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Case Report

Clinical Diagnosis and Surgical Management of Full-thickness Rectal Prolapse in a Puppy Using Celiotomy-Assisted Reduction and Temporary Purse-String Suture: A Case Report

Farai Vhori*

Greystone Park Veterinary Surgery, Harare, Zimbabwe

***Corresponding Author:** Farai Vhori, Greystone Park Veterinary Surgery, Harare, Zimbabwe.

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Abstract

Rectal prolapse is an uncommon but clinically significant condition in dogs and is often associated with gastrointestinal disease or persistent tenesmus. An eight-week-old male puppy was presented with a two-day history of rectal prolapse. Clinical examination revealed circumferential protrusion of full-thickness rectal tissue through the anal sphincter with marked oedema, venous congestion, and marked venous congestion with preserved tissue viability. Following general anaesthesia, initial manual reduction was attempted but could not be completed because of severe oedema. A ventral midline celiotomy was therefore performed, and gentle intra-abdominal traction facilitated complete reduction of the prolapsed rectum. A temporary 2-0 polydioxanone (PDS) purse-string suture was subsequently placed around the anus to prevent recurrence while allowing normal defecation. Appropriate perioperative medical management, including intravenous fluid therapy, antimicrobial therapy, analgesia, deworming, and postoperative supportive care, was provided. The puppy recovered uneventfully, and the purse-string suture was removed 10 days postoperatively without recurrence of rectal prolapse. This report highlights the successful use of celiotomy-assisted reduction combined with temporary purse-string suturing in the management of a viable complete rectal prolapse and emphasises the importance of early intervention and comprehensive perioperative management to achieve a favourable clinical outcome.

Keywords: Rectal Prolapse; Puppy; Celiotomy-Assisted Reduction; Veterinary Surgery; Purse-String Suture; Canine Gastrointestinal Disease

Introduction

Rectal prolapse is characterized by the protrusion of rectal tissue through the anal opening and represents a relatively uncommon condition in dogs. It is most frequently observed in young animals and is often associated with conditions that result in persistent tenesmus, including gastrointestinal infections, parasitism, severe diarrhoea, or dietary irritation. Prolonged prolapse can lead to mucosal oedema, vascular congestion, ischaemia, and eventual necrosis if not treated promptly. Early recognition and appropriate management are therefore essential to prevent irreversible tissue damage and the need for more invasive surgical procedures. Several treatment options have been described, including manual reduction with temporary purse-string suture placement, colopexy, and rectal resection with anastomosis in cases where the prolapsed tissue is non-viable. However, severe oedema and vascular congestion may prevent successful manual reduction despite preservation of tissue viability, necessitating alternative surgical approaches.

The purpose of this case report is to describe the clinical presentation, diagnostic evaluation, and successful surgical management of a complete rectal prolapse in an eight-week-

old puppy using celiotomy-assisted reduction and temporary purse-string suturing. The significance of this report lies in demonstrating celiotomy-assisted reduction as a valuable surgical adjunct when conventional manual reduction is unsuccessful despite preservation of rectal tissue viability. Furthermore, this case highlights the importance of a systematic diagnostic approach, comprehensive perioperative medical management, and timely surgical intervention in preserving rectal function, preventing recurrence, and avoiding more invasive procedures such as rectal resection or colopexy.

Case Description

An eight-week-old intact male puppy was presented with a two-day history of rectal prolapse. The owner reported that the prolapsed tissue had been protruding from the anus for approximately 48 hours before presentation. No preceding clinical signs, including diarrhoea, vomiting, tenesmus, constipation, or other gastrointestinal abnormalities, were observed before the onset of the prolapse. The puppy had been fed a mixed diet consisting of commercial dog feeds (Boolies Bites® and ForPets®) together with household leftovers. Vaccinations were reported to be up to date according to the recommended vaccination schedule. The deworming history could not be confirmed by the owner.

Clinical examination revealed a cylindrical mass of rectal tissue protruding through the anal sphincter (Figure 1). The exposed mucosa was markedly oedematous and congested, with areas of dark red to purple discoloration suggestive of vascular compromise.

