

A RETROSPECTIVE STUDY OF ATRESIA ANI CASES AT THE AHAMDU BELLO UNIVERSITY VETERINARY TEACHING HOSPITAL ZARIA, NIGERIA

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SUMMARY

From the medical records, four thousand, nine hundred and eighty-two (4,982) animals were presented to the Ahmadu Bello University, Veterinary Teaching Hospital (ABUVTH), Zaria during the period under study (January 1990 - December 2000). Out of these, 18 cases of atresia ani were reported. 14 cases (77.8%) were males and 4 cases (22.2%) were females. Nine (50%) of the animals were in bovine while in porcine, ovine and caprine 3 (16.7%) cases were recorded in each. Atresia ani was not recorded in canine and feline species. Atresia ani occurred alone (uncomplicated) in 13 cases while it was complicated in 1 case each with either recto-urethral fistula or recto-vaginal fistula, hypospadias, absence of preputial orifice or absence of urogenital organs. Treatment was through surgical correction.

KEY WORDS: Retrospective study, Atresia ani, Zaria.

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. Developmental defects may be lethal, semi-lethal, or compatible with life causing aesthetic defects or having no effect on the animal (Johnson et al., 1985). Atresia ani is the congenital absence of anal opening or its obliteration by membrane causing a build up of feces and consequence distension of the abdomen (Roberts, 1986). It is found in newly born pigs, lambs, calves, and foals (Roberts, 1986). It may be a genetic defect resulting in arrested development at the terminal portion of the digestive system (Roberts, 1986). It may be related to palpation of the amniotic vesicles between days 30 - 40 of gestation in cattle (Roberts, 1986). Atresia ani, (imperforated anus), is the failure of the anal membrane to break down (Fig.1). The rectum is intact and attached to the membrane. Atresia ani is most frequently encountered in calves and pigs. If the rectum ends blindly as a cul- de- sac a short

distance cranial to the anal membrane, the condition is called rectal atresia (Noden and Lahunta, 1985).

Atresia is the most frequently reported anomaly of the anus and rectum (Roberts, 1986). Four types have been reported including congenital anal stenosis (Type I), imperforate anus alone (Type II), or combined with more cranial termination of the rectum as a blind pouch (Type III) and discontinuity of the proximal rectum with normal anal and terminal rectal development (Type IV), (Vianna and Tobias, 2005).

Atresia ani is less acute in female where it is complicated by recto-vaginal fistula, which allows feces to be voided through the vulva. The animal may be several weeks old without any serious illness (Kersjes et al., 1985). In some cases, there may be a swelling at site of the anus, abdominal distension, and unthriftiness (Elsa and Onyeyile, 2004; Kersjes et al., 1985).

This study was conducted to determine the occurrence of atresia ani in large animals, determine the percentage distribution by breed,

species and sex and manner of presentation (either alone or complicated with other congenital conditions).

MATERIALS AND METHOD

Data from 1990-2000 were collected from the medical records of the Ahmadu Bello University, Veterinary Teaching Hospital (ABUVTH), Zaria. The breed, species, sex, age on presentation, complications associated with the condition and history of the condition in the herd or flock were parameters recorded for each case.

RESULTS

The Large Animal Unit recorded 18 cases while there were no records of any case in Small Animal Unit of the hospital of the condition. Animals with atresia ani are often presented with the history of absence of anal opening from birth. Ages at presentation were from day old to three weeks, but most frequently within first week of life (Fig. 2). On clinical presentation, usually absence of anal opening and distension is seen at the site of the anus (Plate 1), arching of the back due to straining (Plate 2), and weakness.

