

# Surgical Management of Type 1 Atresia Ani in Newborn Lamb

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**Abstract:-** A one week old male oudah lamb was presented at the large animal unit of Veterinary Teaching Hospital, Usmanu Danfodiyo University; Sokoto with complaints of distended abdomen and in ability to defecate. Type1 Atresia ani was diagnosed on physical examination. Emergency surgery was carried out following local anaesthesia at the perineal region. Blind rectal pouch was incised and sutured to the skin (rectopexy) using nylon size 2/0. Postoperative antibiotic and analgesic were administered intramuscularly for 5 days. The sutures were removed 2 weeks post-operative. The lamb recovered fully without any complication. Surgical reconstruction is the only course of action for congenital atresia ani in newborn animals.

**Keywords:** atresia ani, lamb, congenital defect

## I. INTRODUCTION

Atresia ani (imperforate anus) is a congenital abnormality characterized by persistence of the anal membrane resulting in a thin membrane covering the normal anal canal [2]. The condition is characterized by clinical signs of straining, tenesmus, colic, depression and anorexia with abdominal distention [12]. The cause of congenital defects, abnormalities of structure or function present at birth, may be due to genetic or environmental factors, or a combination of both; but the exact cause is poorly understood [10].

There are four major types of intestinal atresia. Type I atresia is a mucosal blockage within the intestinal lumen. In animals with type II atresia, the proximal segment of intestine terminates in a blind end and the distal segment beings similarly with two ends being joined by a fibrous cord devoid of lumen. Type IIIa atresia is similar to type II except that the proximal and the distal intestinal segments blind ends are completely separated and there is a mesenteric defect corresponding to the missing segment of intestine. Animals with type IIIb atresia have a coiled distal segment of intestine. Type IV atresia involves multiple sites of atresia [3],[7].

Congenital anomalies of gastrointestinal tract occurs in different species of animals with an incidence of about 4.3% [13],[14] reported prevalence rates of atresia ani as 71.74% and 28.26% in indigenous and crossbred calves in Bangladesh. In Nigeria, [15] reported prevalence of atresia ani in various species based on retrospective the study of 18 cases of *atresia ani*. 14 (77.8) were male and 4 (22.2%) were females(50%) of the animals were in bovine while in porcine, caprine and ovine 3(16.7%) were recorded in each.

The deformities of external genital organs are of concern because of their effect on the future generations. These defects are observed in different parts of the body, especially last part of the digestive tract like anus. Atresia ani is the most common intestinal defect in sheep and is believed to be due to an autosomal recessive gene. In a series of 64 cases of atresia ani in sheep, 42 (62%) were associated with defects of other body systems, especially the urogenital and musculoskeletal systems [3],[5],[6]. This report communicates a rare case of type 1 atresia ani in a male ouda lamb, which was successfully managed by surgical intervention

## II. HISTORY AND CLINICAL EXAMINATION

A seven (7) days old male oudah lamb, weighing 3.4 kg was presented to the large animal unit of Usmanu Danfodiyo University, Veterinary Teaching hospital Sokoto-Nigeria with complaints of distended abdomen and in ability to defecate which was noticed a day prior to presentation. The lamb was active during the first four days of its life but suddenly observed to have started straining, appeared weak and reduced suckling.

On clinical observation, a gurgling sound was heard in the right ventral abdominal region on auscultation. The heart rate was 64 beats/min, respiratory rate 76 cycle/min, and visible mucous membranes were pinkish. The capillary refill time was >2s. The lamb was dull and straining. The abdomen was distended and rising of the tail were observed. Tenesmus and evidence of abdominal pain manifested by restless were seen. The case was diagnosed as *atresia ani* type I after through clinical examination



Fig.1. Showing absence of anal opening and squatting

### III. CASE 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 purit® antiseptic (chlorhexidine gluconate B. P 0.3%wv, cetrimide B.P3% W/V, SaroLifeCare Limited, Lagos, Nigeria) for scrubbing and rinsed with methylated spirit (Binji Global Pharmaceutical Company, Sokoto, Nigeria) followed by povidone iodine (Iodine Tincture 2.6%W/V Solution, Apacco Pharmaceutical Company Limited, Ogun, Nigeria). The area was draped using triangular pattern. Local infiltration anesthesia was performed by using 2% lignocaine hydrochloride (lignocaine hydrochloride, Lignocaine injection B.P 2.5%,) infiltrated subcutaneously given to effect around the perineal region. The abdomen was compressed caudally for the anal area to be demarcated. A circular full thickness skin incision was made on the bulged anus and the circular piece of incised skin was removed. The rectum was exposed after dissection of the perineal muscles therein and there was minor capillary bleeding which was controlled using hemostatic forceps. The blind end of the rectum was advanced caudally to the level of anal sphincter and fixed to the perineum after duly snipping the tip of the blind end of rectum meant for evacuation of the meconium. This was achieved by anchoring the rectum at 12, 3, 6 & 9 o'clock using non-absorbable suture material. The circumference of the rectal opening was sutured by application of interrupted sutures using nylon size 2/0 between rectal mucosa and skin to make a permanent anal orifice. The lamb stands normal with minimum tenesmus immediately after the surgery. Postoperative medication was achieved using Penstrep® at dose rate of mg/kg for 5 days and diclofenac at 2.5mg/kg for 3 days were administered intramuscularly, followed by routine dressing with povidone iodine and penicillin ointment. The surgical site was dressed on alternate days for 5 days. The sutures were removed on day 14 after the surgery.

