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Short Communication

SURGICAL MANAGEMENT OF FIBROLEIOMYOMA AROUND THE POSTERIOR RECTUM OF A FRIESIAN HEIFER

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ABSTRACT: One two-year-old, female, Friesian heifer was presented to the Farm Animal Teaching Hospital, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka, with a history of the inability of per-rectal hand insertion during artificial insemination. Further, it had been suffering from difficulty in defecation and severer straining for a longer period. Clinical examination revealed the protrusion of the perineum around the anus during defecation and the narrowed anal space. Surgical intervention under sedation with 2% Xylazine Hcl and posterior epidural anesthesia under the 2% Lignocaine Hcl was carried out. A cylindrical firm mass was detected around the posterior rectum and it was removed surgically. Microscopic examination showed that the mass is composed of non-encapsulated neoplastic tissue consisting of smooth muscles and fibrous tissue. It has been identified as fibroleiomyoma, which is a very rare neoplastic condition of cattle. Under the post-operative care, wound dressing and intramuscular injections of Flunixin meglumine, Tetanus toxoid, and long-acting Penicillin were carried out. The animal was discharged with the ability of usual defecation without difficulty in per-rectal examination 21 days post-surgically.

Key words: Fibroleiomyoma, Cattle, Rectal surgery, Tumor.

Fibroleiomyoma is a benign tumor that consists of smooth muscle and connective tissue and generally has been reported in cats, dogs, and rarely in cattle (Timurkaan *et al*. 2009). Fibroleiomyoma arises predominantly from the musculature of tubular and hollow organs such as gastrointestinal, urinary, and genital tracts (Avci *et al*. 2010). It is very rare in the gastrointestinal tract of cattle and leads to obstruction of the lumen and interferes with the movement of ingesta and excreta (Lopez *et al*. 1997). Narrowed anal space may cause difficulties in recto-vaginal artificial insemination as well.

Surgical excision of tumor mass is recommended to resolve this condition (Sharma *et al*. 2012).In veterinary practice, rectal fibroleiomyoma in cattle is extremely rare, with only a few reported cases (Selvaraju *et al*. 2013). This paper reports a rare case of fibroleiomyoma around the posterior rectum in a Friesian heifer and its successful surgical management.

The study

Case history

A 2-year-old Friesian heifer (300 kg) was presented to the Farm Animal Teaching Hospital, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka, with the complaint of inability to insert the hand per-rectally at the recto-vaginal artificial insemination. Further, it had been suffering from difficulty in defecation and severer straining from the calf stage.

Clinical examination

On clinical examination, all the physiological parameters were within normal limits indicating lowered risk of surgery and anesthesia. (respiratory rate 26/min, heart rate 82 beats/ min, pulse rate 80/ min, rectal temperature 101.6ºF and PCV- 46, etc.) However, severe straining, protrusion of the perineal region with dyschezia (Fig. 1), and a narrow fecal stream were observed during the defecation.

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A cylindrical, firm mass around the most posterior part of the rectum with narrowed anal space (2cm in diameter) (Fig. 1) was palpated during the rectal examination.

Pre-surgical preparation

The animal was orally administered with Magnesium Sulphate (MgSO4) (300g in 750 ml of lukewarm water) solution followed by 8 bottles of lukewarm water and kept off food for two days before the surgery to minimize the feces production. Energy and electrolytes requirement was compensated by intravenous administration of Glucose 10% and Lactated Ringers' Solution during that period.

Anesthesia

The heifer was administrated with 2% Xylazine Hydrochloride @ 0.05mg/ Kg intramuscularly for mild sedation and induction of posterior epidural anesthesia with 2% Lignocaine Hydrochloride @ 0.4mg/kg through the sacrococcygeal junction. The effect of anesthesia was confirmed by the flaccidity of the tail. The syringe with the remaining 4ml of 2% Lignocaine Hcl was kept connected to the hypodermic needle which had been fixed at the sacrococcygeal junction until the end of the surgery for maintenance of anesthesia. At the maintenance, 2ml of 2% Lignocaine Hcl was administered approximately one hour from the induction dose.

Surgical procedure

After routine surgical preparation of the site, curved skin and subcutaneous incisions were made around the anus; approximately 2 inches away from the center. The surrounding connective tissues of the affected area were bluntly dissected using a hemostat forceps and a blunt-ended scissor to separate the relevant part of the rectum from the mass. The separated affected part of the rectum was exteriorized (Fig. 2). The mass was separated into three parts (Fig. 3) from the rectum under the blunt dissection. Although it has been removed with extreme care not to damage the rectum, the affected part of the rectal wall was found to be very thin and fragile. Two bowel clamps were applied anterior to the affected part of the rectum. Along the posterior border of the second bowel clamp, the affected part of the rectum was resected through the normal tissue. After the removal of the second bowel clamp, the edge of the rectal mucosae was sutured to the skin of the perineal area (Fig. 4) using nylon (0.45mm) under a simple interrupted suture pattern. A part of the surgically excised mass was sent for histopathology.