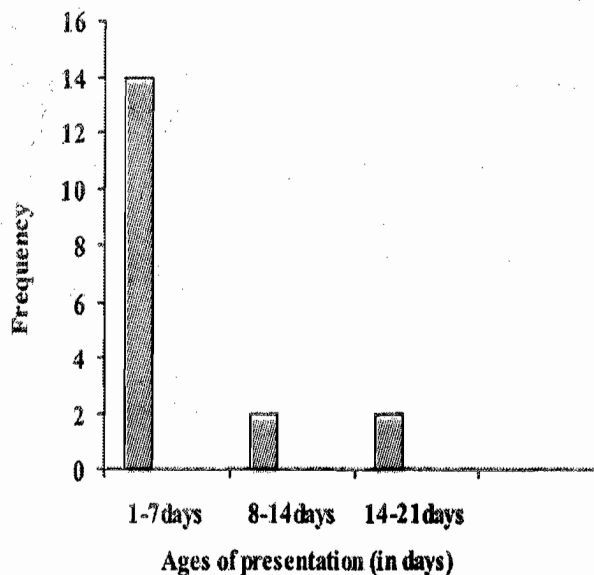


Fig. 2. Atresia Ani based on Age of Presentation

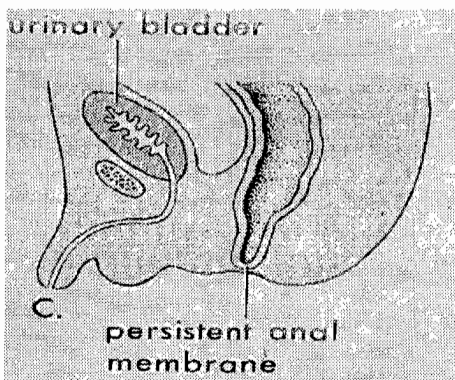


Fig. 1: Anal developmental anomaly (Noden and Lahunta, 1985)

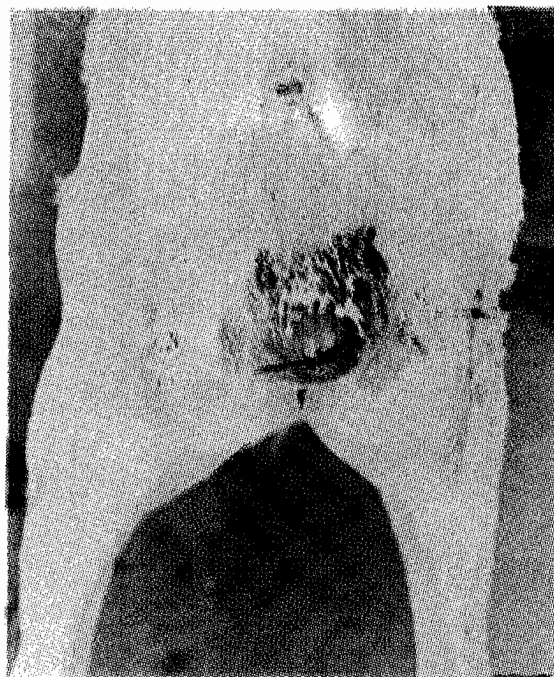


PLATE 1: Arrow showing absence of anal opening and distension at site of anus in a Bunaji 3-Day-old Bull-calf.

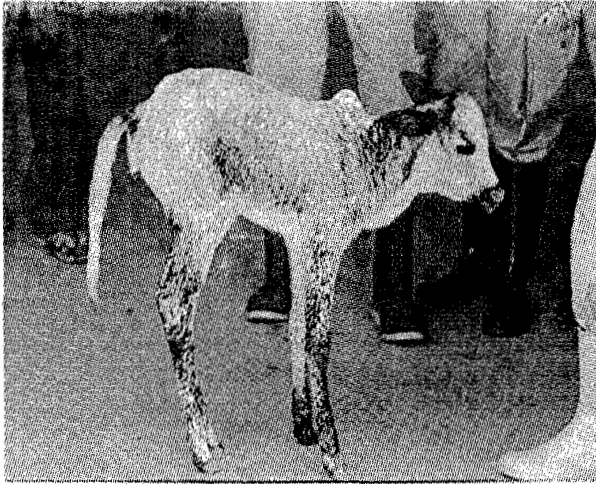


PLATE 2: A three day old Bunaji bull-calf with arched back due to straining resulting from atresia ani.

In some females, the distention may not be evident because of presence of a recto-vaginal fistula through which some evacuation of feces occurs. Occurrence of atresia ani was more in males than females (Table I) and occurs more frequently in the Bunaji breed of cattle (Table II). Atresia ani was most frequent in bovine species (Table III). Atresia ani occurred mostly alone (2600) and less frequently with complications (200) (Fig. 3).

