

Rectovaginal fistula in a dog with a normal anus: a case report

S.Y. LEE¹, S.J. PARK¹, S.Y. JIN¹, M.H. KIM¹, S.H. SEOK¹, Y.K. KIM², H.C. LEE¹, S.C. YEON¹

¹College of Veterinary Medicine, Gyeongsang National University, Jinju, Republic of Korea

²Haeundae Animal Medical Center, Busan, Republic of Korea

ABSTRACT: A one-year-old, 2.6 kg, spayed female Maltese dog was referred with passage of faeces coming from the vulva, repeated vaginal discharge and vaginitis. Through physical examination, contrast radiograph and vaginoscopic exploration, the dog was diagnosed with rectovaginal fistula which was surgically corrected. After midline perineal incision, the rectovaginal fistula was isolated and transected. The vaginal and rectal defects were closed separately, but dehiscence of the surgical region took place three days after surgery. For the second operation, the rectal segment containing the fistula was removed by transanal rectal pull-through, and anastomosis was performed. Total follow-up time was 10 months and no sign of recurrence was reported. Early postoperative complications included perineal soiling and wound dehiscence, but the long-term outcome was good. This case is the first report of surgical correction of a rectovaginal fistula in a dog with a normal anus.

Keywords: rectovaginal fistula; rectal pull-through; dehiscence; vaginoscopy; dog

Congenital rectovaginal fistula is characterised by an embryological malformation of the urorectal septum which ensures the division of the cloaca into urethrovesical and rectal segments (Marretta and Matthiesen 1989). Occasionally, in dogs with a fistula between the urogenital tract and the anorectum it is accompanied by an imperforate anus, so that the dogs show clinical signs of faecal impaction and passage of faeces through the vulva (Rawlings and Capps Jr. 1971; Prassinis et al. 2003; Mahler and Williams 2005; Rahal et al. 2007). Before weaning, the passage of liquid faeces through the vulva makes the clinical signs of faecal impaction less obvious, so dogs with the abnormality are usually diagnosed after weaning (Wykes and Olson 2003). In addition, the dam frequently cleans the puppies, so it may be difficult to detect the presence of faeces from the vulva (Suess et al. 1992; Prassinis et al. 2003).

The true prevalence of rectovaginal fistula as the sole congenital anorectal abnormality in a dog is unknown, but it is extremely rare. Although this abnormality has been described in a dog (Knecht and Westerfield 1971), clinical experience is limited owing to the lack of cases reported in the literature.

The purpose of this report is to describe a dog with rectovaginal fistula as a sole anorectal abnormality that was diagnosed and treated by surgical correction for the first time.

Case description

A one-year-old, 2.6 kg, spayed female Maltese dog was referred with passage of faeces coming from the vulva. The dog had a six-month history of recurrent vaginal discharge and vaginitis since birth. Ten days before presentation, ovariohysterectomy was performed by the referring veterinarian. Subsequently, the amount of vaginal discharge increased, and the brownish discharge was suspected to be faeces.

A complete blood count, electrolytes and serum biochemical analyses were performed, but were unremarkable. The dog received intramuscular administration of 20 µg/kg medetomidine (Domitor, Pfizer, USA) and 0.2 mg/kg butorphanol (Butophan, Myungmoon Pharm, Korea) for sedation and analgesia. Physical examination findings included perivulvar erythaema and a small volume of fae-

ces in the vaginal opening. Through digital rectal examination, a fistula opening was palpated on the ventral rectal wall 2 cm cranial to the mucocutaneous junction. Owing to the short distance from the anus, a 6 Fr feeding tube could be inserted into the fistula with a finger. Then, radiographs were taken after infusion of contrast medium (Omnipaque 300, GE Healthcare, USA) via the feeding tube, which seemed to be passing through the ventral rectal wall into the genital tract advancing toward the cervix (Figure 1). Therefore, the feeding tube could not be pulled out through the vulva. A tentative diagnosis of rectovaginal fistula was established, and surgical correction was recommended. Urinalysis and urine culture were performed, but no signs of urinary infection were revealed.

