

Esophageal Dysmotility in a Young Adult Dog

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Abstract : An 18-month-old intact male Cocker Spaniel dog weighing 7.7 kg was referred with a 2-week history of severe regurgitation. Based on the screening examination and fluoroscopy, this patient was diagnosed as having esophageal dysmotility. Treatment with mosapride and feeding small amounts of canned food frequently in an elevated position resulted in a successful outcome. The severe regurgitation improved, and the esophageal transit time improved from 18 sec to 8 sec. This is the first case report describing the diagnosis and clinical management of esophageal dysmotility in a young dog in Korea.

Key words : Canine, Esophageal dysmotility, Fluoroscopy, Mosapride.

Introduction

The esophagus extends from the distal end of the oropharynx, passes through the mediastinum, and ends at the cardia of the stomach at the diaphragmatic hiatus. The esophagus carries food, water, and saliva from the pharynx to the stomach, and in the dog, the tunica muscularis is completely striated. Unlike the rest of the tubular digestive tract, the esophagus is unique in that it lacks a serosa in all but the abdominal portion (3,9).

Esophageal diseases in dogs can be categorized as structural disorders including foreign body, stricture, and vascular ring anomaly and motility disorders (2,10). Acquired megaesophagus can occur secondary to many disorders, particularly diseases causing diffuse neuromuscular dysfunction (2).

Megaesophagus is the most common cause of regurgitation in dogs and the most frequently reported motility disorder to affect the canine esophagus (4). However, abnormal esophageal motility can exist without megaesophagus (1), although there are a few publications on this type of abnormality in veterinary medicine. This case report documents a young dog without overt megaesophagus and showing severe regurgitation. The possibility of esophageal dysmotility without overt megaesophagus should be considered in regurgitating young dogs.

Case

An 18-month-old intact male Cocker Spaniel dog weighing 7.7 kg was referred with a 2-week history of severe regurgitation. The patient was not willing to drink and regurgitated

after drinking or eating. However, when fasted, the dog did not show regurgitation. Weight loss from 8.9 kg to 7.7 kg was observed due to the 2 weeks of regurgitation. A physical examination revealed dry mucus membranes and did not show abdominal pain or tension.

A serum biochemical evaluation was abnormal, revealing increased ALT (732 U/L, reference interval: 10–118 U/L). Urinalysis revealed hypersthenuria (urine specific gravity; > 1.040 by refractometry).

Thoracic and abdominal radiographs were unremarkable, and abdominal ultrasonography revealed no specific findings. Esophagoscopy and gastroscopy were performed. Inflammatory lesions were not found, and a foreign body was excluded.

Esophageal contrast fluoroscopy was performed to evaluate esophageal motility. Semi-moist canned food mixed with a proportionate amount of a barium sulfate suspension equivalent to approximately 10% of the total food volume was fed to the dog. Contrast material from 2 or more swallowed boluses accumulated in a portion of the esophagus, causing esophageal dilation (Fig 1-A) compared with a healthy beagle dog (Fig 1-B). The patient's esophageal transit time was considered to be prolonged because a bolus took approximately 18 seconds. Based on these results, a diagnosis of esophageal dysmotility was made.

Initial treatment included fluid therapy to rehydrate, an antiemetic (maropitant 1 mg/kg BW, q24 h, subcutaneously), antibiotics (amoxicillin-clavulanic acid 20 mg/kg BW, q12 h, orally) and an H₂ blocker (famotidine 0.5 mg/kg BW, q12 h, orally).

The client was educated about taking precautions against aspiration pneumonia and frequently feeding the dog small amounts of canned food in an elevated position. The prescription included mosapride (0.6 mg/kg BW, q12 h, orally) and famotidine (0.5 mg/kg BW, q12 h orally).

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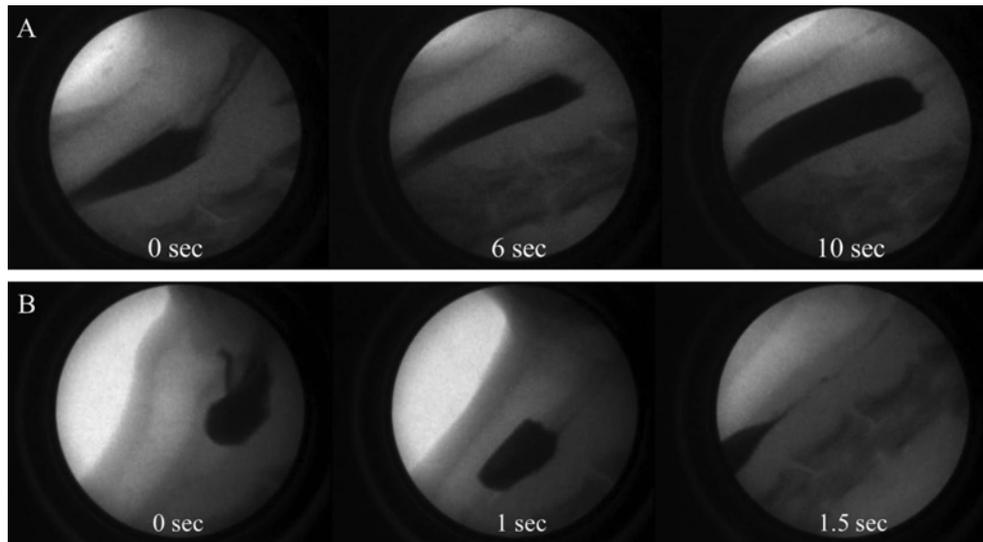


Fig 1. Evaluation of esophageal transit time. A. Freeze-frame fluoroscopic image of the patient demonstrating pooling of contrast in the proximal esophagus (0 sec, 6 sec, and 10 sec.). B. Freeze-frame fluoroscopic image of the healthy beagle dog (0 sec, 1 sec, and 1.5 sec.).