Preoperative haematological evaluation was not performed because of financial constraints. Based on the history and physical examination findings, a diagnosis of complete (full-thickness) rectal prolapse with marked oedema and venous congestion was made. The prolapsed tissue was considered viable and the puppy was considered a suitable candidate for surgical correction.

Surgical management

The prolapsed rectal tissue was gently cleansed using sterile isotonic saline to remove debris and fecal contamination. The prolapsed rectal mucosa appeared markedly oedematous and congested, with evidence of vascular compromise (Figure 2). Lubrication was applied to the prolapsed tissue to facilitate reduction.

Figure 1: Severe rectal prolapse in an eight-week-old puppy showing oedematous rectal mucosa protruding through the anal sphincter prior to treatment.

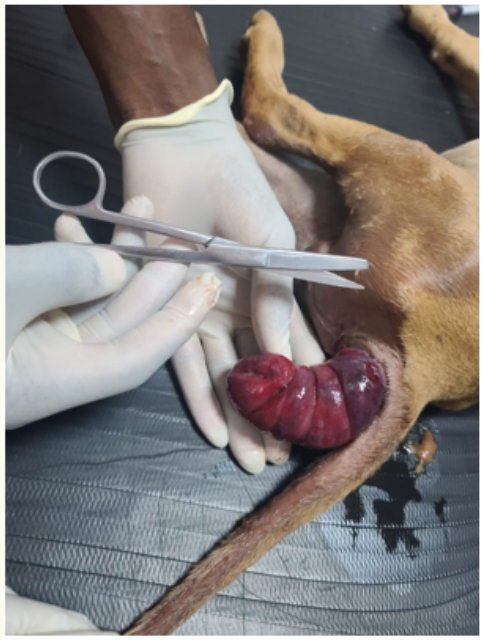

Figure 2: Close view of the prolapsed rectal tissue demonstrating marked mucosal oedema and vascular congestion.

The puppy was premedicated with atropine (0.04 mg/kg IV) followed by xylazine (0.5 mg/kg IV) for sedation. General anaesthesia was induced using a total intravenous anaesthesia (TIVA) protocol consisting of diazepam (0.25 mg/kg IV) and ketamine (5 mg/kg IV). Following endotracheal intubation, intravenous normal saline (20 mL/kg) was administered during the procedure to maintain hydration and circulatory stability. The prolapsed rectal tissue was gently cleansed with sterile normal saline and lubricated with a sterile water-soluble lubricant. Gentle digital pressure was initially applied to reduce the prolapsed rectum through the anal sphincter. However, complete reduction could not be achieved because of marked oedema and tissue congestion. Consequently, a ventral midline celiotomy was performed, and gentle traction was applied to the rectum from within the abdominal cavity to facilitate complete anatomical reduction of the prolapsed tissue.

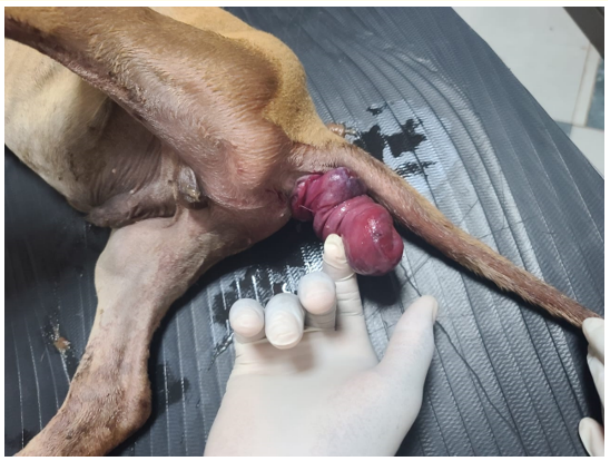

Figure 3: Initial unsuccessful attempt at manual reduction of the prolapsed rectal tissue following cleaning and lubrication.

Following successful reduction, the abdominal incision was routinely closed in anatomical layers before a temporary purse-string suture using 2-0 polydioxanone (PDS) was placed circumferentially around the anus to prevent recurrence while still allowing passage of faeces (Figure 4). The tension of the suture was adjusted to permit defecation without allowing recurrence of the prolapse.

Figure 4: Temporary purse-string suture using 2-0 polydioxanone (PDS) placed around the anus following celiotomy-assisted reduction of the complete rectal prolapse.

