RESEARCH CASE REPORT

A CASE OF SIMULTANEOUSLY DETECTED RECTOVAGINAL FISTULA AND ATRESIA ANI IN A KITTEN

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ABSTRACT

A 45-day-old female kitten was admitted to the Obstetrics and Gynaecology Clinics of Faculty of Veterinary Medicine at Istanbul University-Cerrahpaşa with complaints of vomiting, abdominal swelling and difficulty in defecation after switching to dry food. The mucous membranes were pale pink, the palpable lymph nodes were of normal size, the furs were dull, the abdomen was swollen, intestinal fullness, and the normal posture on all fours were noticed. On clinical examination, it was seen that the anus was completely closed, and the faeces was coming from the vagina. In this case, Type II atresia and recto-vaginal fistula were observed simultaneously. General anesthesia was administered to the kitten whose vital signs and hemogram values were within the normal reference range, and an anal opening surgery was performed. In this case report, the surgical intervention of the rarely seen congenital defects and the post-surgery process were discussed. It is concluded that the atresia ani and recto-vaginal fistula cases, which are successfully treated by a surgical intervention, may simultaneously exist in 45-day-old kittens, and both clinical and surgical approaches at an early age would have great importance in such congenital cases.

Keywords: Cat, congenital defect, surgical therapy

INTRODUCTION

Atresia ani is a rare congenital defect in puppies and kittens associated with a rectovaginal or rectovestibular fistula between the distal urogenital tract and the rectum (Matthiesen and Maretta, 1993). Anorectal abnormalities associated with urogenital malformations result from abnormal embryonic development of the cloacal region (Rothenberger and Goldberg, 1983; Santulli et al.,1965). The gastrointestinal, urinary, and genital tracts initially coexist in one cloacal opening. This embryonic cloaca consists of the rectum, which is separated by the urorectal fold and urogenital sinus. The urogenital sinus is divided into the bladder and urethra. The cranial part of the

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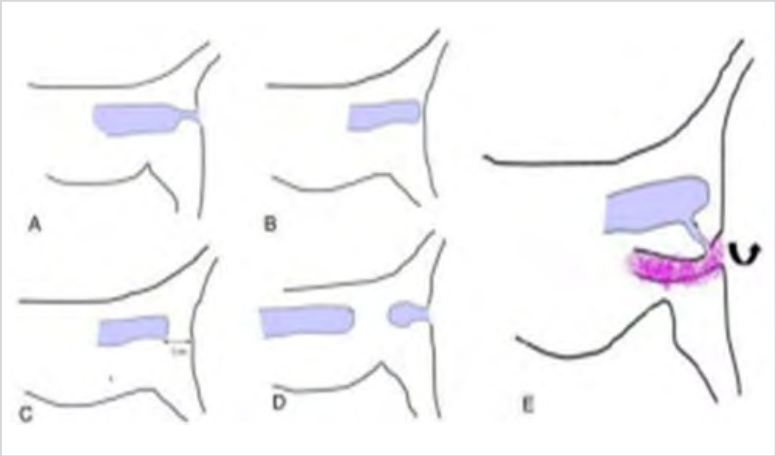

Figure 1 (A): Schematic representation of type I atresia ani (B): Schematic representation of type II atresia ani (C): Schematic representation of type III atresia ani (D): Schematic representation of type IV atresia ani (E): Schematic representation of type II atresia ani and rectovaginal fistula (Papazoglou and Ellison, 2012)

anal canal is formed by the terminal end of the hindgut, while the anus is formed by the ingrowth of the ectoderm and perineum. In females, the Müllerian ducts form the cranial two-thirds of the uterus and vagina. The caudal part of the vagina develops from sinovaginal buds originating from the epithelium of the dorsal wall of the urogenital sinus. Division of the cloaca is completed early in pregnancy in the mammalian embryo (Amand, 1974; Arey, 1974). Four types of atresia ani have been reported: 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) (Aronson, 2003; Papazoglou and Ellison, 2012) (Figure 1). Typically, a rectovaginal fistula is accompanied with type II atresia (Maretta and Matthiesen,1989). Fistula, ventral terminal of which is usually ending as a blunt sac, connects the rectum to the dorsal wall of the vagina (Suess et al., 1992). The fistula allows the evacuation of faeces so that the animal survives the postnatal period (Kibar Kurt and Turan, 2021). In this case, surgical treatment of type II atresia ani and rectovaginal fistula was discussed.

