

DIAGNOSIS AND SURGICAL CORRECTION OF ANAL STENOSIS IN A CALF– A CASE REPORT

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SUMMARY: Anal stenosis is a rare condition in calf. Formation of scar tissue is the main reason for this condition due to injury which may result from foreign bodies or trauma, as a complication of inflammatory disease or due to neoplasia. In humans, anal stenosis is commonly encountered after haemorrhoid surgery, venereal disease, irritation caused by persistent diarrhoea, and congenital malformation. This case report discusses the history, clinical signs and treatment in a six-month old, male crossbred calf in Paragahakele Grama Niladhari division in Ampara veterinary range. History revealed continuous diarrhoea for about one month and a wound closer to the anus in the past two months, pain and straining during defecation. Severe straining and narrowing of anus and passage of small pellets of faeces were the clinical signs. Physical examination revealed narrowing of anus due to scar tissue formation around the anus close to a chronic wound predominantly on the dorsal aspect, and around the anus. According to the history, clinical signs and general clinical examination, this condition was diagnosed as anal stenosis caused by scar tissue formation. Stenotic part was removed surgically under local anaesthesia as the treatment. Five days postoperatively the surgical wound was reasonably healed allowing the passage of dung normally without straining. Anal stenosis encountered in this case was due to a stricture caused by a chronic wound closer to the anus caused by irritation presumably due to persistent diarrhoea. It was corrected without damaging the external anal sphincter which resulted in a successful outcome.

INTRODUCTION

According to Gallagher (2020), rectal strictures in cattle may develop as a result of trauma, neoplasia, or fat necrosis impinging on or within the lumen, or from defects involving rectal and vaginal strictures. Anal stenosis is a narrowing of the anal canal which is a rare condition reported in humans (Casadesus *et al.*, 2007; Christensen *et al.*, 1992). This narrowing may result from a true anatomic stricture (Gallagher, 2020) or a muscular and functional stenosis (Brisinda *et al.*, 2009). In anatomic anal stenosis, the normal pliable anoderm, to a varying extent, is replaced by restrictive scar tissues. Stenosis causes a morphologic alteration of the anal canal and a gradual reduction of its functionality, resulting in painful bowel movements (Milsom *et al.*, 1986; Owen *et al.*, 2006). In humans, anatomical anal stenosis usually results from surgery of the anal canal, inflammation of the anus in Crohn's disease, ulcerative colitis, radiation therapy, venereal disease, tuberculosis and chronic laxative abuse (Tahamtan *et al.*, 2017). Ninety per cent of anal stenosis is caused by radical hemorrhoidectomy in humans.

Treatment for anal stenosis may be both medical and surgical, depending on the severity of the case (Lieberman *et al.*, 2000; Habr-Gama *et al.*, 2005). Mild stenosis can be managed conservatively with faeces softeners or fibre supplements. Daily digital

or mechanical anal dilatation also may be used to manage the condition. Sphincterotomy may be sufficient for a patient with a mild degree of narrowing. For more severe anal stenosis, an anoplasty should be performed to treat the loss of anal canal tissue. Despite several studies that have been conducted on anal stenosis treatment in the recent past, there is no universally accepted anoplastic procedure followed to date (Brisinda *et al.*, 2009).

Case report

A six-month old male crossbred calf owned by a farmer at Paragahakele, Ampara was presented with a complaint of difficulty in defecation and passing of dung as small pellets despite normal appetite. History revealed persistent diarrhoea for one month and a chronic wound closer to the anus which was untreated. A general clinical examination was performed keeping the history and complaint in mind. The calf was bright, alert and responsive, HR was 106 bpm, RR was 45 bpm and body temperature was 102°F. On per-rectal examination, a reduction in the size of the anal opening and scar tissue formation around the anus were found. Taking the history, complaint, clinical signs and physical examination findings into consideration, it was diagnosed as anal stenosis.

Due to the severity of the condition, it was decided to embark on a surgical intervention to correct the stenotic anus. In addition, as the calf had never been dewormed previously, it was given half a tablet of Wokazan® (oxyclozanide 4000mg + levamisole 1000mg, Voggurdt Ltd., India). The owner was advised to withhold feed for 24 hours and water for 6 hours prior to surgery. On the day of surgery, as the surgical procedures had to be performed whilst the animal was on the ground which is usually the case under field conditions, the cemented floor was cleaned thoroughly by washing with water followed by disinfecting with diluted chlorhexidine (30 ml of 2% chlorhexidine in 4.5 litres of water) and allowed to dry. The calf was kept on left lateral recumbency and surgical and epidural injection sites were prepared routinely. Then epidural nerve block with 3ml of 2% lignocaine hydrochloride was performed (Fig.1) while the calf was on left lateral recumbency and turned to sternal recumbency until “limping of the tail” was evident for about 10 minutes. Then 5 ml of 2% lignocaine was infiltrated around the anus at five points, about 1 ml at each site, starting from skin, and penetrating subcutaneous and underlying soft tissue layers (Fig. 2), to abolish anticipating pain if the epidural block would wear off before the surgical procedure was completed. A cotton plug was inserted into the anus to prevent contamination of the surgical site with excreta.