Post-operative care

Immediately after the surgery, 2ml of double diluted Adrenaline (Hameln Pharma Ltd, UK) was locally infiltrated to reduce bleeding. A paste of Povidone Iodine and wound dressing powder ('Regent', [Neomycin sulfate, Bacitracin Zinc, Glycine, L-Cysteine, Threonine, Camphor], Sri Lanka) was applied to promote wound healing until two weeks period.

Long-acting Amoxicillin (1ml/10kg, 'Bio Amox LA', Vietnam) was administered (IM) in 3 days intervals two times, and Flunixin meglumine (2 mg/kg, 'Five- Flunixin', Vietnam) was administered (IM) two times in 12h interval.

Twenty-one days post-surgically the animal was re-evaluated for the ability to insert a hand for per rectal examination and to detect the presence of the same condition in the uterus and the urinary bladder. Further, the farmer was educated to identify such abnormalities and to get veterinary advice as early as possible.

Results and discussion

The animal was discharged after 3 weeks without any dyschezia (Fig. 5) or difficulty in the per-rectal examination. Gastric emptying with MgSO4 and food withheld for 2 days minimized the vulnerability to contaminating the site during the surgery. Fasting and mild sedation with xylazene is a common practice in the surgery of many domesticated animal species (Sahoo and Behera 2018, Perera and Jayawardana 2021, Jisna *et al.* 2021). Placement of the hypodermic needle (18G) into the epidural space was confirmed with the occurrence of a 'POP' sound through the needle, free draining of the Lignocaine Hcl drops put into the hub of the needle, presence of air bubbles at the aspiration and ability to release the drug without resistance. Keeping a hypodermic needle with a syringe that contained an additional amount of Lignocaine Hcl, attached to the epidural space, and would be supportive to conduct the surgery without insertion of it repeatedly during the maintenance of the anesthesia considering the welfare aspect of the animal.

The mass was cylindrically shaped (≈ 8 cm in diameter and 14 cm in length), weighing 400 gms, and microscopically composed of non-encapsulated neoplastic tissue consisting of smooth muscle, collagen, and fibroblasts which did not have an infiltrative growth into the mucosa. Neoplastic cells in some areas were composed of interlocking bundles of smooth muscle bundles with acidophilic cytoplasm and elongated, cigar-shaped, and rounded blunt ending nuclei. Further, those cells may not have clear pleomorphism, and mitotic activities (Saut *et al.* 2013). The cellular and nuclear

Fig. 1. Evaluation of the mass at the clinical examination. Retractor has been inserted into the anus.

Fig. 2. Bluntly dissected tumor mass from the surrounding tissues.

Fig. 3. Removed parts of the tumor.

Fig. 4. Created artificial muco-cutaneous junction by suturing the skin of the perineum region with rectal mucosa.

Fig. 5. Appearance of the anus 21 days post-surgically.

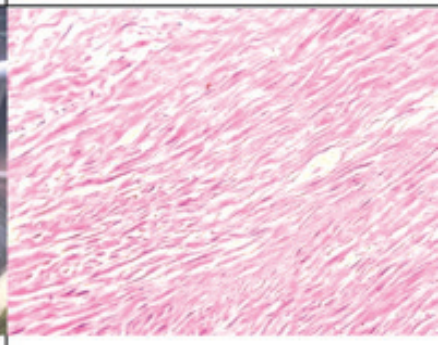

Fig. 6. Histopathology of fibro-leiomyoma. Hematoxylin and Eosin staining X 400.

pleomorphism were minimal to moderate and the mitotic figures were less than one per ten high power fields in this case as well. Based on these histopathology results, the mass was confirmed as fibroleiomyoma (Fig. 6). The etiology of rectal fibroleiomyoma is not clearly known. Usually, it may reach up to the size of 10-12 cm grossly without being invasive (Sharma *et al.* 2012). Initially, the tumor is small with fleshy consistency and as it develops becomes firm due to strong connective tissue (Malik *et al*. 2020). Most of the time rectal fibroleiomyoma projects as a nodular mass into the rectal lumen which obstructs the passage of excreta resulting in dyschezia (Sachan *et al.* 2018). Studies have found a low occurrence of leiomyoma representing only 1-2% of all neoplasia in cattle, sheep, and swine (Sharma *et al.* 2012). Post-surgical per rectal evaluation revealed the absence of fibroleiomyoma growth around the uterus and the urinary bladder as well.

Conclusion

Surgical intervention is the most appropriate treatment method for the successful recovery of rectal fibroleiomyoma in cattle. As it can perform under local anesthesia with minimal facilities such surgical intervention can be done even under field conditions.

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