



## CASE REPORT

F.U. Vet. J. Health Sci.  
2021; 35 (1): 55 - 58  
http://www.fusabil.org

### Endoscopic and Radiographic Findings and Operative Treatment of a Dog with Mechanical Ileus\*

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Received : 20.01.2021  
Accepted : 05.02.2021

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In the present case report, a 3-year-old male Golden Retriever dog was referred to Fırat University Animal Hospital with complaints of weakness, vomiting and inability for defecation. After the clinical, radiographic and endoscopic examinations, it was found that the dog had mechanical ileus due to swallowing a thick bandage about 2 meters long and 10 cm wide. The aim of this report is to contribute to the literature by sharing the diagnosis and operative treatment method applied in this case.

**Key Words:** Dog, laparotomy, mechanic ileus, vomiting

#### Bir Köpekte Mekanik İleus'un Endoskopik ve Radyografik Tanısı ile Operatif Sağaltımı

Bu olgu sunumunda, halsizlik, kusma ve dışkı yapamama şikâyetleriyle Fırat Üniversitesi Hayvan Hastanesi'ne getirilen 3 yaşında, erkek, Golden Retriever ırkı bir köpek konu edildi. Yapılan klinik, radyografik ve endoskopik muayeneler sonrasında köpeğin yaklaşık 2 metre uzunluğunda ve 10 cm eninde kalın bir sargı bezini yutması sebebiyle mekanik ileusunun olduğu tespit edildi. Bu çalışmada, karşılaşılan bu olgu karşısında uygulanan tanı ve operatif tedavi yöntemi paylaşılarak literatüre katkı sağlanmak amaçlandı.

**Anahtar Kelimeler:** Köpek, laparotomi, mekanik ileus, kusma

#### Introduction

Problems caused by foreign bodies in the digestive systems of cats and dogs are quite common. The locations, positions, size and shapes of foreign bodies in the digestive system are very important in symptoms and treatment methods. Stinging objects may cause esophagus, stomach and intestinal ruptures; non-stinging objects can cause obstructions, gastritis, enteritis, ileus and invaginations (1-4).

In cases of mechanical obstruction in the digestive system; clinical findings such as vomiting, anorexia, pain, anorexia, dehydration and difficulty in defecation are observed in patients. On clinical examination, tension is felt in the abdominal area. Foreign bodies that cause mechanical obstructions in the intestines can cause fluid, acid-base and electrolyte imbalances that can result in death (1-3).

Radiography, ultrasonography and endoscopy methods are very important in the diagnosis of foreign bodies in the digestive system. Although radiographic examinations are very important in detecting radiopaque objects; it cannot provide as valuable information as endoscopy and ultrasonography do in the detection of radiolucent objects (2-5).

Operations such as esophagostomy, gastrostomy and enterotomy are the most reliable treatment methods for digestive system obstructions caused by foreign bodies (3,5,6). In this study, it was aimed to contribute to the literature by sharing the diagnosis and operative treatment of a mechanical ileus case encountered in a three-year-old Golden Retriever dog referred to our clinic with complaints of weakness, vomiting and inability to defecate.

#### Case Report

In this study, a Golden Retriever male dog (3 years old, weighing 30 kg) was referred to Fırat University Animal Hospital with complaints of weakness, vomiting, anorexia and inability to defecate for three days. In the anamnesis, it was learned that the patient was taken to the veterinarian with similar complaints two days ago and was diagnosed with infection. It was learned that the patient was referred to our hospital when no improvement was obtained from parenteral antibiotics, anti-vomiting and anti-inflammatory drugs for two days.

Clinical examination revealed mild dehydration, vomiting and restlessness. Following clinical examination, blood sample was taken from the dog into a 10% EDTA

\* 11<sup>th</sup> National Veterinary Internal Diseases Congress, 21-24 May 2015, Samsun/TURKEY.

tube for hematological examination and evaluated in a fully automated hematology analyzer (PE-6800 Vet, Prokan). Results of the hematological examinations: Packed cell volume: 50.6%, hemoglobin: 17.6 g/dL, red blood cell:  $6 \times 10^6/\mu\text{L}$ , mean corpuscular volume: 83.1 fL, mean corpuscular hemoglobin: 28.8 pg, mean corpuscular hemoglobin concentration: 34.7 g/dL, white blood cell:  $10 \times 10^3/\mu\text{L}$  and platelet:  $419 \times 10^3/\mu\text{L}$ .

Direct radiography revealed gas accumulation in the stomach and proximal part of the small intestine (Figure 1). In indirect radiography, two hours after giving contrast agent, it was found that it concentrated in the stomach and proximal part of the small intestine (Figure 2). In the radiographic examinations performed at the 16<sup>th</sup> and 19<sup>th</sup> hours after the administration of contrast, it was found that the contrast material was concentrated in the stomach and proximal of the small intestines and passed forward very little (Figure 3, 4). In the endoscopic examination performed due to the suspicion of a foreign body, a foreign body was found bridging from the stomach towards the duodenum (Figure 5).