TABLE I: Percentage Distribution of Atresia Ani Based on Sex at Ahmadu Bello University, Veterinary Teaching Hospital, Zaria- Nigeria. (January 1990 December 2000)

Sex	Numbers	Percentage (%)
Male	14	77.8
Female	4	22.2
Total	18	100

TABLE II: Percentage Distribution of Atresia Ani Based on Breed at Ahmadu Bello University, Veterinary Teaching Hospital, Zaria-Nigeria. (January 1990 December 2000)

Breed	Number	Percentage (%)
White Fulani (cattle)	9	50.0
Yankasa (sheep)	2	11.1
Sokoto Red (goat)	3	16.7
Large white (pig)	1	5.6
Local (pig)	2	11.1
Balami cross (sheep)	1	5.6
Total	18	100

TABLE III: Percentage Distribution of atresia ani based on species at Ahmadu Bello University, Veterinary Teaching Hospital, Zaria. Nigeria. (January 1990 – December 2000)

Species	Number	Percentage (%)
Bovine	9	50.0
Porcine	3	16.7
Caprine	3	16.7
Ovine	3	16.7
Total	19	100

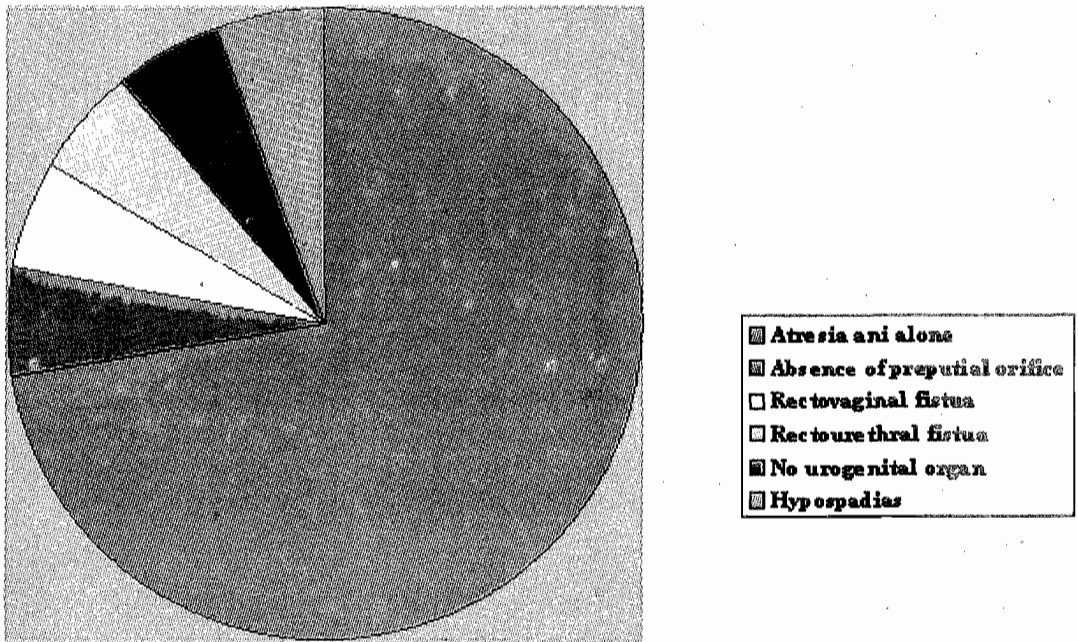


Fig. 3. Occurrence of Atresia Ani either singly or complicated with other conditions.

Treatment of atresia ani is by surgical correction. The animal is placed on sternal recumbency in a surgical cradle. Local anesthesia through infiltration of 2% Lidocaine HCL. A circular skin incision is made over the bulge or in the absence of a bulge, the anal depression is located and the underlying skin is brought out with a thumb or tissue forceps and the circular loose skin flap is dissected out (Plate 3).

The rectum is then opened by a vertical incision to discharge the feces. After sufficient evacuation of the bowel assisted by gentle pressure on the abdominal wall, simple interrupted sutures is applied at 3, 12, 9, and 6 o clock positions, using no. 2 braided silk is employed to suture the rectal wall to the skin (Plate 4). In some cases a cross incision is made over the bulge and each rectal wall quadrant is sutured to the skin with simple interrupted using no. 2 braided silk. Treatment of atresia ani can also be by excision of a circular piece of skin facilitates dissection of the blind end of

the rectum, and its fixation by stay sutures to the skin opening minimizes contamination of the subcutaneous tissue.