After 3 months, the clinical signs were notably improved, and esophageal motility was reexamined fluoroscopically. The same protocol was used as in the initial study. Contrast was retained for several seconds in a portion of the esophagus, but the esophageal transit time had improved to 8 seconds. Currently, the patient has been well managed with the same prescription for approximately 1 year.

Discussion

Esophageal dysmotility is an abnormal condition of the esophagus in which decreasing motility without any dilation of the esophagus is observed. It is rare in veterinary medicine, and few cases have been reported recently. This is the first case report of esophageal dysmotility in Korea.

In human medicine, delayed maturation of the esophagus is a common cause of swallowing dysfunction, particularly in infants, and full esophageal maturation can take up to 1 year after birth (6). Similarly, canine esophageal maturation can also take up to 1 year after birth.

Clinical signs of esophageal dysmotility have been reported in 8 dogs and include regurgitation (100%), anorexia (62.5%), and weight loss (50%) (1). Contrast fluoroscopy of the patients with esophageal dysmotility revealed an accumulation of 2 or more swallowed boluses in a portion of the esophagus and a prolonged esophageal transit time, taking longer than 5 seconds to reach the caudal esophageal sphincter. In the current case, contrast material from 2 or more swallowed boluses accumulated in a portion of the esophagus, causing esophageal dilation, and the esophageal transit time was considered to be prolonged because a bolus took approximately 18 seconds at the time of the initial visit.

Occasionally, esophageal motility can improve with age due to maturation of the neuromuscular system of the esophagus

(8,11). The medical treatment of esophageal dysmotility is also helpful in some cases and is generally similar to that of megaesophagus. Briefly, the patient is fed frequent small meals in an upright position. This position should be maintained for 5 to 10 minutes after eating. Some animals show fewer clinical signs when solid, rather than liquid, food is fed (1). Antibiotics are needed to treat aspiration pneumonia. Gastrostomy tubes bypass the esophagus and can provide some relief from regurgitation and/or aspiration. A therapeutic trial with the cholinergic drug bethanechol may be warranted. In this case, esophageal motility was improved after 3 months of feeding the dog frequent small meals in an upright position and treatment with mosapride.

Eight clinical cases with evidence of esophageal dysmotility on fluoroscopy were recruited to 1 study (1). The age at presentation was 9 months (2-22 months), and Terrier dogs predominated (6 terriers, 2 nonterrier breeds). A repeat examination at a median of 4 months after the initial presentation (range 1^{1/2}-9 months) revealed that the regurgitation had completely resolved ($n=3$), reduced in frequency ($n=2$), and remained unchanged ($n=1$). Four of 6 cases demonstrated an improvement of esophageal motility on fluoroscopy, whereas esophageal motility was unchanged or had worsened in the oldest dogs (22-month West Highland White Terrier and Rottweiler). In this case, the patient was an 18-month-old English Cocker Spaniel with regurgitation. Both the clinical signs and esophageal motility were improved after 3 months with medication including mosapride and upright-position feeding; the esophageal transit time was markedly shortened from 18 sec to 8 sec.

Esophagitis is also a particularly well-recognized cause of esophageal motility abnormalities in humans (7) and has been described in dogs (5). The high prevalence of gastroesophageal reflux can indirectly lead to esophageal dysmotil-

ity due to resultant esophagitis. However, in this case, there were no signs of esophagitis during esophagoscopy.

Conclusion

Although there are no specific findings on screening radiography or endoscopy in young dogs with severe regurgitation, the possibility of esophageal dysmotility without overt megaesophagus should be considered. Furthermore, esophageal motility appears to improve with time in some cases.

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식도운동성 저하에 대한 진단 및 치료

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요 약 : 1년 6개월령 몸무게 7.7 kg의 수컷 Cocker Spaniel이 일주일 동안 지속된 역류성 구토를 주 증으로 진료 의뢰되었다. 기본 검사와 X선 투시진단법을 통해 식도운동성 저하로 진단하였다. 치료약물로는 mosapraide를 투여하였고, 습식 사료를 소량씩 자주 일어선 자세로 급여하는 방법을 통해 치료하였다. 3개월 후 재검사에서 임상증상의 개선과 X선 투시진단법 상 식도운동성의 개선이 있었으며, 첫 내원 시 식도 통과 시간이 18초였던 것에서 8초까지로 개선되었다. 본 케이스는 식도거대증을 동반하지 않으면서, 운동성만 저하된 질병으로 한국에서는 첫 보고이다.

주요어 : 개, 식도운동성 저하, X선 투시진단법, mosapraide