Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 05, Issue: 06 (NOV-DEC, 2025)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Surgical Management of Congenital Atresia ani Type1 (Imperforate anus) in Lamb

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A seven days old male muzaffarnagari breed of lamb was presented at Veterinary Clinical Complex, Sanskaram College of Veterinary and Animal Science, Jhajjar, Haryana-124103, India with complaints of inability to defecate. Type 1 atresia ani was identified by physical examination based on the animal's history of not defecating, distended abdomen, and bulging out at the perineal region. However, the animal underwent emergency treatments after epidural anesthesia using 2% lignocaine in the lumbosacral space. Using ethicon size 2/0, a blind rectal pouch was cut and sutured to the skin (rectopexy). For seven days, intramuscular postoperative antibiotics and analgesics were given. On the tenth day following surgery, the sutures were taken out. The lamb made a full recovery without any issues. The sole treatment for congenital atresia ani in neonatal animals is surgical reconstruction. In this study, we describe a successful surgical repair of atresia ani type 1 in a lamb that demonstrated a significant improvement in defecation with minimal tenesmus.

Keywords: Congenital, Male lamb, Atresia ani, rectopexy.

Introduction

Atresia ani, also known as imperforate anus, is a congenital condition that results in a thin membrane covering the normal anal canal due to persistence of the anal membrane. This leads the farmer to lose money because of the cost of treatment and the loss of animals (Noden, and Lahunta 1985). The incidence of congenital gastrointestinal tract abnormalities in various animal species is approximately 4.3% (Leipold et al., 1971). Due to an autosomal recessive gene, atresia ani, also known as Atresia ani (imperforate anus), is a common congenital anomaly that has been documented in all domestic animals and is among the most prevalent intestinal disorders in sheep. (Bademkiran et al., 2009). Congenital blockage of the digestive tract lumen is referred to as atresia. "Imperforated anus," also known as atresia ani, results from the anal membrane's inability to rupture during development (McGeady et al., 2006). Clinical manifestations of the illness include straining, tenesmus, colic, sadness, and anorexia with distention of the abdomen (Mallesh et al., 2017). Intestinal atresia comes in four main varieties. A mucosal obstruction in the intestinal lumen is known as type I atresia. The proximal section of the intestine ends in a blind end in animals with type II atresia, and the distal segment is similar, with two ends connected by a fibrous cord that lacks a lumen. Similar to type II atresia, type IIIa atresia has a mesenteric defect that corresponds to the missing intestinal segment and the proximal and distal intestinal segments' blind ends are fully separated. The distal section of the intestine is coiled in animals with type IIIb atresia.

Multiple atresia sites are present in type IV atresia (Kilic and Sarierler, 2004). These abnormalities are seen in several body parts, particularly the anus, the last segment of the digestive tract. The most prevalent intestinal abnormality in sheep, atresia ani, is thought to be caused by an autosomal recessive gene. The most prevalent intestinal abnormality in sheep, atresia ani, is thought to be caused by an autosomal recessive gene.

History and Clinical Examination

Seven (7) days old male muzaffarnagari breed of lamb weighing 3.8 kg was presented was presented at Veterinary Clinical Complex, Sanskaram College of Veterinary and Animal Science, Jhajjar, Haryana-124103, India with complaints of inability to defecate. The lamb was active for the first five days of its existence, but then it was seen that it was straining, looked weak, and was not sucking as much. Vital indicators were thoroughly examined clinically, and auscultation revealed a gurgling sound in the right ventral abdominal region. The lamb had a heart rate of 60 beats per minute, a breathing rate of 72 cycles per minute, pinkish visible mucous membranes, and no anal opening. The abdomen was distended and there was a soft subcutaneous swelling beneath the ischial arch. The degree of dehydration was assessed using physical characteristics and a skin tenting test. The capillary refill time exceeded two seconds. The lamb was tough and uninteresting. The tail was rising and the abdomen was swollen. Tenesmus and signs of restlessness due to stomach pain were seen (**Figure 1A)**. A thorough clinical evaluation revealed that the patient had atresia ani type 1. The patient was diagnosed with atresia ani based on the clinical findings and physical examination, and surgery was scheduled. The rectopexy was done on the animals after they were prepared for aseptic surgery.

