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# Rectal Prolapse

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Rectal prolapse is a common occurrence in cattle and small ruminants. Prolapse of the rectal mucosa occurs following straining, which may be associated with tenesmus (as occurs with coccidiosis, colitis, and other conditions), dysuria (as a complication of cystitis, urolithiasis, dystocia, neoplasia, and other conditions), neuropathy (as a complication of being ''ridden down'' by other cattle during estrus, spinal lymphoma, use of epidural alcohol blocks, spinal abscess, and other causes), chronic coughing (as a complication of bovine respiratory disease), or genetics [1,2]. Many other factors have been associated with the development of rectal prolapse, including neoplasia, diet (eg, clover, feedstuffs high in estrogenic compounds such as soybean meal), and various toxins [3–5]. Intermittent rectal prolapse has been seen in embryo transfer cows and may be caused by obesity with excessive pelvic deposition of fat and chronic administration of estrogenic hormones.

In sheep rectal prolapse is seen most commonly as a complication of tail amputation. Typically, the tail is amputated so short that the innervation of the anal sphincter and perianal muscles is compromised, resulting in chronically progressive rectal protrusion and ultimately prolapse. In a prospective study, 1227 lambs at six locations were assigned to receive (1) short tail docking at the level of the body, (2) medium tail docking at the midpoint between the body and the attachment of the caudal tail fold to the tail skin, or (3) long tail dock at the level of the attachment of the caudal tail fold to the tail skin [6]. The incidence of rectal prolapse was 7.8% in lambs with short tail docking, 4% in lambs with medium tail docking, and 1.8% in lambs with long tail docking. At locations with higher incidences of rectal prolapses, lambs in feedlots had rectal prolapse more often than grazing lambs. Genetic analysis of rectal prolapse using half-siblings indicated a low heritability factor (0.14).

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Diagnosis of rectal prolapse is not difficult during the physical examination, but care should be taken that the prolapse does not contain other organs and that the rectum is not damaged further during the examination. The mucosa rapidly becomes edematous and often shows bleeding lesions. As the prolapse forms, the serosal surface of the rectum (parietal Peritoneum) folds over on itself and can adhere, preventing reduction (Fig. 1). Rectal prolapse may be described by the extent of involvement of various tissues as grades I through IV (Table 1). Grade III and grade IV rectal prolapse usually require surgical resection of the affected portion of the rectum. The severity of injury to the rectum may be described by the extent of tissue damage as grades I through IV (Table 2).

The simplest procedure for correction of rectal prolapse is reduction by gentle massage and retention by application of a purse-string suture pattern using umbilical tape. The suture is passed in and out through the skin around the anal opening at a distance of 2 to 4 cm from the anus. An opening should be left when tying the purse string so that defecation is possible. The suture usually is left in place for 5 to 10 days. This suturing should be done only if the rectal mucosa is viable and no laceration is present on close inspection. Treatment of the primary cause of the prolapse must be initiated immediately to prevent subsequent prolapse. In sheep, when rectal prolapse is associated with tail amputation, pararectal injection of irritant solutions

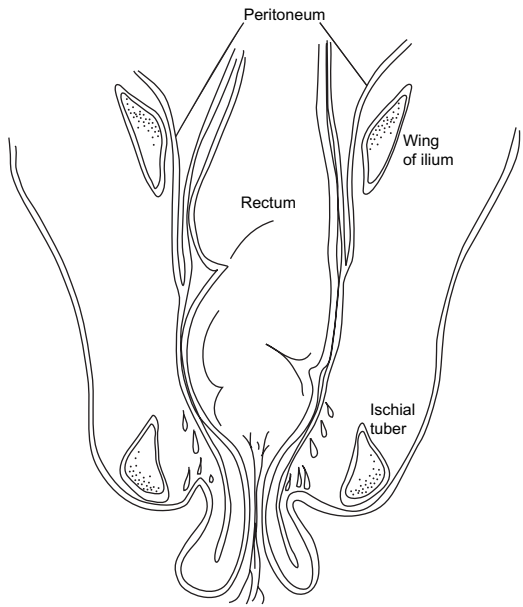


Fig. 1. Dorsal cross-section view of the bovine pelvis. The peritoneal space can be seen continuing from the abdomen to be incorporated in two layers at the prolapse. Adhesions can form, preventing complete manual reduction of the prolapse. Severe prolapses may contain abdominal viscera.

Table 1
Classification of rectal prolapse by structure (anatomic involvement)

| Classification | Description | Clinical feature |
|---|---|---|
| I | Prolapse of rectal mucosa only. These are small and usually intermittent. | Common |
| II | Complete prolapse of all layers of rectal (mucosa → serosa). Length is variable. Can be intermittent. | Common |
| III | Type II prolapse with the addition of prolapse of the large colon (intussusception of the large colon into the rectum). These prolapses are longer and more painful, and clinical signs progress rapidly. | Uncommon |
| IV | Type III prolapse except that the anal sphincter is intact causing constriction of the rectum and colon (intussusception of rectum and colon through anus). | Rare |

*Data from* Haskell SR. Surgery of the sheep and goat digestive system. In: Fubini SL, Ducharme NG, editors. Farm animal surgery. St Louis (MO): Saunders; 2004. p. 521–6.

has been advocated in an attempt to create adhesions between the rectum and surrounding pelvic structures. These adhesions act to restrict the rectum within the pelvic canal and thus prevent prolapse. In cattle, this procedure is not used commonly, probably because of the greater tissue mass involved in the prolapse.

