



## Management of atresia ani type II in a day-old Bunaji bull-calf

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**Abstract**

A day-old Bunaji bull calf weighing 15 kg from a herd of 59 was presented to the large animal unit of the Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, with the chief complaint of inability to defecate. History revealed that the bull calf was calved 17 hours prior to presentation and had not defecated since then. On further clinical examination, it was observed that there was no anal opening and there was intermittent straining characterized by the bulging of the anal region anytime the calf strained. A diagnosis of atresia ani type II was made and was surgically managed with local infiltration of lidocaine hydrochloride to achieve local desensitization of the surgical site using a ring block. The calf recovered fully uneventfully 15 days post-operation. This report presents a classical form of a congenital anomaly of atresia ani type II and a successful surgical intervention.

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### Introduction

Congenital defects, abnormalities of structure or function present at birth, may be caused by genetic or environmental factors, or a combination of both; in many cases, the causes are unknown (Servet *et al.*, 2009). The term atresia describes congenital occlusion of the lumen of the digestive tract and it is defined as (i) the congenital absence or closure of a normal body orifice or tubular passage such as the anus, intestine or external ear canal (ii) The degeneration and resorption of one or more ovarian follicles before maturation (Houghton, 2007). Failure of the anal membrane to break down during the

development gives rise to the condition termed imperforate anus and sometimes termed as atresia ani (McGeady *et al.*, 2006).

Atresia ani (Anal atresia) is a congenital defect of the rectum and anus which generally results from arrested embryonic development (Susan, 1998). It is due to faulty lying of chromatin materials during embryonic development of the foetus or the abnormal retention of anal portion of the cloaca membrane. Atresia ani is a congenital embryological anomaly in which the hindgut fails to communicate with the perineum and may appear alone or in

combination with rectovaginal or recto vestibular fistula (RVF) (Susan, 1998).

Intestinal atresia has been reported in both intestine and the anus (Gary, 2010), it consists of four types of anomalies of worsening severity. Type I is a congenital anal stenosis without imperforate anus. Type II and III anomalies constitute an imperforate anus a distance of either < 1.5cm (type II) or > 1.5cm (type III) away from a blind rectal pouch. Type IV anomalies are rare and involve a blind rectal pouch with normal terminal rectal development (Gary, 2010) 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 dilated bowel is separated from distal narrow bowel by fibrous cord, without mesenteric gap. 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 (Rahal *et al.*, 2007).

Clinical signs of anal atresia which usually apparent at birth include tenesmus, abdominal pain and distention, retention of faeces and the absence of an anal opening.

Intestinal atresia has been reported as a congenital defect in all species of domestic animals (Van Der Gass & Tibboel 1980). The congenital abnormalities of the anus and rectum are fairly common in young ones (Dreyfuss & Tulleners, 1989). Various surgical

techniques have been used to correct atresia ani in domestic animals (Singh, 1989). A case of type II atresia ani which is fairly common in a bull calf and its management is reported.

### Case Management

#### Case history

A day old Bunaji bull-calf weighing 15 kg from a herd of 59 was presented to the large animal unit of the Veterinary Teaching Hospital, Ahmadu Bello University, Zaria on the 11<sup>th</sup> of May, 2017 with the chief complaint of inability to defecate. History revealed that the calf was calved 17 hours prior to presentation and had not defecated since then.

Clinical examination revealed the absence of an anal opening (Plate I), and intermittent straining characterized by the bulging of the anal region whenever the calf strained. The imperforate anus was less than 1.5cm away from the blind rectal pouch. The case was diagnosed as atresia ani type II and surgery was recommended.

#### Pre-operative preparation, Anaesthesia and Restraint

The perineal area was shaved; cleaned, scrubbed with soap and water and standard surgical site preparation was performed. The calf was then restrained on sternal recumbency on a surgical table. Local anaesthesia, using a 2% lignocaine hydrochloride (xylocaine, Laborate pharmaceuticals Limited, Ahmeddabad, India) was achieved via infiltration in a ring block around the supposed anal opening/orifice (characterized by a big bulge).



**Plate I:** Clinical presentation of the imperforate anus, shaved and prepared for surgery



**Plate II:** The surgical excision of the supposed anus

### *Surgical Procedure*

The blind ended rectum was exteriorized after blunt dissection of the perineal canal and then retracted caudally, and fixed to the perineal skin with four stay sutures placed at 12 O'clock, 3 O'clock, 6 O'clock and 9 O'clock using size 0 chromic catgut (Agary pharmaceutical, China). These sutures were placed in simple interrupted suture pattern, anchoring the sero-muscular layer of rectum to the perineal skin. Numerous sutures were placed all around the rectum using size 0 chromic catgut absorbable suture material in simple interrupted suture pattern holding the full thickness layer of rectum with the perineal skin. The blind end of the rectum was incised to evacuate the meconium and to allow for good exposure of the surgical site, the evacuation was facilitated by massaging the abdominal region. The anchoring of the pouch was reinforced to the skin using a size 1 silk suture material (Agary Pharmaceutical, China). Oxytetracycline spray (Sequent Scientific Ltd., Thane, India) was used topically on the surgical wound.

Post operatively, the surgical wound was cleaned and dressed regularly with liquid povidone iodine (Kwality Pharmaceuticals, India). Long acting oxytetracycline (Aether Centre Biology Company, Ltd., Beijing, China) was administered at a dosage of 20mg/kg intramuscularly and was repeated after 3 days, Piroxicam (Laborate Pharmaceuticals, India) was administered intra muscularly at 0.03mg/kg. Oxytetracycline aerosol spray (Sequent Scientific Ltd., Thane, India) was applied topically daily till recovery. The skin anchor sutures were removed on day 15 post-surgery.

### **Discussion**

The calf showed marked improvement in defecation with minimal tenesmus and was in good general body condition 3 days post-surgery and uneventful recovery at day 15 post-surgery. The present case of atresia ani with its simple form of agenesis (without involving other parts), uneventful recovery after surgical intervention in calves have been reported (Suthar *et al.*, 2010).

Most affected calves initially will stand and suck normally after birth and the time for onset of clinical signs of atresia ani may vary from 1 to 3 days (Chauhan *et al.*, 2011). In this present case, history revealed that the client was not observant enough to notice if the calf suckled after birth, however the clinical sign of inability to defecate i.e. not passing of meconium was noticed within 24 hours of birth. Other clinical signs of atresia ani such as intermittent

straining and bulging of the anal region whenever the calf strains, were observed.

The diagnosis of atresia ani is often presumptive and based on the age, history, physical examinations, visual inspection of the perineal region or by limited digital palpation if a vestigial anal opening is present (Chauhan *et al.*, 2011). This agrees with the present case where diagnosis was made majorly based on the age, history, physical examinations and visual inspection of the perineal region of the calf.

Surgical intervention is the main technique of choice for the management of atresia ani (Suthar *et al.*, 2010), this was successfully carried out in this present case. The success recorded can be attributed to early report of the case, prompt diagnosis, surgeons expertise, strict aseptic procedures and standard post-operative management.

It is concluded that anal reconstruction is an effective treatment for atresia ani as the procedure is simple, safe, economical and helps to improve the overall well-being of the animals. However, farmers are advised to avoid breeding with the affected animals to reduce the frequency of atresia ani in the herd.

### **Conflicts of Interest**

The authors declare they have no conflict of interest.

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