

## What is Your Diagnosis?

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### *Signalment*

A four hundred-gram, 19 day-old, intact male, mixed breed dog.

### *History*

The patient was presented for clinical examination at the Small Animal Teaching Hospital, Chulalongkorn University due to the enlarged abdomen and the disappearance of the anus.

### *Clinical examination*

In addition to the abdominal distention, the pup was slightly depressed. Other clinical signs were in normal limited.

### *Radiographic examination*

In according to the disappearance of the anus and distended abdomen, atresia ani was one of the primarily differential diagnoses. Therefore, the plain abdominal radiography, both of the right lateral and ventrodorsal views, was designed to gather further information of the abdominal visceral organs.

What is your diagnosis?  
Please turn to next page for the answer.

### Radiographic findings

On the abdominal radiographs, both of the right lateral and ventrodorsal recumbency (Fig. 1 and 2), the abdominal cavity was moderately distended with the enlarged bowel loops due to the gas or fecal accumulation. The peritoneal space was increased in soft tissue density with the indistinct serosal surface of the intra-abdominal visceral organ. Furthermore, the

perineal area of the pup was prominently swelling on the right lateral view (Fig.1) with a large amount of gas accumulation in the blunt, rectal terminus (arrows), which was also seen, on the ventrodorsal abdominal radiographs (Fig. 2). On both radiographic views, the rectal terminus was not connected to the skin at the perineum area.



**Figure 1** The right lateral view showed the enlarged abdomen with the gas and feces-distended bowel loop. The serosal surface of the internal organs such as liver or bowel was difficult to be distinguished. In addition, the perineal area was swelling due to the blunt, gas-distended rectum (arrow). The rectum was discontinuity to the skin at perineum.



**Figure 2** The ventrodorsal abdominal radiograph revealed the enlarged abdomen with gas and feces-filled bowel loops. At the perineum, the rectal terminus was filled with gas, which the shape was blunt (arrow). Besides, the rectal terminus was away from the perineum skin wall.

### Radiographic diagnosis

Atresia ani (Type III).

### Discussion

Atresia ani is one of the congenital anomalies that causing by the developing malformation of the primitive cloaca. As the result, the incomplete urorectal fold is developed (Ellison and Papazoglous, 2012).

There were four types of atresia ani have been reported which were congenital anal stenosis (type I), imperforated anus (type II), imperforated anus combined with more cranial termination of rectal blind pouch (type III) that has seen in this patient, and the discontinuity of the proximal rectum and terminal rectal development (type IV) (Vivian and Tobias, 2005). It has been reported that the higher incidence of atresia ani was found in the female dog compared to the male

patient. Besides, the median age at the presentation to the veterinary practitioner, the affected female dogs was showing up with the higher median age (8.3 weeks) compared to those of the affected male dogs (6.3 weeks) (Ellison and Papazoglous, 2012), because in some female dogs that developed the atresia ani concurrently showed up with rectovaginal fistula or ectopic anus (Mahler and William, 2005). Therefore, the feces and gas content from the distal gastrointestinal tract could release through the fistula or ectopic anus and alleviate the clinical signs such as enlarged abdomen with depression and poor body condition score of the patient. In addition to the sex and the age, it has been reported that the highest incidence of atresia ani development was found in toy Poodle and Boston terrier (Vivian and Tobias, 2005). To correction of atresia ani by surgical treatment, physical examination including the radiographic examination must be done for differentiating the severity and atresia ani type. Additionally, special technique during the abdominal radiography such as the elevation of the pelvis for gas-distended pouch and/or contrast study with iodinated contrast medium (in the case of fistula or ectopic anus) would be valuable for revealing the definite lesion of the atresia ani (Ellison and Papazoglou, 2012).

### **Reference**

- Ellison GW, Papazoglou LG 2012. Long-term results of surgery for atresia ani with or without anogenital malformations in puppies and a kitten: 12 cases (1983 - 2010). *J Am Vet Med Assoc.* 240: 186 - 192.
- Mahler S, William G 2005. Preservation of the fistula for reconstruction of anal canal and the anus in atresia ani and rectovestibular fistula in 2 dogs. *Vet Surg.* 34: 148 - 152.
- Vianna ML, Tobias KM 2005. Atresia ani in the dog: a retrospective study. *J Am Anim Hosp Assoc.* 41: 317 - 322.