CASE PRESENTATION

A 45-day old female Scottish kitten was forwarded from a private clinic to the Department of Obstetrics and Gynecology, Faculty of Veterinary Medicine, Istanbul University-Cerrahpaşa with complaints of difficulty in defecation, swelling in the abdomen and vomiting one day after weaning and switching to dry food. As a result of the clinical examination, the mucous membranes were pale pink, the palpable lymph nodes were

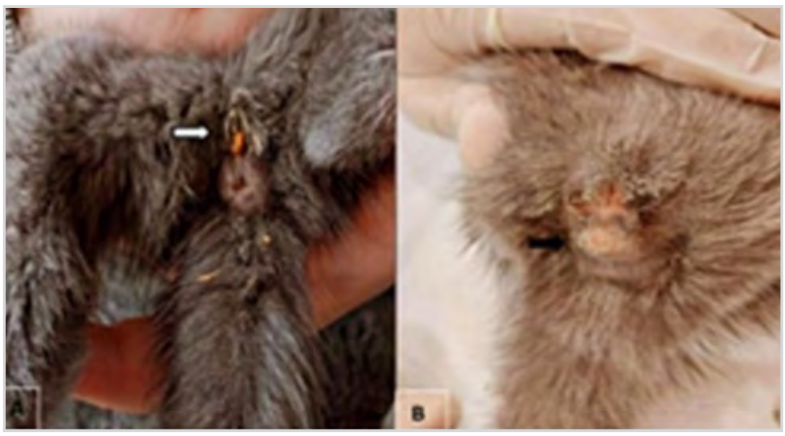

Figure 2 A Evacuation of faeces from rectovaginal fistula (white arrow) B Closed anus (black arrow)

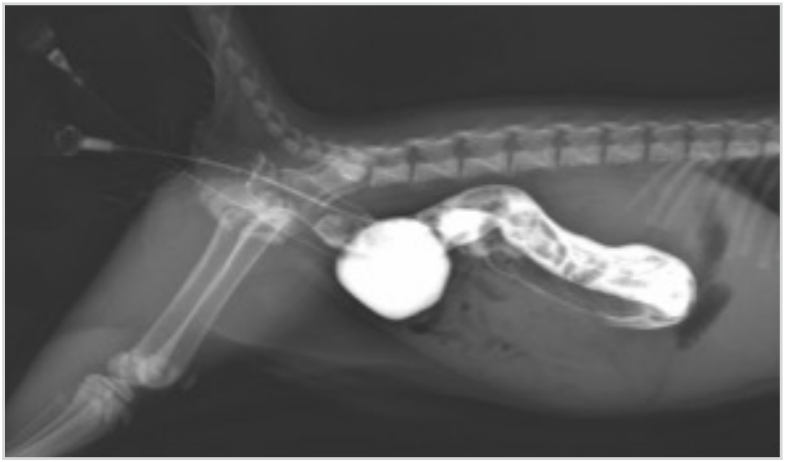

Figure 3 Positive contrast radiography and fistulography in laterolateral position Absence of retrograde contrast agent flowing out from the anus due to the absence of anal openning

in normal size, the furs were dull, the abdomen was swollen, and the normal posture on all fours was observed. Intestinal fullness was noticed on abdominal palpation. There was no anal opening detected in clinical examination, it was observed that the faeces was evacuated through the vagina (Figure 2).

Lateral plain positive contrast radiography and fistulography were performed after catheterization of the bladder and colon through the vaginal canal (Figure 3). As a result of the examination, type II atresia and rectovaginal fistula were diagnosed.

Blood tests were performed to avoid the anesthesia risk before the surgical intervention. Hemogram and some blood biochemistry parameters were within the normal reference ranges. Since the vital signs were found to be normal, anal opening surgery was decided to perform. After intravenous catheterization, infusion was started with Ringer's lactate at a rate of 7 ml/kg/hour (Medifleks, Koçak Farma, Turkey) (Figure 4). Amoxicillin+-clavulanic acid at a dose of 8.75 mg/kg (Synulox suspension for injection, Haupt Pharma, Italy) was administered subcutaneously.

For induction of the anesthesia, medetomidine (0.08 ml/kg) (Domitor 1 mg/ml, Zoetis, USA) was administered intramuscularly. General anesthesia was maintained with isoflurane at a dose of 2.5% (Isoflurane USP, Piramal Critical Care, USA) and oxygen at a dose of 0.5 - 1% by the inhalation mask. The kitten was positioned in sternal recumbency. Asepsis and antisepsis were provided at perianal and perivaginal area. The closed anus region was incised approximately 1 cm in length (Figure 5).

