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Anoplasty for type III atresia ani with fistula complicated by megacolon in a puppy

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ABSTRACT: Congenital anorectal malformations, including atresia ani, are uncommon conditions in small animals that cause gastrointestinal dysfunction. This case report describes the surgical management and outcomes of type III atresia ani in a juvenile dog. A one-month-old female mixed-breed puppy presented with severe tenesmus, progressive abdominal distension, and complete absence of normal faecal passage. Clinical examination identified an anal dimple lacking a functional opening, accompanied by a small ventral perineal fistula. Radiographic assessment confirmed type III atresia ani, characterised by a blind-ending rectal pouch located more than 1 cm cranial to the anal dimple and associated with marked megacolon. Surgical intervention was performed via anoplasty, combined with manual evacuation of the impacted faeces and temporary anal stenting using a 1-cc syringe port to maintain luminal patency. Postoperative management included broad-spectrum antibiotics, lactulose, analgesic therapy, and meticulous wound care. Although normal defaecation was restored, the patient developed tenesmus, incomplete evacuation, and faecal incontinence. These complications are associated with irreversible megacolon and anal sphincter dysfunction. Conservative therapy failed to achieve improvement, indicating the need for surgical intervention.

Keywords:
anoplasty, atresia ani, fistula, megacolon, puppy

■ INTRODUCTION

Atresia ani is a congenital malformation of the anorectal canal, marked by failed anal development and abnormal faecal elimination. This condition is rare in dogs and cats (Ellison & Papazoglou 2012). Atresia ani has four types based on rectal pouch location. These variants may lack anal dimple, glands, or external sphincter, affecting outcomes (Ettinger & Feldman 2010). Clinical signs appear within weeks of life, depending on the anomaly type. Animals may show abnormal faecal passage through fistulas, perineal irritation, tenesmus, and colonic dilatation. Diagnosis relies on clinical examination and radiography, with advanced imaging required to identify the anorectal anatomy.

Anoplasty is the only definitive treatment for anal atresia. Surgery after diagnosis is recommended to prevent complications such as colonic atony, megacolon, and urinary tract infections (Prassinos *et al.* 2003). However, reports on postoperative outcomes and long-term complications of type III atresia ani with megacolon remain limited. This case report describes the clinical presentation, surgery, and outcomes of a juvenile dog with type III atresia ani, addressing the challenges in surgical decision-making and outcomes.

■ CASE

Signalment and History: A one-month-old female mixed-breed dog presented with a clinical history of persistent tenesmus beginning at two weeks of age. The puppy had a good appetite and exhibited normal urination. **Clinical Examination**: On physical examination, the puppy weighed 0.84 kg, with pink mucous membranes and normal skin turgor (< 2 s). An anal dimple without a functional opening was observed, accompanied by faecal soiling in the perineal region and a small fistulous opening ventral to the anus (Figure 1A). The external anal sphincter was absent upon palpation. Abdominal distension was evident, and firm faecal material was palpated within the colon.

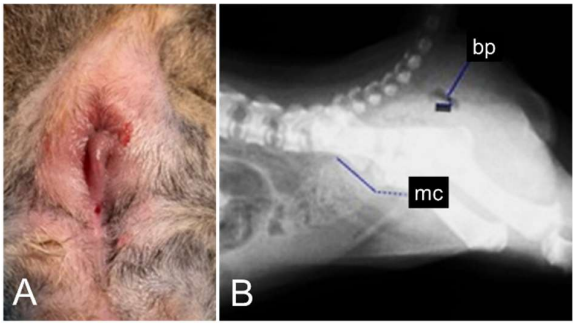

Figure 1. Diagnostic findings in a puppy with type III atresia ani. (A) Cleansed perineal region showing an anal dimple with a small ventrally located fistula. (B) Lateral abdominal radiograph demonstrating a blind-ending rectal pouch and marked megacolon. mc, megacolon; bp, blind pouch.

