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*Case Report*

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# Surgical Management of Congenital Recto-Vaginal Fistula with Atresia Ani in a Calf

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**Abstract**: In this case report, a 1-day-old female calf brought to the Ataturk University Faculty of Veterinary Medicine Animal Hospital with rectovaginal fistula and atresia ani is presented. As a result of clinical examination, abdominal tension, tenderness, depression, stronguria, absence of stool output, meconium mixed urine droplets coming out were detected in a 1-day-old calf. In the radiographic examinations, the blunt end of the rectum was detected very close to the skin and the operation was decided. After the preoperative preparations, a circular incision was made into the skin to reveal the blunt end of the rectum. The rectal pouch was grabbed and opened. The edges of rectal mucosa were sutured with skin to maintain the patency of opening. At the same time, the vulvas were expanded with plastic surgery and the urinary tract was detected and probed. Similarly, the edges of fistula within the vagina were also refreshed and sutured by using simple interrupted suture pattern. After 7 days of post operative care calf got recovered successfully.

**Keywords:** Atresia Ani, Calf, Rectovaginal Fistula.

## INTRODUCTION

Rectovaginal fistula is the congenital or acquired connection between the rectal mucosa and the vaginal mucosa, usually as a result of difficult delivery in cattle and rarely as a complication of atresia ani in calves (1). Atresia is the most frequently reported anomaly of the anus and rectum in calves (2). Anal atresia is the failure of the anal membrane to break down to make an anal orifice and it has been reported as the most frequently encountered anamoly in calves (3). The causes of this congenital defects may be genetical or environmental of both, but in many cases the cause is unknown. The most common factors are thought to be teratogens from the plants that cattle ate during pregnancy and viral diseases (4). The vast majority of defects in calves are inherited (5). Atresia ani is one such developmental anomaly due to autosomal recessive gene, characterized by absence of anus and may be associated with recto-vaginal fistula, rectocystic fistula, vagino urethral agenesis, taillessness, hypospadias, and diphallus (4-6). Four major types of anal and rectal atresia were 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

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anal and terminal rectal development (Type IV) (7). In type I atresia, a mucosal obstruction is seen within the intestinal lumen. In animals with type II atresia, the proximal segment terminates at a blunt end and the distal segment is similarly joined by a fibrous cord that does not contain two end lumens. Type III atresia is similar to type II except that the proximal and distal blunt ends are completely separated and there is a mesenteric defect corresponding to the missing segment in the bowel. Animals with type III b atresia have a coiled distal intestine section. Type IV atresia includes more than one site of atresia (8). Occasionally, rectum becomes ruptured due to abdominal straining of animal forming a recto-vaginal fistula, that allows the excreta to pass out through vulvular opening (9).

**CASE REPORT**

The material of this case consisted of a 1-day-old female calf brought to Atatürk University Animal Hospital with complaints of absence of anus and passing stool from vulva. Absence of anal opening, tenesmus, cambering in the anal region, and expulsion of stool between the rectal floor and the vaginal roof were observed in the perineal examination (Figure 1). After straining movements with abdominal tension, slight bulging was observed in the perianal area. Radiographic examination was applied to determine the ending part of the large intestine (Figure 2). Besides, exploration through vagina revealed presence of abnormal opening between rectum and vagina on which approximately 1-2 cm wide fistula present 3-4 cm at cranial and right dorso lateral aspect of vulva. The case was diagnosed as atresia ani and rectovaginal fistula condition and immediately planned for surgery.

First of all the perineal region below thebase of the tail was prepared for aseptic surgery. After preoperative preparation, the calf wasrestrained in dorso ventral position on surgical table.Incision site was desensitized after circular lidocaine HCL (L-Anestine, Alke, 20 mg/ml) local anesthesia infiltration. Xylazine HCL (XylazinBio %2, Bioveta, 20mg/ml) was administered at a dose of 0.05-0.1 mg / kg as a preanesthetic. After sedation was provided, general anesthesia was administered with 4 mg / kg Ketamine. After development of anesthesia, a circular incision was made on the skin at the bulging area and the rectal cul de sac was identified by exploration (Figure 3). The rectum was opened, the meconium expelled to outside and cleared. The fistulous defect of vaginal wall was identified and closed using with 2/0 vicyrl (Polyglactin 910, Ethicon, USA) continous suture. Besides the vagina was not fully shaped, the calf had difficulty urinating and the ureters were probed with a catheter and urine output was provided (Figure 4). Then catheter within the ureters was fixed to the vaginal floor together (Figure 5). The anal opening reconstruction was made by suturing rectal mucosa along with perianal skin using 2/0 (Ipek, 2/0 20 mm ½ round, Dogsan, Trabzon Turkey) silk at circular interrupted sutures to maintain anal opening. Post operatively, surgical wound was cleaned and antibiotics- analgesics were administered for a period 5 days respectively. Urine catheter was removed after 3 days and skin sutures were removed on $10^{th}$ postoperative days.

The calf showed significant improvement in defecation and general behavior within the 5th day of surgery and predictable recovery within the 10th post-operative day. The calf recovered in good condition without any recurrence for a follow-up of 1 months (Figure 6).

**Figure 1**. A female calf with Rectovaginal Fistula and Atresia A

**Figure 2.** Radiographic examination of the pelvic region in lateral aspect

**Figure 4.** Cathetering ureters to drain bladder

**Figure 3.** Circular skin incision with finger guided rectal sac identification

**Figure 5.** Fixed urether to the vaginal roof

**Figure 6**. Post-operative 1 month view in calf

**DISCUSSION AND CONCLUSION**

Congenital malformations of the rectum and anus are common reported in all species of animals. Congenital rectovaginal fistula is characterized by the communication between the dorsal wall of the vagina and the ventral portion of the rectum, so that the vulva functions as a common opening to the urogenital and gastrointestinal tracts and is usually associated with type II atresia ani, in which the rectum ends as a blind pouch immediately cranial to the imperforated anus which was also presented in this case (4). Agenesis of vagina, urethra, anus and rectum are discovered rarely and are attributed to the faults lying in chromatin material (10). Observed clinical findings Bademkiran et al. is consistent with the findings of the study. (4). Two surgical techniques commonly used in the treatment of recto-vaginal fistula and atresia ani, In one method, the defects of rectum and vulvular lips are closed individually after isolating and transecting the fistula (11). The anal opening is reconstructed later on. In the second method, the trisection of the rectum is made just in front of the fistula, the defective rectal part is excised, then the last rectal part is sutured with the skin edges of the incised opening in the possible anal region and the procedure is completed.

Abnormalities noted in Mahlar and Williams of study were also observed in this case (11).

In cases where clinical examination and physical symptoms are insufficient, radiographic examination helps to make a diagnosis. The most successful treatment of such anomalies is by surgical methods. At the same time, it should be aimed to prevent financial losses by informing the owner about the future situation of the patient

**Conflict of Interest**

The authors declare that they have no conflict of interest.

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