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# Clinical Diagnosis and Multimodal Management of Rectal Prolapse in Buffaloes: From Chemical to Advanced Surgical Techniques

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## ABSTRACT

**Background:** A problem of rectal prolapse in buffaloes is a severe gastrointestinal emergency, which can cause great economic losses, unless it can be addressed in good time. The objective of the study was to compare the clinical diagnosis and multimodal treatment of the rectal prolapse in buffaloes undergoing sophisticated surgical resection.

**Materials and Methods:** The sample number was 50 female buffaloes (5 months to 13 years old) that received rectal protrusion. Clinical classification was made, on the basis of the cases; most of the cases were Grade IV (complete prolapse with necrosis or laceration), and 16% (n=8) were incomplete cases. Surgical resection of the necrotic tissue was undertaken under caudal epidural anesthesia (2% Lidocaine HCl), and a purse-string suture and rectopexy were done afterwards.

**Results:** The surgery produced a 100 % success rate with all the animals being fully recovered after a period of 8 days after surgery. It was found that the main predisposing factors were clinical manifestations of chronic diarrhea, dysuria, and straining by roughage feeding. In Grade IV cases, surgery was mandatory as the edema and tissue damage were severe. The follow-up period did not show any complications or recurrences.

**Conclusion:** Multimodal therapy comprising a surgical resection and rectopexy is a very effective form of treating advanced rectal prolapse (Grade IV) both in the calves and adult buffaloes. The surgical intervention and standardized postoperative treatment such as antibiotics and diet modification can guarantee an excellent prognosis.

## Introduction

Rectal prolapse is defined as the abnormal protrusion of one or more layers of the rectal wall through the anal sphincter (Chauhan et al., 2025). In veterinary clinical practice, this

condition is primarily categorized based on the extent of tissue involvement: incomplete prolapse, which involves only the mucosal and submucosal layers, and complete prolapse, characterized by the displacement of the entire thickness of the rectal wall (Anderson and Miesner, 2008).

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Etiology of rectal prolapse is multifactorial since it is caused by complex interplay of physiological, environmental, and management-related stressors. Pathologically, any pathology that causes a state of continuous tenesmus (straining) or elevated intra-abdominal pressure may act as a primary precipitant. These predisposing factors are varied and may include gastrointestinal disturbances, including chronic diarrhoea, dysentery, and constipation, metabolic and environmental problems such as water deprivation, rapid growth rates, and fluctuating ambient temperatures (Gourgiotis and Baratsis 2007, and Papatsiros et al., 2012). Moreover, the risk is usually worsened by mechanical or traumatic events like severe coughs, improper docking of the tail, and neoplasia of the distal colon. Urogenital complication, including urolithiasis, cystitis, and physiological stress of parturition, lactation, or dystocia are often linked with the condition when breeding animals (Papatsiros et al., 2012). Rectal prolapse occurs most frequently in younger animals, and is a common sequela to infectious enteritis and severe diarrhoea. Management of this condition is a time-sensitive clinical matter; any subsequent delay in clinical management can precipitate a series of vascular impairments. In particular, the vulnerable tissue is most at risk of edoema, ischemia, and mucosal laceration that may lead to systemic bleeding and lethal shock. This situation leads to the common change in the prognosis of the neglected cases which usually becomes guarded to the poor or hopeless (Mitchell et al., 2021). Being very common and capable of causing serious economic loss in case of serious illness, rectal prolapse has been one of the most serious surgical problems in bovine and camelid medicine. It is one of the causes of surgery in the lower gastrointestinal tract of cattle, buffaloes, and other ruminants in the world (Kashyap et al., 2019). Proper resolution, then, must not solely involve a surgical repair but also an all-encompassing diagnostic model to detect and eliminate the causes of the main problem.

## Materials and Methods

### Study Population and Ethical Approval

A clinical study was conducted on fifty (50) female buffaloes, ranging in age from 5 months to 13 years, presented at the Veterinary Medicine Hospital, University of Basrah. All



Figure (1): Edematous and lacerated rectum

animals exhibited clinical signs of rectal protrusion.

### Case Classification and Inclusion Criteria

Animals were included in the study based on a clinical diagnosis of rectal prolapse. Cases were classified into four grades based on the severity and tissue involvement (adapted from Anderson and Miesner, 2008):

- Grade I: Minor protrusion of the rectal mucosa; often intermittent.
- Grade II: Complete protrusion of the mucosal and submucosal layers.
- Grade III: Protrusion of the entire thickness of the rectal wall.
- Grade IV: Complete prolapse with significant tissue necrosis, edema, or laceration.

### Pre-operative Evaluation

A thorough clinical history was recorded for each case. Predisposing factors included chronic diarrhea, dysuria, and chronic coughing. In some instances, historical feeding with roughages for extended periods followed by the administration of purgatives resulted in excessive straining during defecation. Bleeding, edema and hyperemic protrusion were usually observed during clinical examination ( Figure:1&2).

