Balloon dilation with triamcinolone intralesional injection successfully treated rectal stricture in a three-month kitten

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Abstract: This report describes a three-month-old Korean domestic kitten presented with dehydration and poor body condition. Physical examination revealed abdominal distension. Rectal diagnosis was unachievable due to the small rectum diameter. X-ray radiography and endoscopy confirmed presence of abdominal distension and indicated a stricture located 1.5 cm from the anus. A balloon was gently inserted into the rectum and inflated several times followed by triamcinolone injection. Four months later, same procedures were repeated. This report is the first to describe the use of balloon dilation of a rectal stricture followed by intralesional triamcinolone injection in a small cat with poor condition.

Keywords: balloon dilation, cat, rectal administration, intralesional injection, triamcinolone

Rectal stricture (RS) is a circumferential small rectal luminal diameter that may be due to an inflammatory process, fibrosis, trauma, or a growing tumor [1]. In kittens, a mild RS might be confused with atresia ani; thus, careful observation is needed to determine the cause. Atresia ani is a congenital disorder in which the anal membrane has failed to break down, whereas RS is not hereditary [2]. Narrowing of the rectum associated with RS can obstruct feces passage leading to disturbances in the digestive system. These disturbances depend on RS severity and the associated symptoms can vary but may encompass diarrhea, painful defecation, and constipation [3]. RS-related constipation may develop to obstipation depending on stricture severity [4]. Constipation can also lead to various complications that may endanger animal life, such as gut perforation, urinary-bladder displacement, and bowel obstruction [5,6].

Diagnosis of RS can be achieved by digital rectal examination, insertion of a flexible balloon, X-ray radiography, or endoscopy [7]. RS is uncommon in kittens, but once diagnosed, practitioners may decide on surgical intervention [8]. However, several complications following surgical operations have been reported, such as infection, intra-abdominal abscess, enterocolitis, and rectal malfunction [9]. Previously, therefore, non-surgical approaches to RS treatment were suggested [10]. Recently, numerous cases have reported the use of non-invasive balloon and digital dilation methods for RS treatment [11-13]. Balloon dilation combined with triamcinolone injection is a particularly cost-effective, reliable, and harmless method to treat strictures in the rectum [12].

Triamcinolone is a long-acting synthetic corticosteroid used superficially or systemically to treat several inflammatory and immunosuppressant conditions in the skin such as those related to allergy, digestive system diseases, and other causes [3,11].

Triamcinolone is safe with mild or no side effects, even when used in pregnant or young animals. Triamcinolone has been extensively used in combination with balloon dilation to treat RS [2]. This study describes a case of RS in a female kitten that was treated with balloon dilation and intralesional triamcinolone injection.

A three-month-old female Korean domestic short-hair cat weighing 0.6 kg
was referred to Sarang Veterinary Clinic (Korea) for treatment of constipation, which had persisted for more than two months. Prior to presentation, constipation had been managed with lactulose 1 mL q 24 h PO (Duphalac syrup, Abbott Biologicals, USA). The owner reported signs that included difficulty and painful defecation, tenesmus, abdominal distention, decreased appetite, and loss of vitality. The physical examination revealed soft ribbon-like abdominal distension. Stool was observed at the anus. The cat was severely dehydrated (7% deficit) with a poor body condition, dry eye membrane, and minimal loss of skin elasticity. The cat had swollen and reddened rectal mucosa protruding from the anus, which could be penetrated digitally. However, further digital rectal examination could not be performed because of the limited anal size and small diameter of the rectal lumen.

Plain abdominal radiographs revealed severe diffuse colonic distention, without evidence of complete obstruction, and narrowing at the end of the anal canal (Fig. 1). Colonoscopy was performed under general anesthesia. A stricture located 1.5 cm from the anus, reduced the rectal lumen to a 1 mm diameter, restraining passage of the endoscope. Ring, smooth, and straight forceps with dimensions of 2.2 mm inside diameter and 3 mm outside diameter were used to widen the rectum. A headlight with high-resolution 2.5 × / 420 mm binocular loupes (Heine Ltd., Herrsching, Germany) was used to improve visibility. Subsequent to forceps application, a deflated 2 cm long 15 mm dilatation balloon (2-way silicone Foley balloon catheter, UniBal, 8 French gauge [diameter 2.7 mm, balloon capacity 3 mL]; Yushin Medical & Trading Co., Seoul, South Korea) was advanced through the stricture under direct endoscopic guidance. We selected a 2 cm long balloon because the stricture was estimated to be located at 1.5 cm from the anus, while the balloon diameter and capacity were chosen because they allowed gradual filling to avoid complications. During the procedure, the balloon could be inserted and filled gradually, while leaving some portion outside the anus for movement control.

The balloon was inflated several times to two-thirds of the balloon’s capacity (0.67 mL saline was administered). Mild bleeding with no evidence of perforation was noted following removal of the balloon. The rectal and colonic mucosa proximal to the stricture appeared normal. After satisfactory dilatation had been achieved, 0.01 mL of 40 mg/mL triamcinolone (Woosung Hitec Co., Ltd., Korea) diluted to 10 mL with normal saline was injected quadrant of the stricture using a 0.3 mL insulin syringe. The final concentration of triamcinolone was 0.4 mg/10 mL normal saline.

The procedure was uneventful, and a post-procedure abdominal X-ray and contrast abdominal radiographs with iohexol (Omnipaque, Amersham Health, Ireland) revealed the location of a narrowed region and a moderate diffuse colonic distention with no pneumoperitoneum. No distension was revealed (Fig. 2) and the kitten was discharged after 24 h with amoxicillin-clavulanate (Clavamox; Zoétsis, Korea) to be administered at 15.6 mg/kg PO q 12 h for seven days.

The pre-procedure soft ribbon-like stool characteristic was eliminated immediately after dilatation formation and X-ray radiography revealed neither abdominal distension nor pneumoperitoneum. After satisfactory dilatation had been achieved, 0.01 mL of 40 mg/mL triamcinolone (Woosung Hitec Co., Ltd., Korea) diluted to 10 mL with normal saline was injected quadrant of the stricture using a 0.3 mL insulin syringe. The final concentration of triamcinolone was 0.4 mg/10 mL normal saline.

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Fig. 1. Left lateral radiograph showing distended colon (arrows).

Fig. 2. Left lateral post-procedure radiograph showing neither pneumoperitoneum preformation nor colonic distension.
In conclusion, endoscopically-guided balloon dilation in conjunction with intralesional injection of triamcinolone is a procedure that can be used successfully for the treatment of RS stricture in a kitten. The method is effective, safe, can be accomplished quickly, and can produce a satisfactory result without complications. The procedure resulted in normal defecation in the kitten after long-term follow-up.
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