When damage to the rectum is present, correction of the prolapse can be approached in different ways depending on the nature and extent of the injury. If only the mucosa is damaged, mucosal resection and anastomosis can be done. In this case, the mucosa is dissected free from the submucosa, and the cut edges are sutured back together leaving the underlying submucosa and blood supply intact. This technique is not commonly performed because of time, facility, and the technical constraints of field surgery. Surgical amputation is performed most commonly when rectal prolapse is severe. For this surgery, desired instruments include hemostats, scalpel blade, scissors, thumb forceps, two 18-gauge needles (or Steinman pins) 3 to 6 inches

Table 2
Classification of rectal tears by severity (anatomic extent of injury)

| Classification | Description | Clinical feature |
|---|---|---|
| I | Tear of mucosa and submucosa only | Common |
| II | Disruption of muscular layers with mucosa and submucosa intact (causes diverticulum formation) | Uncommon |
| III | Tear through mucosa, submucosa, and muscular layers; – serosa remains intact | Uncommon |
| IIIa | Tear any location other than dorsal midline | — |
| IIIb | Tear dorsal midline at attachment of mesorectum | — |
| IV | Tear through mucosa, submucosa, muscular layers, and serosa | Rare |

*Data from* Haskell SR. Surgery of the sheep and goat digestive system. In: Fubini SL, Ducharme NG, editors. Farm animal surgery. St Louis (MO): Saunders; 2004. p. 521–6.

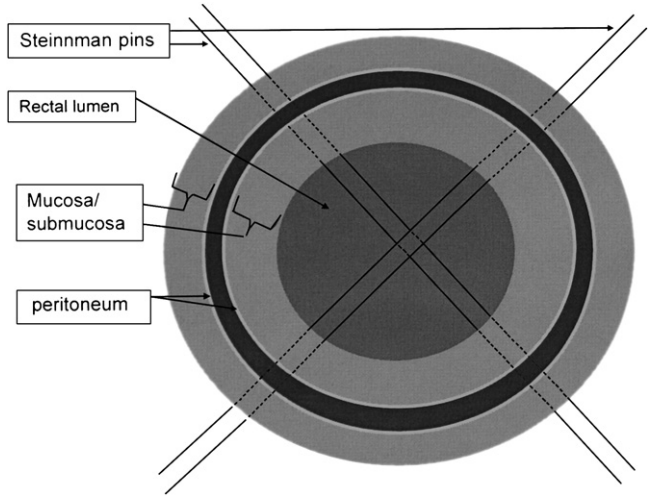


Fig. 2. Diagram demonstrating pin insertion into the prolapse, an intraluminal tube is not depicted in the diagram.

long, suture material, and a small-diameter rubber tube (optional) (Fig. 2). Surgery is performed after administration of epidural anesthesia. When a tube is used as a stent in the rectal lumen, the tube is inserted and fixed in the rectum by inserting the two needles through the rectum at right angles to each other so that they pass through the rectum and tube and emerge from the opposite side. The dissection is started about a centimeter from the mucocutaneous border where the mucosa is still healthy, and the entire circumference of the exposed mucosa of the rectum is cut down to the serosa of the inner wall (Fig. 3). Hemorrhaging usually is minor and is controlled with gauze until all the layers have been dissected and the dorsal artery of the rectum is cut. Once the dissection is completed around the prolapse,

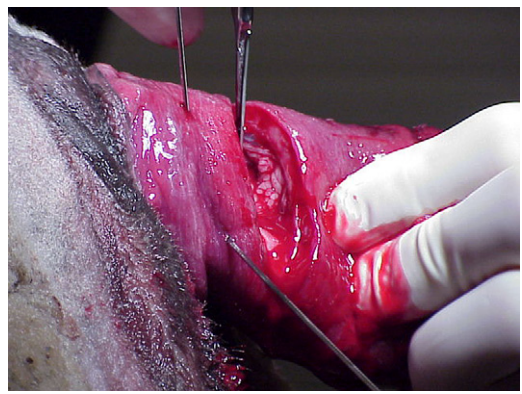

Fig. 3. Incision site for rectal resection 1 cm proximal to healthy margin.