### Surgical Protocol

The operation was done on a standardized protocol:

1. Restraint & Anesthesia: Anesthesia: The animals were put in lateral recumbency. Caudal epidural anesthesia at the sacro-coccygeal location was performed by the use of 2 percent Lidocaine HCl. Aggression cases were further sedated in low doses (Abduljaleel et al., 2025).
2. Preparation The prolapsed mass was rinsed with potassium permanganate (1:1000) and debrided.
3. Ligation Perineum Ligation: 2/0 chromic catgut was used to exteriorize blood vessels on serosal surface.
4. Resection: A Doyen intestinal clamp was applied 1.5 cm above the necrotic. Surgical resection of the necrotic or edematous was then done.
5. Suturing (Rectopexy): Interrupted simple suture method was used to suture the serosal and mucosal surfaces. Post-resection a purse-string suture was used in order to stabilize the correction.



Figure (2): swollen and protruded rectum

## Postoperative Care

Post-surgical management included:

- **Antibiotic Therapy:** Penicillin (20 000 IU/kg) and Streptomycin (12 mg/kg) given as an intramuscular injection 5 times daily over five days (Mohsin et al., 2025).
- **Dietary Management:** Animals were provided with green, digestible food.
- **Suture Removal:** Sutures were removed ten days post-operation (Jasim et al., 2025; Ibrahim et al., 2025).

## Results

### Clinical Findings and Classification

- Of the 50 buffaloes that were studied, most of them had severe clinical manifestations. The cases according to the degree of the prolapse were distributed as follows:
- **Complete Rectal Prolapse (Grade IV):** 42 cases (84%), characterized by full-thickness protrusion and varying degrees of necrosis.
- **Incomplete Rectal Prolapse (Grades I-III):** 8 cases (16%), involving mainly mucosal protrusion.

### Surgical Success and Recovery Rate

The multimodal management approach, focusing on surgical

resection for advanced cases, yielded the following results:

- **Overall Success Rate:** 100% (50/50 cases) were successfully treated and reached full recovery (Figure.3).
- **Recovery Timeline:** All animals showed complete recovery and absence of anal stretches within 8 days post-surgery.
- **Manual Intervention:** In young calves, manual removal of feces was required during the first 24 hours post-operation to prevent excessive straining.

### Postoperative Observations and Complications

- **Complications:** No immediate surgical complications such as heavy hemorrhaging or anesthetic shock were recorded during the procedures.
- **Recurrence:** No cases of recurrence were observed during the follow-up period after the application of the purse-string suture and rectopexy.
- **Clinical Improvement:** The physiological parameters were held within the normal range after surgery and edema and hyperemia were reduced significantly at the end of the fifth day of treatment.



Figure (3): Rectum post-surgical resection and treatment.

## Discussion

### Incidence and Predisposing Factors

A notable clinical finding among buffaloes, which is frequently associated with urogenital related conditions, is rectal prolapse. We find that our results are in line with

those by Samy (2022), who states that clinical correction is preferably based on the timeline of 12 hours to avoid any cases of irreversible tissue damage. The present research study has a high number of Grade IV cases due to a number of multifactorial stressors such as chronic gastrointestinal ailments (diarrhea and colitis), urogenital issues (pyometra and dystocia) and environmental factors such as water

deprivation.

## Management and Surgical Intervention

Surgical resection selected in the study was caused by the severity of the cases (Grade IV) in which edema, ischemia, and necrosis prevented manual repositioning. This agrees with Khurma et al. (2016), who supported surgical intervention in buffalo calves brought with similar complications. Purse-string suture and rectopexy were found to be an efficient multimodal technique that might secure the structural stability and the elimination of relapse that is frequent with standard procedures.

## Behavioral and Regional Observations

The effect of some cultural management habits, especially those of the South of Iraq is a distinctive finding in this research. Direct mechanical cause of prolapse was found to be the insertion of foreign bodies into the rectum or vagina by the owners, which was meant to induce milk let-down on the deaths of a calf. The results are in line with the report by Muhammed et al. (2010) on improper handling and its contribution to rectal trauma.

## Clinical Outcomes

The 100% success rate and the 8 days to recovery that has been observed during our subjects is a testament to the role of post-operative management, that is, the feeding with green digestible feed. In comparison to the cases connected with infectious enteritis, when the prognosis can be guarded, the acute surgical repair of the enteritis in our cohort resulted in the outstanding clinical outcomes.

## Conclusion

Buffalo rectal prolapse is a life-threatening surgical emergency, which needs to be diagnosed and treated in a multimodal manner. This paper shows that surgical resection with a rectopexy and caudal epidural anesthesia is a very effective form of treatment of Grade IV prolapses. The lack of recurrence and high rate of recovery testify that a surgical treatment with a good post-operative antibiotic treatment and diet is a sure prognosis in calves and adult buffaloes.

## Author's Contributions

All authors equally contributed

## Conflict of interest

There is no conflict of interest.

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