Discussion

Rectal prolapse is an uncommon but clinically significant condition in dogs, particularly in young animals. It is defined as the protrusion of rectal tissue through the anal opening and is most commonly associated with conditions that cause persistent tenesmus or increased intra-abdominal pressure [1]. In puppies, rectal prolapse is frequently secondary to gastrointestinal disturbances such as enteritis, parasitic infections, or severe diarrhea [2]. The present case involved an eight-week-old puppy with rectal prolapse that had been present for approximately 48 hours prior to veterinary intervention.

Young animals appear to be predisposed to rectal prolapse due to immature gastrointestinal function and increased susceptibility to enteric disease. Dietary factors may also contribute to gastrointestinal irritation and straining. In this case, the puppy was fed a mixed diet consisting of commercial feeds (Boolies Bites® and ForPets®) in addition to household leftovers. Abrupt dietary changes and mixed feeding practices have been associated with gastrointestinal upset and tenesmus, which may predispose animals to rectal prolapse. Although parasitism and infectious enteritis are also common causes in puppies, diagnostic testing was not performed in this case, and therefore these causes cannot be excluded.

The duration of prolapse prior to treatment is an important determinant of tissue viability, as prolonged exposure of rectal mucosa may lead to oedema, vascular compromise, and eventual necrosis [3]. In the present case, the prolapsed rectal tissue exhibited marked oedema and congestion, with areas of dark red to purple discoloration consistent with impaired venous drainage. Despite these changes, the tissue remained viable and bowel resection was not required. However, because marked oedema and vascular congestion prevented complete reduction by digital manipulation alone, a ventral midline celiotomy was performed. Gentle intra-abdominal traction on the rectum facilitated complete anatomical repositioning of the prolapsed tissue without the need for rectal resection or colopexy. In the present case, celiotomy-assisted reduction successfully facilitated reduction when manual reduction alone was unsuccessful, suggesting that this technique may represent a useful surgical alternative in selected cases with viable rectal tissue.

Management of rectal prolapse depends on the severity of the prolapse, duration of exposure, the viability of the affected tissue, and the ease with which reduction can be achieved. Manual reduction followed by placement of a purse-string suture is commonly used when the tissue remains viable [1]. However, in cases where marked oedema, congestion, or prolonged prolapse prevents complete reduction, additional surgical intervention may be required. In the present case, celiotomy-assisted reduction allowed gentle traction on the rectum from within the abdominal cavity, facilitating complete reduction while preserving tissue viability. Placement of a temporary purse-string suture using 2-0 polydioxanone (PDS) subsequently reduced the risk of recurrence while allowing normal defecation [4].

Most reported cases of viable rectal prolapse in puppies have been successfully managed by manual reduction and temporary purse-string suturing. In contrast, the present case required celiotomy-assisted reduction because digital manipulation alone was insufficient to achieve complete reduction owing to severe oedema and vascular congestion. The successful outcome demonstrates that celiotomy-assisted reduction can preserve viable tissue and avoid more radical procedures such as rectal resection or colopexy when manual reduction alone is unsuccessful.

Prompt intervention is critical in cases of rectal prolapse to prevent complications such as mucosal necrosis, ulceration, infection, and recurrence. Early veterinary treatment also improves the likelihood of successful reduction without the need for more invasive surgical procedures. Additionally, identification and management of the underlying cause are essential to prevent recurrence of the condition [5].

This case highlights the successful management of rectal prolapse in a young puppy using celiotomy-assisted reduction followed by temporary purse-string suture placement. The case also emphasizes the importance of early intervention and appropriate supportive management in preventing progression to more severe complications. Increased awareness among pet owners regarding the need for prompt veterinary attention when rectal prolapse is observed may significantly improve clinical outcomes in affected animals.

Conclusion

This case demonstrates the successful management of a complete rectal prolapse in an eight-week-old puppy using celiotomy-assisted reduction followed by temporary purse-string suturing. Early recognition of tissue viability and timely surgical intervention preserved the prolapsed rectum without the need for bowel resection or colopexy. The report also highlights the importance of identifying and addressing underlying predisposing factors, together with appropriate perioperative medical management, to minimise recurrence and optimise clinical outcome.

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