Food was withheld for 24 h and water was withheld for 12 h. The dog was pre-medicated with 0.02 mg/kg acepromazine (Sedaject, Samu median, Korea) and 0.2 mg/kg butorphanol intravenously. General anaesthesia was induced with 3 mg/kg propofol (Provive, Myungmoon pharm, Korea) and maintained with isoflurane (Ifran, Hana Pharm, Korea) in 100% oxygen via an endotracheal tube.

The dog was placed in ventral recumbency with the tail held out of the way. To obtain an accurate diagnosis, vaginoscopic examination was planned preoperatively. Vaginoscopic exploration with a 0°, 2.7-mm diameter cystoscope (MGB, Germany) revealed the presence of faeces throughout the genital tract which were removed by sterile saline irrigation. In addition, the exact fistula location of the

urogenital tract side on the dorsal vaginal wall was confirmed, cranially just above the urethral opening. By the guidance of vaginoscopy, the feeding tube inserted into the fistula from the rectal opening was pulled out through the vulva. This feeding tube was used for the fistula indicator (Figure 2).

The perineum was clipped, prepared, and draped for surgery. A vertical midline perineal incision was made and careful blunt dissection was performed in a cranial direction to find the fistula, which was identified and isolated easily with the help of the feeding tube inserted before surgery. The fistula was excised and the defects of the vaginal and rectal wall were closed in an interrupted appositional pattern with 4-0 polydioxanone sutures (PDS II, Ethicon, USA) separately. Incision wounds were rinsed with sterile saline, a Penrose drain was inserted between the rectum and the vagina, and secured to the skin. The musculature and subcutaneous tissue of the incisional site were closed separately in simple interrupted and continuous patterns with 3-0 polydioxanone sutures (PDS II, Ethicon), respectively. The skin was closed in a simple interrupted pattern with 3-0 non-absorbable suture (Ethilon, Ethicon). Immediately after extubation, 0.4 mg/kg butorphanol was administered intramuscularly.

Before and after the surgery, 25 mg/kg cefazolin (Cefazolin, Chongkundang Pharm, Korea) every 12 h and 4.4 mg/kg carprofen (Rimadyl, Pfizer, USA) every 24 h were administered intravenously. Lactulose (Duphalac, JW Pharmaceutical, Korea) was given orally as a stool softener. The dog started to defecate

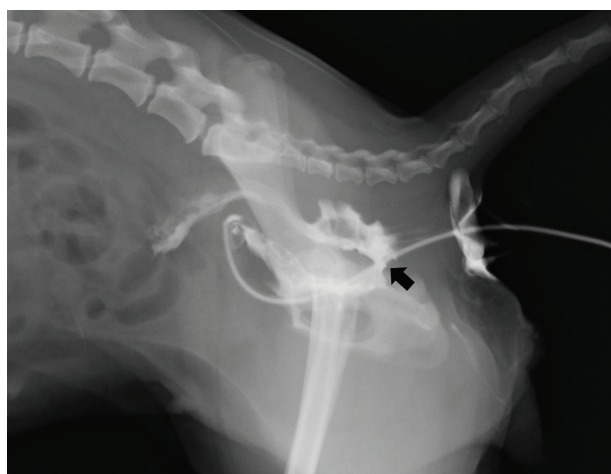


Figure 1. Contrast radiographs were taken after infusion of iodinated contrast through the feeding tube. The communication between the rectum and genital tract is identified (black arrow)

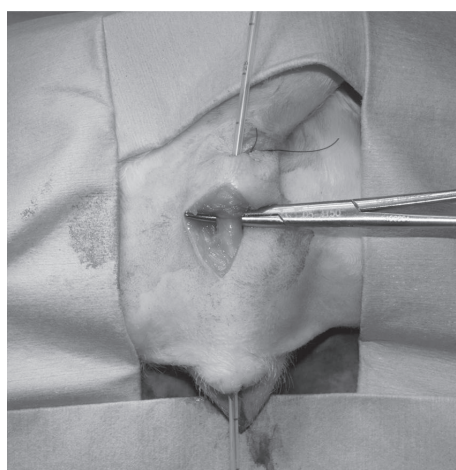


Figure 2. A 6 Fr feeding tube inserted into the fistula was used for fistula indicator, which facilitated exposure and identification of the fistula during surgery

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on the second day after surgery, but watery faeces complicated perineal contamination continuously. Even though the surgical lesion was rinsed with flowing saline, wound dehiscence of the incisional site occurred three days postoperatively, resulting in an open defect in the dorsal vaginal wall and ventral rectum. Exudate from the dehiscence was cultured and antimicrobial susceptibility testing was performed.