Figure 4 Serum infusion in the pre-operative term

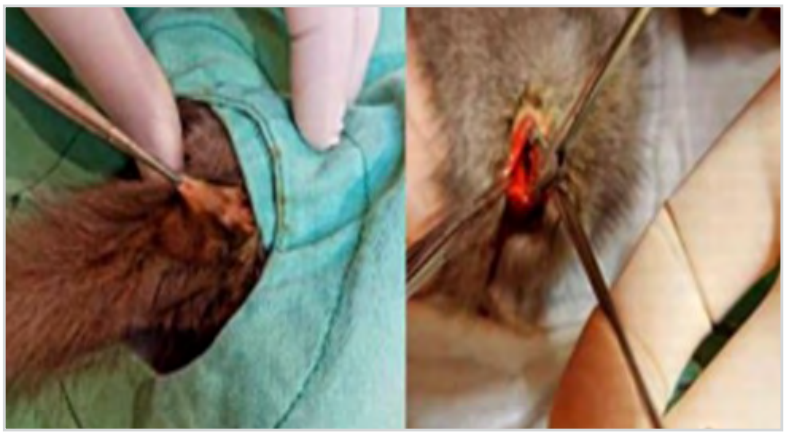

Figure 5 Incision of closed anus and visualization of anal opening after incision

An anal opening was seen under the skin cut with the incision, and the overlying skin was sutured to the edges of the anal opening. A vertical mattress suture was used to inclination of the wound lips towards the anal opening. Then, the fistula hole opened from the rectum to the vagina was revised and the operation area was closed with a sultan (x) suture. Absorbable and 4/0 surgical suture material (Monocryl, Medeks, Turkey) was used for all sutures (Figure 6).

After surgery, the kitten was fed with wet food (Hill's A/D) for 7 days. Sutures were cleaned daily with 0.9% NaCl isotonic serum (Polifleks, Polifarma, Turkey). Epithelializing skin cream (Bepanthen Plus Cream, Bayer, Germany) was applied to the wound line for 5 days. Duphalac syrup (2 ml/kg/oral) (Abbott 670 mg/ml, Illinois, USA) was given to ease faeces output with the transition to dry food. Normal urine and faeces output were observed regularly. Cystitis, vaginitis or fecal incontinence were not observed. Sutures were removed on Day 14. To complete the tissue healing, the treatment was continued for 7 days using epithelializing skin creams (Denovo, Farmalion, Turkey), (Bepanthen Plus Cream, Bayer, Germany).

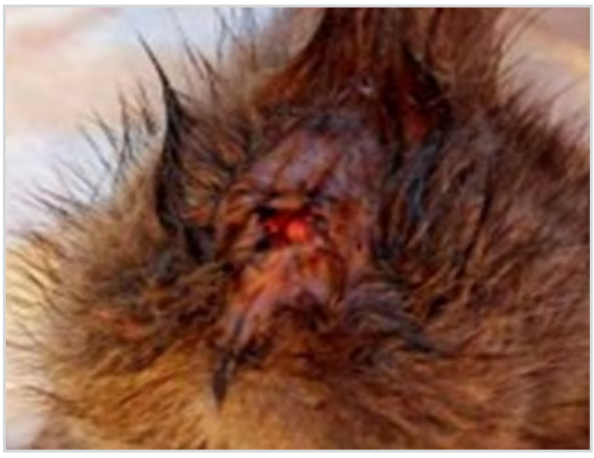

Figure 6 Post-operative image of anus

DISCUSSION AND CONCLUSION

The diagnosis of atresia ani can be made based on anamnesis, age, and physical examination. Additionally, radiographic examination and ultrasonography are considered to be the ideal methods for the confirmation of the rectal abnormality (Salari Sedigh et al., 2010). Although there was no radiographic examination in this case, the case was classified as atresia ani type II and recto-vaginal fistula anomaly, since the rectal opening was not observed, and the vaginal fistula was seen during palpation, while the anal fistula was not evident.

In cases where the recto-vaginal fistula and atresia ani coexist together, faeces are evacuated from the vagina throughout the fistula by maternal stimulation. Small amounts of watery faeces may pass through the fistula and exit from the vulva and consequently, it may cause the secondary ulceration of the labia, while harder faeces cannot pass through the fistula and remain in the colon,

thus causing abdominal distension (Rahal et al., 2007; Vianna and Tobias, 2005). This condition is usually noticed after weaning (4-6 weeks after birth) (Salari Sedigh et al., 2010). However, the kitten which had both atresia ani and recto-vaginal fistula was approximately 7 weeks old (45 days old) in this case. The reason why this frequently encountered case occurred after a period of 4-6 weeks might be the coexistence of two cases together. In cases of atresia ani, severe tenesmus, vomiting, anorexia and developmental delay are clinically observed (Salari Sedigh et al., 2010). The clinical findings seen in this case are consistent with the previous case reports (Jardel et al., 2013 ; Rahal et al., 2007; Salari Sedigh et al., 2010).