Surgical Management

The lamb was restrained properly, placed on sternal recumbency. The perineal area below the base of the tail was prepared for routine aseptic surgery using antiseptic solution Intalon (Chlorhexidine gluconate B. P 0.3%wv, cetrimide B.P 0.6% W/V) Nanz med science pharma pvt. Ltd, Sirmour (H.P.) India for scrubbing and rinsed with ethylated spirit followed by cipladine (povidone 0.5% W/V Solution, Cipla Pharmaceutical Company Limited, Lower Paral, Mumbai). The area was draped using triangular pattern **(Figure 1B)**. Local infiltration anesthesia was performed by using lignocaine injection IP 2% W/V (Cadila Pharmaceutical Limited, Mehsana, Gujarat) at lumbosacral junction and also infiltrated subcutaneously given to effect around the perineal region. To distinguish the anal area, the abdomen was squeezed caudally. On the protruding anus, a full-thickness circular skin incision was created, and the resulting circular piece of skin was excised. After the perineal muscles were dissected, the rectum became visible. Hemostatic forceps were used to stop the slight capillary hemorrhage. After properly cutting the tip of the blind end of the rectum intended for meconium evacuation, the blind end of the rectum was advanced caudally to the level of the anal sphincter and fastened to the perineum **(Figure 1C)**. This was accomplished by employing non-absorbable suture material (Mersilk) to secure the rectum at 12, 3, 6, and 9 o'clock. To create a permanent anal aperture, interrupted sutures of mersilk size 2/0 were applied across the circle of the rectal opening between the skin and the rectal mucosa **(Figure 1D)**. The lamb stands normal with minimum tenesmus immediately after the surgery **(Figure 2)**. Amoxirum forte at a dose rate of 7 mg/kg for five days and Meloxicam at a dose rate of 0.3 mg/kg for three days were provided intramuscularly as postoperative therapy. Povidone iodine and Himax ointment were then used for routine dressing. For five days, an antiseptic

dressing was applied to the surgical site every day. On the tenth day following the procedure, the sutures were taken out.