The following day, surgical correction was performed employing a transanal rectal pull-through procedure. The anaesthetic protocol and surgical preparation were the same as for the former surgery. Traction was achieved with four stay sutures in the rectal wall and the rectum was everted through the anus (Hedlund and Fossum 2007). The rectal segment containing the fistula was removed through a full-thickness, 360° incision, and the normal cranial rectum was anastomosed with the distal rectal stump in a simple interrupted appositional pattern using 4-0 polydioxanone suture. During the operation, the anal ring was preserved entirely. Debridement and lavage of the wound dehiscence of the former surgery were performed and a Penrose drain was re-established. The vertical perineal incision was closed routinely. Immediately after extubation, 0.4 mg/kg butorphanol was administered intramuscularly.

The dog received 12.75 mg/kg amoxicillin/clavulanate (Lactamox, Schnell Biopharmaceuticals, Korea) orally, 10 mg/kg metronidazole (Flasiny; CJ Healthcare, Korea) every 12 h for seven days, and 4.4 mg/kg carprofen once a day for three days. Stool softener was also administered orally. During the nursing period, perineal soiling continued to be a problem. The skin of the perineal region was rinsed with sterile saline, and topical antimicrobial ointment was applied every day until suture removal. Dehiscence or infection of the surgical region did not occur, the surgical lesion healed uneventfully, and vaginal discharge and vaginitis were resolved.

Follow-up information was obtained by clinical examinations, including rectal digital examination, every week during the first month, and subsequently the owner was interviewed by telephone every month for the next 10 months. The dog remained well and no sign of recurrence was reported.

DISCUSSION AND CONCLUSIONS

In this case, a rectovaginal fistula as a sole congenital anorectal abnormality was diagnosed when

the dog was 18 months old. Despite the history of repeated vaginitis since birth and occasional vaginal discharge, suspected to be liquid faeces, the owner never noticed the presence of faeces from the vulva. The only previously described dog with this abnormality also remained undiagnosed for one year, and the presence of deformity was identified during necropsy (Knecht and Westerfield 1971). The absence of anal obstruction resulted in less obvious clinical signs, so that the condition could not be detected easily.

Clinical signs were sufficient to establish a diagnosis of these deformities, but contrast radiography provided detailed information of the fistula between the anorectum and genital tract (Suess et al. 1992; Mahler and Williams 2005; Rahal et al. 2007). Insertion of a feeding tube into the fistula and infusion of contrast material through it was useful for diagnosing the disorder in the dog. Vaginoscopy showed the exact position and size of the fistula opening on the genital side. Moreover, it helped the tip of the feeding tube to pass through the vulva, which was inserted into the fistula from the anus. During separation of the fistula in the initial surgery, the feeding tube was used for the fistula indicator and was useful.

Three days after the operation, wound dehiscence occurred. This could have been caused by intra- and postoperative faecal contamination of the surgical site (Suess et al. 1992; Aronson 2003) or tension at the sutured rectal site, but the exact reasons are not entirely clear. The use of stool softeners resulting in watery faeces might have potentially played a role in increasing the contamination from faecal material that constantly dribbled onto the incisional site. In the secondary surgery, the rectal segment containing the defect was resected completely along with the surrounding inflammatory tissue, leaving a fresh wound with a clean border, which has been recommended in human medicine (Li et al. 2010). Antibiotic prescription was changed according to the antimicrobial susceptibility test results, and faecal contamination of the surgical site was minimised with the rinse and application of the ointment. After that, there was no more wound dehiscence or cellulitis in the surgical region.

In summary, a rectovaginal fistula was diagnosed and surgically corrected successfully in a dog with a normal anus for the first time. Postoperative complications included perineal soiling and wound dehiscence, but the long-term outcome was good.

Complete resection of the surrounding tissue involving the fistula is recommended to reduce the possibility of wound dehiscence after the surgical treatment.

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Corresponding Author:

Seong Chan Yeon, Gyeongsang National University, College of Veterinary Medicine, Jinju 660-701, Republic of Korea
E-mail: scyeon@gnu.ac.kr