The only available curative treatment is surgical correction. If the defects are left uncorrected, type II atresia ani and recto-vaginal fistula always lead to secondary complications such as megacolon, urinary tract infection, vaginitis, and chronic kidney injury; therefore, the surgical treatment of these congenital defects is compulsory (Jardel et al., 2013). The anoplasty is referred to the opening of the rectum and the reconstruction. There have been cases where the anomaly is corrected with different surgical techniques. Complications have been reported in cases due to widely dissected soft tissue where the complete excision of the fistula was performed (Bornet, 1990; Suess et al., 1992). In line with Jardel et al. (2013) who suggested the importance of surgical methods for the treatment of the congenital defects, anoplasty was performed for the treatment of type II atresia ani and rectovaginal fistula in this case. After anoplasty intervention, no faecal discharge from the vagina was observed. Moreover, no postoperative complications were seen in the present case, although the postoperative complications such as faecal incontinence, constipation and megacolon, or anal stenosis due to incorrect suture techniques which are performed during surgery, have been reported (Salari Sedigh et al., 2010). It is suggested that the surgery technique is likely the predisposing factor for the possible complications.

Other congenital anomalies with anorectal malformations may be present in one-third of patients (Aronson, 2003). Partial tail agenesis associated with recto-vaginal fistula has been observed in dogs (Aronson, 2003; Vianna and Tobias, 2005). In cats, atresia ani and recto-vaginal fistula have been reported in association with sacro-caudal dysgenesis and hydrocephalus (Suess et al., 1992). There are cases suggesting the defect is inherited; therefore, neutering is recommended to prevent these congenital anomalies (Suess et al., 1992). Neutering was not applied to the 45-day-old cat that constituted the present case, but in accordance with Suess et al. (1992), it was recommended that the cat might be neutered instead of prepubertal gonadectomy during its adulthood.

In this case report, it is concluded that the atresia ani and recto-vaginal fistula cases which are successfully treated by surgical intervention, may simultaneously exist in 45-day-old kittens, and both clinical and surgical approaches are of importance in such congenital cases.

CONFLICT OF INTEREST

The authors declared that there is no conflict of interest.

CONTRIBUTIONS

Concept – İK, ZGU.; Design – İK; Supervision – İK, ZGU, BG; Resources - MY; Materials – RBE; Data Collection and/or Processing – İK,BG; Analysis and/or Interpretation – İK,ZGU,MY; Literature Search – AB,BG; Writing Manuscript – BG,ZGU; Critical Review – RBE,ZGU.

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SLUČAJ ISTOVREMENOG DIJAGNOSTICIRANJA REKTOVAGINALNE FISTULE I ATREZIJE ANUSA KOD MAČETA

SAŽETAK

45-dnevno žensko mače je primljeno na Kliniku za opstetriciju i ginekologiju Veterinarskog fakulteta Cerrahpaşa Univerziteta u Istanbulu sa povraćanjem, abdominalnim otokom i otežanom defekacijom nakon prelaska na suhu hranu. Mukozne membrane su bile blijedoružičaste, palpabilni limfni čvorovi uredne veličine, krzno bez sjaja, abdomen otečen uz vidljivu intestinalnu napetost i normalan položaj na sve četiri noge. Kliničkim pregledom je uočen potpuno zatvoren anus, dok je feces izlazio kroz vaginu. U ovom slučaju su tip II atrezije i rektovaginalna fistula otkriveni istovremeno. Mače je uvedeno u opću anesteziju, dok su vitalni parametri i hemogram bili u granicama referentnih vrijednosti, pri čemu je izvedena operacija otvaranja. Ovaj prikaz slučaja pokazuje operativnu intervenciju rijetko viđenih kongenitalnih defekata i postoperativni proces. Zaključeno je da slučajevi atrezije anusa i rektovaginalne fistule koji se operativno uspješno tretiraju, mogu istovremeno postojati kod 45-dnevnih mačića, kao i da klinički i operativni pristupi u ranoj dobi mogu imati izuzetan značaj u takvim kongenitalnim slučajevima.

Ključne riječi: Kongenitalni defekt, mačka, operativna terapija