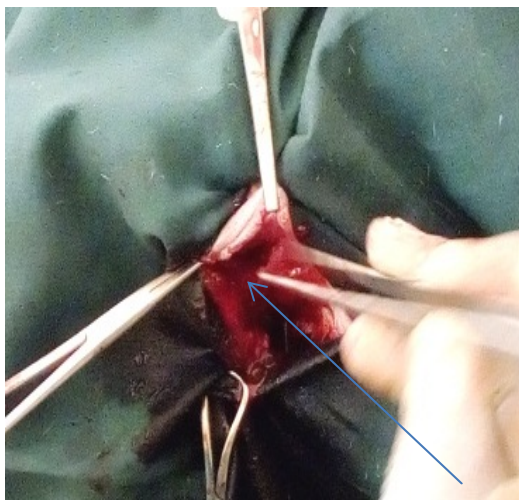


Fig.2. Showing an opening after full thickness skin excision



Fig.3. Showing meconium after incision into the rectum



Fig.4. A photograph of constructed anal opening and Placed Sutures.



Fig.5. Showing anal opening after 2 weeks sutures were removed

### IV. DISCUSSION

*Atresia ani* is a common congenital anomaly that has been reported in all domestic animals and is one of the most frequently recorded defects of intestine among sheep because of autosomal recessive gene [1]. In the present case we report a successful surgical correction of *atresia ani* which improved the total body condition score and reduced flock loss. The lamb showed marked improvement in defecation with minimum tenesmus.

The lamb was active with uneventful recovery within 14 days post-operative. [7] Described four major types of atresia ani (type – I, II, III and IV). Atresia ani type 1 is one in which the mucosal blockage is within the intestinal lumen. The case at hand is the simple form of agenesis without involving the other parts of intestinal segment; similar findings were reported by [8] in calves and kids [9].

#### V. CONCLUSION

The diagnosis of atresia ani can be carried out on the basis of the history, age and clinical examination of the animal. Prompt surgical intervention is required to relieve the animal from the abdominal discomfort and for better prognosis.

#### REFERENCES

- [1]. Suthar D.N, S.R Chaudhary, P.B Patel, J.N Mistry, J.B Patel and S.S Nerurkar (2010).Surgical management of atresia ani in a cow calf.Vet World, 3: 380-381
- [2]. Noden, D.M and Lahunta, A (1985). The embryology of domestic animals, developmental mechanisms and malformations, Williams & Wilkins, London; 306-315
- [3]. Kilic N, Sarierler M. Congenital Intestinal Atresia in Calves (2004; 61 Cases (1999–2003).Revue de Medicine Veterinaire. 155(7):381-384
- [4]. Bademkiran S, Icen H, Kurt D. Congenital rectovaginal fistula with atresia ani in a heifer: A case report. YuzuncuYilUniversitesiVeterinerFakultesiDergisi. 2009; 20(1):61-64
- [5]. Rahman MM, Khan MSI, Biswas D, Sutradhar B.C, Saifuddin A.K.M (2006). Pygomeia or supernumerary limbs in a crossbred calf. J Vet Sci 7(3), 303–305
- [6]. Bademkiran S (2008). Bir Buzağıda Kaudal Agenezis Olgusu. FÜ SağBilEnstDerg, (Veteriner) 22 (5), 303 – 305
- [7]. Rahal SC, Vicente CS, Mortari AC et al. (2007). Rectovaginal fistula with anal atresia in 5 dogs.Can Vet J; 48: 827–830
- [8]. Simon S, Justin William MB, Rao G et al., (2010).Congenital Malformations in ruminants and its surgical management. Veterinary World, 3(3): 118-119
- [9]. Kumar H, Sharma A.K, Dass L.L et al., (2009). Atresia ani with scrotal anomaly in a Goat. Veterinary World, 2(2): 68.
- [10]. Oehme, F.W and Prier, J.E (1974). Textbook of large animal surgery. Williams & Wilkins, Baltimore, U.S.A, 447-448.
- [11]. Singh, A.P. (1989). Congenital malformation in ruminants- a review of 123 cases.Indian Veterinaryjournal 66:981-985
- [12]. Mallesh P, Sampath K, Raju G (2017) Successful management of atresia ANI (congenital defect) in non-descript calf: A case report. The Pharma Innovation 6(7): 337-338
- [13]. Leipold, H.W, Dennis S.M, Huston K (1971). Congenital defects of cattle: Nature, cause, and effect. Advances in Veterinary Science and Comparative Medicine 16:103-150
- [14]. Hossain, M.B. Hashim M. A. Hossain M.A Sabrin, M.S. (2014).Prevalence of atresia ani in newborn calve and their surgical management. Bangl. J. Vet. Med.12 (1): 41-45
- [15]. Remi-Ademuni B.D, Fale, M.S.,Usman, B., Lawal, M. (2007).Retrospective study of *atresia anicases* presented at Ahmadu Bello university Zaria, Nigeria.NVJ.28(1):48-56