

General Session III

“Fine Tuning Medical Skills for Bovine Practice in the 1990’s”

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Tracheal Collapse and Stenosis of Calves

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Tracheal collapse and/or stenosis on calves, while undoubtedly not a new condition is being more frequently recognized as a potential cause of severe respiratory distress. The condition is routinely associated with anterior rib fractures which have occurred during dystocia. The calves generally exhibit normal health until fracture healing is advanced. Bone callus formation at or near the thoracic inlet impairs development of the trachea or exerts sufficient pressure to cause collapse of the tracheal lumen.

Signalment

1. Predominantly heavy shouldered, heavy birth weight male beef calves.
2. 2-6 weeks old.

History

1. Dystocia
 - many are anterior presentation
 - suspect crushing fractures of anterior 2-3 ribs by forelimb and shoulder compression of thorax during birth.
2. Normal early postnatal health

Clinical Presentation

1. Acute upper respiratory distress
 - loud inspiratory dyspnea - “honking”
 - point of greatest auscultable intensity at the thoracic inlet
 - initiated or aggravated by exertion, calves may appear normal at rest
2. Due to short length of the first 2-3 ribs and their location underneath the forearms, fractures in this area are often subtle and easily overlooked on physical examination.

Differential Diagnoses

Other upper respiratory diseases:

1. diphtheria
2. retropharyngeal abscesses/phlegmon
3. juvenile lymphosarcoma
4. tracheitis

Diagnostic Confirmation

1. Endoscopy
2. Fluoroscopy
3. Radiology
 - the affected portion of the trachea is usually at or near the thoracic inlet and may be partially obscured by fracture callus of the first several ribs.
4. Necropsy

Resolution

1. Tracheotomy does **NOT** alleviate the inspiratory dyspnea - this observation is of diagnostic value to the clinician.
2. Surgical stabilization

One technique patterned after that used by canine surgeons has been developed to stabilize the collapsing trachea. An extra thoracic ventral midline approach is utilized to expose the caudal cervical trachea at the thoracic inlet. The affected portion of the trachea is exposed by traction and plastic rings are placed around and sutured to the collapsed portion of the trachea. Satisfactory results have been obtained using custom fitted rings made of sterile disposable syringe barrels. Results may be improved by concurrent resection of large bony calluses of the first 2 ribs.

The surgery is not a panacea and these cases carry a poor to guarded prognosis at best. The calves are typically hypoxic at presentation and may have additional ventilation - perfusion abnormalities placing them at considerable anesthetic risk. The surgery is traumatic and postoperative swelling, dehiscence and infection may be problematic. Additionally, the placement of well-fitted prosthetic rings in calves of this size cannot very well accommodate future growth. Although occasional patients respond well over a long term, the procedure is generally a salvage operation.