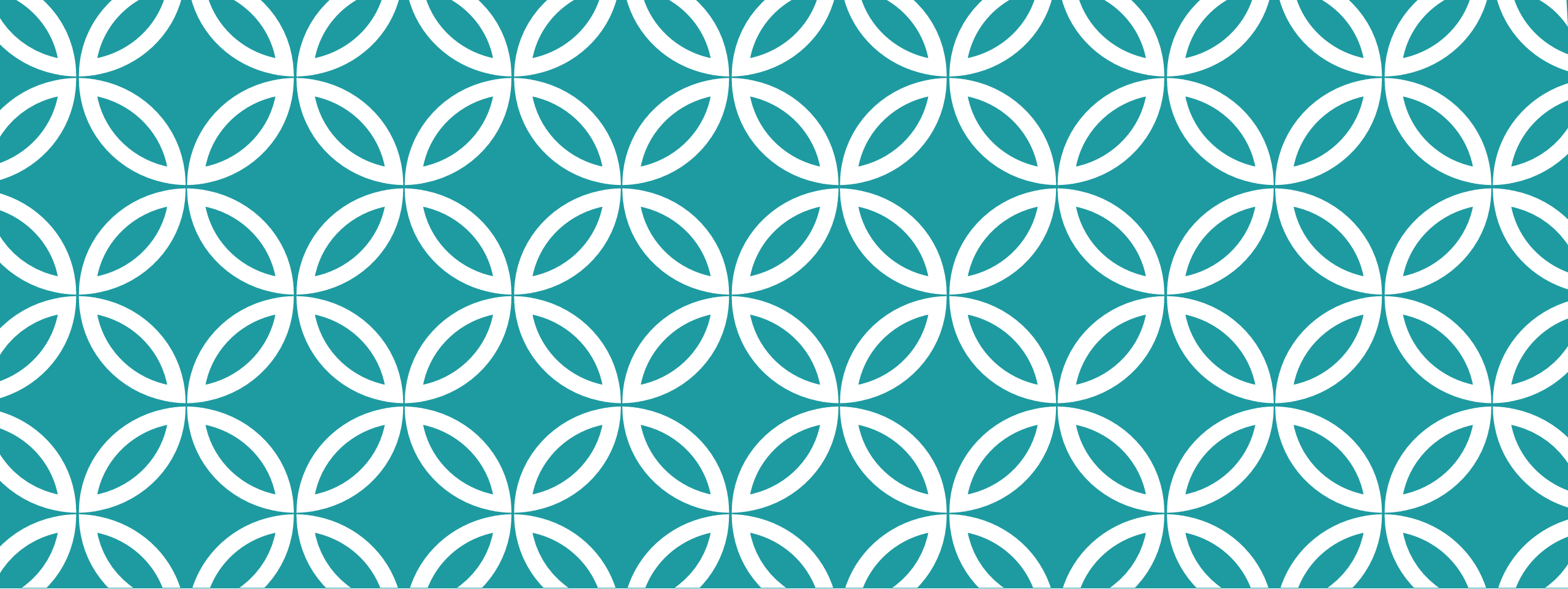


Idiopathic esophageal strictures can occur in foals. Initial diagnosis based on clinical signs may be delayed because of other more frequent causes of dysphagia, including idiopathic dorsal displacement of the soft palate or nasal reflux of milk, cleft palate, or pharyngeal cysts.

All cases of nasal discharge of milk in foals should be evaluated with endoscopy. Esophageal stricture in older horses or ruminants typically results from mucosal ulceration secondary to esophageal obstruction


Appropriate treatment depends on whether the stricture is mucosal or mural (involving the muscular wall). Mucosal strictures can be treated conservatively with dietary management, bougienage with a cuffed endotracheal tube, or surgery.

Mural strictures are best managed with esophageal myotomy. Surgical treatment of mucosal strictures may involve esophagotomy through the strictured area with insertion of a nasogastric tube, resulting in a traction diverticulum, mucosal resection and anastomosis, or full-thickness esophageal resection and anastomosis.



ESOPHAGEAL NEOPLASIA IN LARGE ANIMALS





The most common neoplasia of the esophagus in horses is squamous cell carcinoma, which carries a guarded prognosis.

Focal neoplastic masses can be managed with esophageal resection and anastomosis.

Unfortunately, most cases of squamous cell carcinoma are not amenable to surgery, and euthanasia should be considered.

In ruminants, bovine viral papillomas (ie, warts) occasionally develop in the cranial esophagus and pharynx and, in the presence of other agents, may result in development of esophageal carcinoma.

In some areas of the world (eg, Scotland and South America), such disease may follow ingestion of natural bracken fern toxins. There is also a causal relationship between such bracken fern tumors and bladder cancers in cattle