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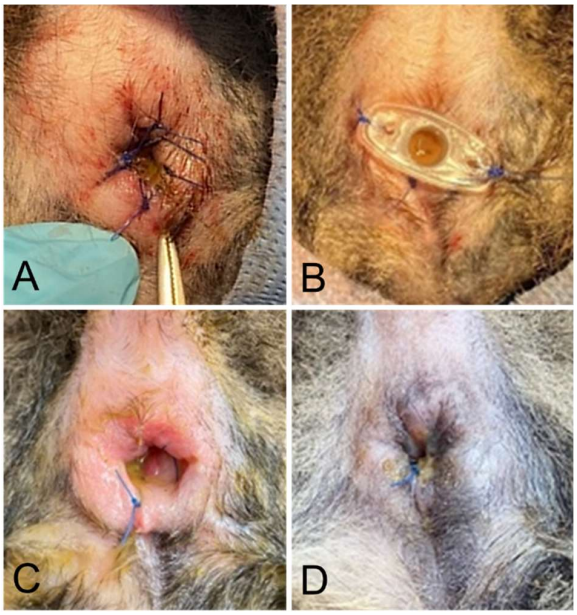

Figure 2. Surgical management and postoperative outcome of type III atresia ani. (A) Excision of the blind-ending rectal pouch with apposition of the rectal mucosa and submucosa to the perineal skin using 3-0 polypropylene in a simple interrupted pattern. (B) Placement of a temporary 1-cc syringe port following anoplasty to prevent anal stenosis. (C) Perineal region on postoperative day 3 after removal of the syringe port due to obstruction by faecal material. (D) Completely healed anal wound on postoperative day 14.

Diagnostic Assessment: Survey radiography revealed a blind-ending rectal pouch located more than 1 cm cranial to the anal opening, along with marked megacolon and faecal accumulation (Figure 1B). Based on these findings, the patient was diagnosed with type III atresia ani with a rectovestibular fistula, characterised by a blind rectal pouch terminating more than 1 cm cranial to the perineal skin. **Prognosis**: The prognosis was considered guarded to poor, primarily due to the presence of megacolon, risk of systemic sepsis, potential postoperative anal stenosis, and agenesis of the external anal sphincter.

Treatment and Outcome: Preoperative amoxicillin (10 mg/kg, IM) was administered. Anaesthesia was induced with xylazine (1 mg/kg, IM), ketamine (10 mg/kg, IM), and diazepam (0.2 mg/kg, IM) and maintained with isoflurane. After lidocaine infiltration, anoplasty was performed. The rectal pouch was excised, and mucosa sutured to perineal skin using 3-0 polypropylene (Figure 2A). Manual evacuation and anal stenting were performed using a 1-cc syringe as the port system (Figure 2B).

Postoperative care included amoxicillin–clavulanic acid (12.5 mg/kg, PO, q12h for 7 days), lactulose (0.5 mL/kg, PO, q12h), and meloxicam (0.1 mg/kg, IM, q24h for 3 days). The syringe port was removed on day 3 due to faecal obstruction (Figure 2C). By day 5, normal defaecation occurred, but tenesmus developed by day 7, requiring Microlax.

■ RESULTS AND DISCUSSION

Atresia ani often remains undiagnosed until the weaning period, when clinical signs such as tenesmus and abdominal distension become more evident. Diagnosis relies on clinical history, physical examination, and imaging modalities such as radiography and ultrasonography to accurately delineate the anorectal anatomy (Ellison & Papazoglou 2012). Precise classification is essential for guiding surgical planning and locating the terminal rectum of the colon. Optimal surgical techniques and perioperative management are critical for improving outcomes.

The distance between the blind rectal pouch and anal dimple in type III atresia ani creates tension during anastomosis, increasing the risk of dehiscence and stricture (Ellison & Papazoglou 2012). A modified syringe port was used to reduce tension and prevent stenosis (Sharif *et al*. 2019); however, faecal obstruction within the port required removal, indicating incomplete bowel continuity.

Minimal anal reflexes and probable hypoplasia or dysfunction of the external anal sphincter contributed to persistent faecal incontinence despite anatomical correction, aligning with the congenital absence of anal sphincter reported in the literature (Kim *et al*. 2013). Persistent postoperative tenesmus likely reflects irreversible colonic dysmotility, such as megacolon or atony, impairing effective defaecation and promoting stricture formation. Factors such as small body size, wound contamination risk, and localised inflammation further accelerate fibrosis and stenosis.

■ CONCLUSION

Anatomical correction was achieved; however, functional outcomes were limited by megacolon, sphincter dysfunction, and postoperative stenosis, which are commonly associated with type III atresia ani. Early diagnosis, prompt surgical intervention, and careful postoperative monitoring are crucial for optimising long-term function and quality of life.

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