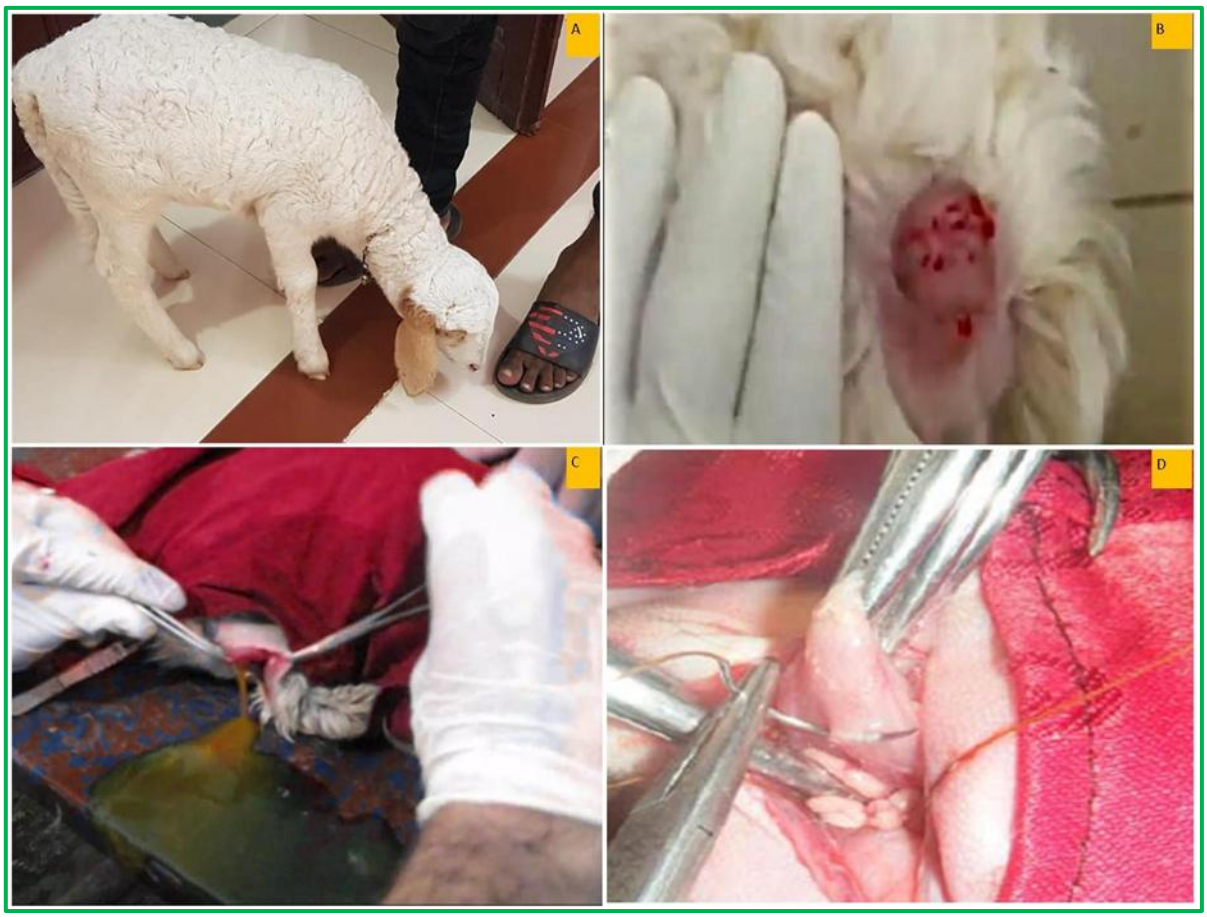

Figure 1. Seven days old male lamb suffer with distended abdomen (A), Imperforated anus (B), evacuation of meconium (C), reconstruction of anal opening (D)

Figure 2. Photograph showing reconstructed anal opening in lamb

Results and Discussion

Due to an autosomal recessive gene, atresia ani is a common congenital aberration that has been documented in all domestic animals and is one of the most prevalent intestinal disorders among sheep (Suthar et al., 2010). The afflicted animals are identified by their despondency, anorexia, colic, marked progressive abdominal distension, and lack of excrement, and they may live for up to ten days. A straightforward visual examination or digital palpation along with the clinical indicators can be used to identify atresia ani. The only course of action that can be taken right away is surgery, which was successfully tried in this instance. If surgical treatment is not performed, atresia ani is a deadly affliction for males. The remaining lambs born to the lone ram in the herd were also checked for this anomaly, but none of them had it. Additionally, the injured lamb's dam was checked for recto-vaginal fistulas, but none were found. Only in homozygous conditions may an autosomal recessive gene cause a genetic defect. For this condition to manifest, both the sire and the dam must contain at least one copy of the gene in order for it to be passed on to the offspring. Therefore, in order to stop this problem from happening again, the sire and dam of the afflicted animal should not be utilized for breeding. Additionally, the afflicted animal shouldn't be reproduced in the future. It was suggested that the farmer cull both the lamb and the ewe. To stop more breeding, the ram was also taken out of the herd. The juvenile animals are thought to need to be outside in order to provide anal openings. Since the rectum regularly breaks through to the vagina to form a rectovaginal fistula, allowing feces via the vulva, atresia ani does not require special attention in females and may occasionally go undetected (Norrish and Rennie, 1968). After birth, they are carefully examined, especially for atresia ani, and given immediate treatment to preserve their lives. In this instance, we describe a successful atresia ani surgical repair that decreased flock loss and raised the overall body condition score. With minimal tenesmus, the lamb's defecation significantly improved. Within 14 days following surgery, the lamb was active and recovered without incident (Rahal et al., 2007). Described four major types of atresia ani (type – I, II, III and IV). The intestinal lumen is where the mucosal obstruction occurs in atresia ani type 1. The case at hand is the simple form of agenesis without involving the other parts of intestinal segment; similar findings were reported by (Simon et al., 2009) in calves and kids (Oehme and Prier,1974).

Conclusions

The history, age, and clinical examination of the animal can be used to diagnose atresia ani; prompt surgical intervention is necessary to alleviate the animal's abdominal pain and improve its prognosis.

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