Postoperatively, Procaine penicillin (20,000 IU/ kg b. wt) and Streptomycin (5 mg/kg b. wt) is given intramuscularly for 5 days. Spray-plus (Oxtetracycline + Gentian violet) is sprayed on the site of cutaneous wound. The skin sutures are removed 7 to 10 days post surgery.



PLATE 3: The circular loose skin flap over the anus dissected out during surgical correction of atresia ani in a 3-day old Bunaji bull-calf

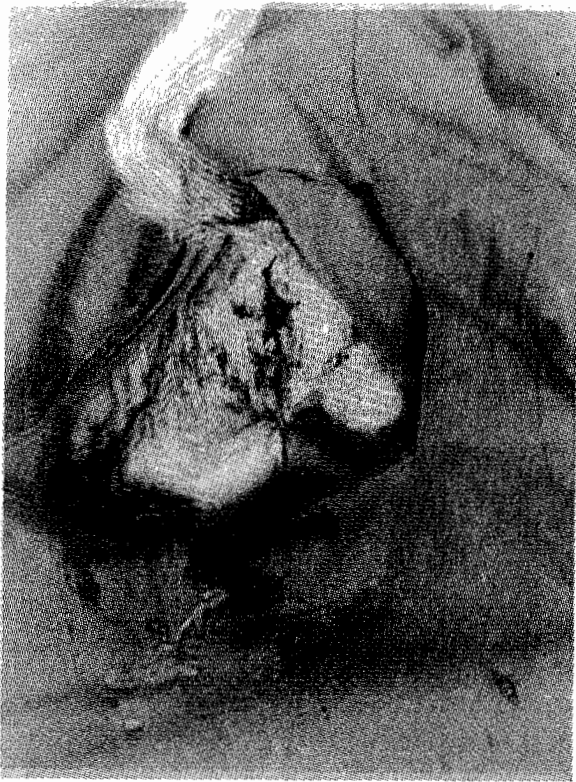


PLATE 4: Simple Interrupted sutures Applied At 3, 12, 9, 6, O'clock positions using No. 2 Braided Silk used to suture rectal wall to the skin, during surgical correction of atresia ani in a 3-day-old Bunaji bull-calf

DISCUSSION

Atresia ani is seen in all domestic animals but most commonly in swine (Roberts, 1986). Even though this study does not agree with this since it revealed that it occurred more in the bovine species with 9 cases (50%). The incidence of atresia ani is higher in calves probably because of higher bovine cases brought to the Large Animal Unit than porcine species during the study period. In the swine, it is caused by lethal or semi lethal character while in the sheep and goat is a hereditary non-lethal defect and commonly associated with other developmental defects (Roberts, 1986). Incidence of atresia ani in the cat is at its lowest than in others domestic animals. There was no record of atresia ani in dogs and cats in this study.

Atresia ani may occur alone or along with complications such as congenital hypogenitalia and imperforate anus complicated with herniation and colonic atresia (Adamu *et al.*, 1994; Nitta *et al.*, 1987). In this study, complications associated

with atresia ani are atresia of preputial orifice, recto-urethral fistula, absence of preputial orifice, recto-vaginal fistula, and hypospadias. In terms of occurrence of congenital abnormalities of the urogenital system, after atresia ani cases are the absence of urogenital organs. The animal that was presented with atresia ani and absence of urogenital organs was found at post mortem. Atresia ani has been reported to occur along with colonic atresia in humans (Nitta *et al.*, 1987).

Post surgical complications resulting from convection of atresia ani are uncommon. Some complications recorded are trauma to the surrounding structures, intra pelvic sepsis, and cicatricial stricture of the anal opening. Cicatricial stricture of the anal opening requires a second surgery.

CONCLUSION

Atresia ani cases are more common in calves in Zaria environ. Farmers are always advised to fatten and cull such animal, to prevent the perpetration of the hereditary genetic problem.

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