Case Report

A Case of Complete Rectal Prolapse in an In-Gilt

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A seven-month-old in-gilt was presented with an intractable rectal prolapse. The prolapsed rectum was swollen, necrotic, and ulcerated. The pig was apparently healthy and had been ingesting high fibre feed materials, with little water. The pig was anaesthetized with 1.1 mg/kg body weight of xylazine and 10 mg/kg body weight of ketamine administered intramuscularly and intravenously, respectively. The prolapse was removed by placing a stay suture distal to the necrotic tissue and excising the tissue close to the apparently healthy part. A rectopexy was also performed. The pig was placed on prophylactic antibiotics and discharged.

1. Introduction

Rectal prolapse is the exteriorization or the protrusion of one or more layers of the rectum through the anus [1]. It may be classified as complete or incomplete, depending on the number of layers involved. It is incomplete when only the rectal mucosa is everted and complete when two or all the three layers of the rectum are involved [2]. Predisposing factors to rectal prolapse include diarrhea/dysentery, constipation, parasitism, water shortage, administration of medicines that cause edema of the rectal mucosa, toxins, direct trauma to the rectum, coughing, rapid growth, variable temperature, tail docking, neoplasia of the rectum or distal colon, urolithiasis, urethral obstruction, cystitis, parturition, genetic disposition, mycotoxins, lactation, and dystocia [3, 4]. Lactation and parturition have been identified as frequent causes in sows [3].

Rectal prolapse in pigs occurs if support *ad fixation* mechanisms (fascia, muscles and ligaments) are overcome by straining pressure arising from coughing, diarrhea, and constipation, or the support tissues are weakened [5, 6], or as a result of abdominal strain during farrowing [5] or during lactation, due to the flexibility and edema of the connective

tissue around the rectum and perineal area during lactation [7].

Prolapse of the rectum occurs in all animal species, provided the predisposing factors are present. However, its incidence appears to be very high in the porcine, occurring in 0.7–15% of young pigs between 6 and 16 weeks and, in 0.5–1% of sows, especially around the time of parturition and lactation [8].

The diagnosis of rectal prolapse is simple and is based primarily on the identification of an exteriorized portion of the rectum. The rectal prolapsed may occasionally compromise closely related organs. It is therefore important that efforts should be made to find out if the prolapse affected adversely the anatomical position or structural and/or functional integrity of other tissues or organs [9].

Various techniques for the replacement of the prolapsed rectum have been described. The simplest and most commonly employed procedure for correction of rectal prolapse is its reposition and application of a purse-string suture [7, 9]. This method is used in acute prolapse, when the rectal tissues are still viable and not yet severely lacerated or necrotic. Surgical correction of the defect is indicated in chronic cases, especially those associated with laceration and

FIGURE 1: The pig at presentation. Note the arrow pointing at the prolapsed rectum.

moderate to extensive degeneration [10]. Pressure necrosis caused by ligation of the prolapse around a plastic tube inside the prolapse [11, 12] is the simplest method used in the surgical treatment of rectal prolapse. Another frequently applied method involves fixing the prolapse by sticking two needles at right angles in the rectum and a soft tube previously inserted into the prolapse, dissecting the prolapse, and circumscribing the stump with a simple continuous stitch without a purse-string suture of the anus [10].

Several similar procedures with few differences have been described. A circular incision of the mucosa with a subsequent blunt dissection of the connective tissue without incision of the submucosa and muscularis described by Merrit [13]. Kjar [14] described successive dissection of the prolapsed rectum with an inside-out continuous catgut suture. Fixation of the prolapse with three U-stitches without subsequent suture was described by Filipov [15]. Sometimes natural recovery is possible but rectal stricture may develop [5].

Prolapsed rectum in the porcine is sometimes very large, edematous, and hard, particularly in older prolapses. In such cases, simple reposition is impossible and the outcomes of the use of above mentioned surgical correction are unsatisfactory. Therefore, our aim was to develop an alternative method of surgical correction of large and chronic prolapses of rectum in sows.

2. Case Presentation

A seven-month-old large white gilt, weighing 50 kg, was presented by the owner to the Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike, with a prolapsed rectum (Figure 1). The pig was alert. The case history revealed that the gilt was served about 6 weeks before the date of presentation, and that routine deworming was done with albendazole before it was served. A visit to the farm revealed that the pigs in the farm were fed highly fibrous feed, mainly made up of palm kernel cake. Little water was seen in the water troughs.