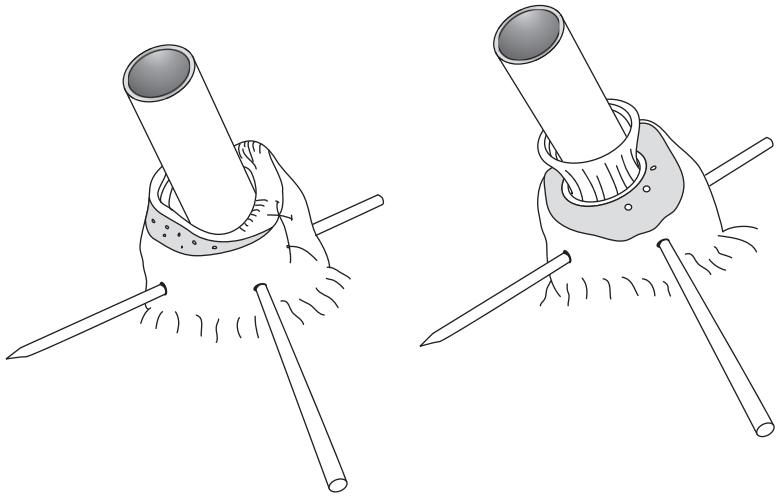

Fig. 4. Rectal prolapse removed and end-to-end anastomosis of rectum begum using No. 0 polyglycolic acid suture in cruciate pattern.

the rectum is held in place by the needles. The cut ends of the rectum should be sutured together using size 0 absorbable suture material in a cruciate pattern (Fig. 4). After the rectum has been sutured (Fig. 5), the needles are pulled from the tube, and the tube is removed from the rectum. The rectum is allowed to retract into place.

An alternative method of rectal amputation is to use a prolapse ring, polyvinyl chloride tubing, syringe case, or corrugated tube. The ring or tubing is placed in the rectum, and the halfway point on the tube needs to be inserted as far as the anal sphincter. A ligature or rubber band then is applied over the prolapse as near the anus as possible. The ligature or rubber band must be tight enough to disrupt the blood supply to the prolapse.

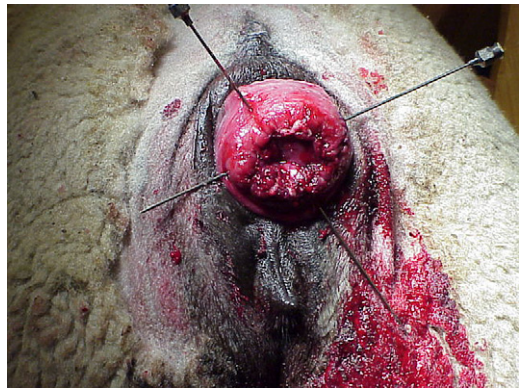

Fig. 5. Completed anastomosis.

Feces may go through the tube or may block the tube. Usually, the necrotic prolapse sloughs off in 7 to 10 days with the implant in place, and fecal production then returns to normal.

Postoperative management is aimed at alleviation of the inciting cause, maintenance of soft feces (eg, legume diet, mineral oil, cathartics such as magnesium hydroxide), and anti-inflammatory and analgesic medication (eg, flunixin meglumine). Complications seen with rectal prolapse are reoccurrence, dehiscence, constipation, bladder retroversion, eventration of the small intestine, abscess, rectal stricture, septic peritonitis, and death. Fecal impaction of prolapse tubes is common. Significant complications, such as rectal stricture, abscess, peritonitis, and death, are expected to be more common with use of prolapse tubes than with surgical amputation with primary reconstruction of the rectum.

In livestock that have unrelenting pain and straining, epidural blocks have been used to stop nerve sensation to the rectum. Short-term epidural analgesia can be obtained using lidocaine 2% HCl (60–120 minutes' duration), xylazine (120–180 minutes' duration), or xylazine plus lidocaine (180–240 minutes' duration). Longer-term analgesia may be obtained using epidural morphine (12–18 hours' duration). When analgesia is required for days to weeks, alcohol blocks (ethyl alcohol) have been used as an economical alternative. Alcohol blocks must be done cautiously and should not be done routinely. The author does not advocate the use of long-term (weeks to months) epidural nerve blocks except in extraordinary circumstances because of the potential for adverse events. Complications of alcohol blocks include fecal contamination of perineum, tail injury, paralysis, ataxia, exacerbation of underlying disease, and death.

## References

[1] Steiner A. Surgery of the colon. In: Fubini SL, Ducharme NG, editors. Farm animal surgery. St-Louis (MO): Saunders; 2004. p. 257–62.
[2] Haskell SR. Surgery of the sheep and goat digestive system. In: Fubini SL, Ducharme NG, editors. Farm animal surgery. St-Louis (MO): Saunders; 2004. p. 521–6.
[3] Pearson EG. Clinical manifestations of tansy ragwort poisoning. Mod Vet Pract 1977;58: 421–4.
[4] Bertone AL. Neoplasms of the bovine gastrointestinal tract. Vet Clin North Am Food Anim Pract 1990;6:515–24.
[5] Van Halderen A, Green JR, Marasas WF, et al. A field outbreak of chronic aflatoxicosis in dairy calves in the Western Cape Province. J S Afr Vet Assoc 1989;60:210–1.
[6] Thomas DL, Waldron DF, Lowe GD, et al. Length of docked tail and the incidence of rectal prolapse in lambs. J Anim Sci 2003;81:2725–32.