Figure 1: Administering lignocaine HCl between C1 and C2 for caudal epidural block



Figure 2: Infiltrating lidocaine HCl around the anus

A circumferential incision 2.5 cm away from the anal opening was made (Fig. 3). Skin was undermined (Fig. 4) and necrotic tissues were removed by blunt dissection around the rectum. The serosa of the rectum proximal to stenotic part was

sutured with 2/0 suture nylon in simple interrupted manner to the surrounding subcutaneous tissues as retention sutures to prevent it slipping into the pelvic cavity. Then the rectum was exteriorised through the anus and stenotic part was transected and removed. Finally, the remaining part of the full thickness rectum incorporating the underlying soft tissues with sub cutis was sutured to the skin incision over the anal opening using 2/0 suture nylon with simple interrupted pattern (Fig. 5).



Figure 3: Making a circumferential incision around the anus preserving the external anal sphincter



Figure 4: Undermining the skin around the anus



Figure 5: After the correction of the anal stenosis. Blue arrow indicates the dorsal aspect of the chronic wound

Povidone iodine was applied with Negasunt® dusting powder (Bayer) on the wound and long acting enrofloxacin (Enroflox ® 20 L.A., SENASA Perú) 4ml (@ 1ml/20-40kg) was given IM every 3 days, a total of four times post-operatively. The farmer was advised to keep the calf in a clean and

dry area and feed with lush grass. Also to gently wash the suture line with clean water to remove gross contaminants and apply Negasunt® dusting powder on the wound twice a day. Sutures were removed two weeks postoperatively. Complete restoration of the structure (Fig. 6a) and function of the anus was evident three months postoperatively with the passing of dung of normal consistency (Fig. 6b) in the normal manner. The wound at the ventral aspect of the tail of the base appeared tender with good granulation tissue formation.

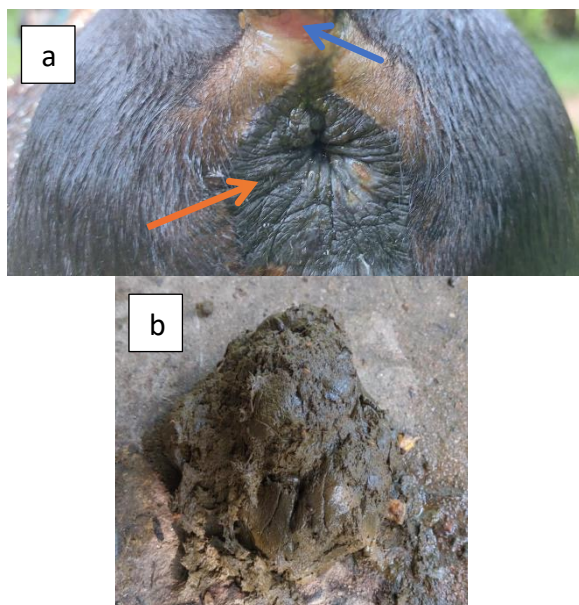


Figure 6: a) Appearance of the anus 3 months postoperatively, Orange arrow: completely healed anus, Blue arrow: granulation tissue at the base of the tail
b) normal consistency of dung

DISCUSSION

During the literature survey, it was realised that reports on anal stenosis and its correction in cattle are extremely rare except for cases of *atrisia ani* and rectal agenesis. There is only one case of diagnosis and correction of anal stenosis with a successful outcome following surgical intervention has been reported by Perera *et al.*, (2023) in a heifer due to fibroleiomyoma, in Sri Lanka. However, there is a remarkable number of publications available on cases of rectal and anorectal conditions describing aetiology, diagnosis, correction and postoperative complications in dogs and cats.

Narrowing of the anus may result from functional or anatomic anal stenosis. According to published reports in human medicine, the hypertonic internal anal sphincter causes functional stenosis, while in the anatomic one, the normal anoderm is replaced with an inelastic cicatrised tissue (Casadesus *et al.*, 2007). Causes affecting anatomical anal stenosis

are surgery of the anal canal, inflammation of the anus in Crohn's disease, ulcerative colitis, radiation therapy, venereal disease, tuberculosis and chronic laxative abuse in people. Ninety per cent of anal stenosis is caused by radical imputative hemorrhoidectomy (Brisinda *et al.*, 2009). There are several management options to correct anal stenosis. In human medicine, most of the treatment procedures are non-surgical approaches such as topical medications or dilation, but in severe anal stenosis, surgical intervention would be the best choice. However, in veterinary practice especially with regards to livestock practice, the non-surgical methods are impractical as farmer compliance cannot be assured.

A significant number of surgical methods have been described to correct anal stenosis and the simple method is partial lateral internal sphincterotomy (Corman *et al.*, 2012). Methods such as stricture release, sphincterotomy and advancement flap are common techniques. Performing partial, lateral internal sphincterotomy with anoplasty at the same time has been a debatable issue to prevent incontinence versus unhealed wounds (Khubchandani *et al.*, 1994). Anoplasty aims to restore the normal function of the anus by dividing the stricture and as a result, widening the anal canal, thus decreasing the symptoms and relieving pain (Duieb *et al.*, 2010).

In this surgery, one of the most possible complications is faecal incontinence due to external anal sphincter damage. Other possible complications are surgical site infection and suture dehiscence. Fortunately, in the present case, there were no complications occurred postoperatively presumably due to the preservation of the external anal sphincter. Therefore, the steps followed in the present case namely, first making a circumferential peri-anal skin incision followed by undermining the skin and removal of necrotic tissues, anchoring the sound part of the rectum to the surrounding soft tissues, then performing surgical excision of the stenotic portion through the anus, reconstruction by suturing the incised rectal wall with the perianal skin incision without incising the external anal sphincter, resulted in good outcome.

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who followed the postoperative instructions attentively enabling full recovery of the calf.

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