The heart, pulse, respiratory rates, and rectal temperature were within the physiological ranges for the breed of porcine. On physical examination, the pig was alert. A complete rectal prolapse was observed. The prolapsed rectum was swollen, necrotic, and lacerated. Examination of the rectal lumen indicated that it was patent and had some fecal materials. The gilt responded briskly to manipulations of the rectum.

FIGURE 2: The pig after surgery. Arrow pointing at the anus.

The pig was restrained in ventral position and the perineum was examined. The rectum was evacuated of fecal materials and the prolapsed rectum was washed with disinfectant solution.

A 24 G intravenous cannula was placed on the ear vein for intravenous injections. 1.1 mg/kg body weight of xylazine and 10 mg/kg body weight of ketamine [16] were administered. Xylazine was administered intramuscularly, while ketamine was administered intravenously through the preplaced cannula. The gilt was controlled on left lateral position.

A portion of the viable rectum, about 2.5 cm in length, was exteriorized through the perineum. All the visible vessels on the serosal surface of the rectum were singly and carefully ligated using size 2/0 chromic catgut. An intestinal clamp was applied 2 cm from the necrotic portion of the rectum and across the rectum to provide extrahemostasis as well as acting as an anchor to the rectum. Two straight eyed needles, inserted about 1.5 cm from the necrotic portion of the prolapsed rectum, were stuck at right angle to one another, each passing from the serosal surface, through the rectal lumen and through the serosal surface on the opposite side. These were used to place stay sutures through the rectal tissues. The necrotic portion of the rectum was excised along with about 1 cm of normal rectal tissue to ensure that the necrotic tissues left after the excision was minimal. Haemorrhages were controlled quickly using hemostatic forceps and topical adrenaline. Simple interrupted sutures were used to appose the serosal and mucosal surfaces of the rectum. Subsequently, a rectopexy was performed. The adnexa surrounding the rectum were sutured to the serosal surface of the rectum using a simple interrupted suture pattern. The outcome of the surgery was successful (Figure 2).

The pig was treated with procaine penicillin, 20,000 IU/kg body weight, and streptomycin, 12 mg/kg body weight, was given intramuscularly once daily for five days to take care of possible secondary bacterial infection. Also, 6 mL of iron dextran was administered to aid hematopoiesis. The pig was housed alone in a clean pen and fed with less fibrous feed. Water was also provided *ad libitum*. The wound was observed daily for signs of infection. The sutures were removed ten days after the surgery. There were no complications following the surgery.

3. Discussion

The aetiology of the rectal prolapse in the case under review may have been constipation arising from the ingestion of

indigestible feed materials with very little water. The ingesta may have accumulated in the large intestine, leading to an intraluminal obstruction, which is one of the causes of chronic constipation [1]. Lack of water intake and reluctance to defecate on regular basis due to environmental or behavioural situations or due to painful anorectal diseases have been identified as the two major predisposing factors to colonic obstruction, leading to the formation of dry hard feces and a consequent constipation [1].

The correction of rectal prolapse is the most commonly performed gastrointestinal surgical procedure in swine [1, 5]. Both general and local anaesthesia have both been employed in the correction of rectal prolapse in the porcine species [10, 12, 15]. This justifies the choice of general anaesthesia for the case.

The conventional methods of managing chronic rectal prolapse involve either placing a purse string suture on the rectum, in the case of an acute prolapse [9, 12], or placing a tube within the rectum and suturing the rectum around the tube [11, 12], in chronic cases. The former often led to constriction of the lumen of the rectum, as well as tenesmus arising from the presence of a foreign material in the rectum. The risks of reoccurrence in such cases are high, especially if the animals are exposed to the predisposing factors soon after treatment. In the case under review, the tube was excluded from the surgical procedure. Also, in the case under review, a rectopexy was performed, which was not performed in any of the previous works. The rectopexy was performed to act as a physical barrier to prevent recurrence. The rectopexy was done to contribute to the strength of the connection between the rectum and the surrounding adnexa.

In conclusion, performing a rectopexy and excluding an intrarectal tube from the surgical protocol gave rise to a good surgical outcome of a rectal prolapsed repair.

Conflict of Interests

This is to declare that there was no conflict of interests among the authors of this paper. No external body funded this research, and the paper was thoroughly read by all the authors.

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