The patient was diagnosed with mechanical ileus and was transferred to the surgical department for operation. The owner of the patient was informed about the risks of the operation and the treatment process before the operation and his/her approval was obtained.

After the preparations for the operation were made, the dog was sedated by intramuscular administration of 1 mg/kg xylazine hydrochloride (Rompun, Bayer, 23.32 mg/mL). Ten minutes later, ketamine hydrochloride (Ketasol, Interhas, 100 mg/mL) at a dose of 15 mg/kg was administered intramuscularly and the dog was omitted under general anesthesia. After the dog was placed under general anesthesia, a ventral laparotomy was performed. The small intestine was slowly removed from the abdominal cavity. A longitudinal incision of approximately 4 cm in length was made on the antimesenteric part of the intestine in a section close to the middle of the mass, and the foreign body (bandage) was removed from this part (Figure 6).



**Figure 1.** Patient's First Direct Radiographic Image (Latero-lateral (LL))



**Figure 2.** Indirect radiographic image of the patient 2 hours later (LL)



**Figure 3.** Indirect radiographic image of the patient after 16 hours (LL)



**Figure 4.** Indirect radiographic image of the patient after 19 hours (LL)



**Figure 5.** In the endoscopic examination of the patient, hyperemia in the gastric mucosa and foreign body (bandage) (arrows)



**Figure 6.** Foreign body (bandage) extending from the stomach to the duodenum removed as a result of the operation

The intestinal segment that was incised was sutured with Schmidin and then Cushing sutures with the help of absorbable suture material. The peritoneum, muscles, subcutaneous connective tissue and skin were sutured using absorbable suture materials in accordance with routine surgical rules. The dog, it was given parenteral antibiotic (Synulox, Zoetis, 35 mg/mL) treatment for 5 days after the operation, was given no food for the first 24 hours. For the next 10 days, only fat-free liquid foods were given. It was observed that the dog was able to defecate from the second day and his appetite improved.

## Discussion

Mechanical ileus is a condition in which foreign bodies, local malignant and benign tumors, pathological changes in the condition, trico bezoars and phytobezoars completely or partially block the gastrointestinal system (1, 2, 6-8). In cases of mechanical ileus occurring in the gastrointestinal tract, sudden-onset vomiting, anorexia, dehydration, weight loss, stagnation and abdominal pain are the most common clinical findings (2, 9, 10). The

subject of this report was a male Golden Retriever dog brought to our clinic with complaints such as weakness, vomiting, anorexia and inability to defecate for three days.

Direct and indirect abdominal radiography is one of the frequently used diagnostic methods in the diagnosis of mechanical ileus cases caused by foreign bodies in the gastrointestinal system (2, 10, 11). In the radiographic images taken in mechanical ileus cases, it is seen that there is gas accumulation in the proximal part of the occlusion area. It is observed that the intraluminal fluid volume increases due to the increase in secretion over time (2, 10). In this study, gas accumulation was detected in the stomach and proximal part of the small intestine in the direct radiography. In the indirect radiography taken, 2.5 hours after the administration of contrast material, it was found that it concentrated in the stomach and proximal parts of the small intestines. In the radiographic examinations performed at the 16th and 19th hours after the administration of the contrast agent, it was found that the contrast agent was concentrated in the stomach and proximal of the small intestines, and that it passed slightly beyond this region. In addition, the endoscopic examination performed in this study shows the importance of using different imaging methods in the diagnosis of foreign bodies.

Laparotomy can be applied in ventral or lateral positions in abdominal operations. In the study by Durmus et al. (1), a laparotomy was performed in a lateral position to remove the foreign body from the intestines of a two-year-old German Shepherd male dog. In another study, ventral laparotomy was performed for the treatment of mechanical ileus cases in six dogs (3). In this study, ventral laparotomy technique was used because it is easier to reach the abdominal organs.

Foreign bodies or other factors that cause obstruction may cause ischemia, edema and necrosis in the intestinal walls (1, 5, 6). In a case report, in which a rubber ball was extracted from the small intestines of a German shepherd dog, it was reported that with the pressure of the rubber ball, necrotic areas due to ischemia were formed in the intestines and the necrotic intestinal segment was cut and anastomosis was made (1). In this study, it was observed that the mass removed from the small intestine was not a solid mass and did not develop an ischemia or necrotic condition because it was compatible with bowel movements.

While some researchers (12, 13) consider it appropriate to use catgut threads in intestinal stitches; other researchers (5) report that silk thread is safer because they think that the catgut will resorb early. In this case report, no postoperative problem was encountered, despite the use of an absorbable vicryl (USP 3-0) thread.

It is recommended that patients be given low-fat liquid foods and parenteral fluid therapy after the operations of the gastrointestinal system (5, 14). In this study, no food was given to the operated dog for the first 24 hours, and only parenteral fluid was administered.

During the next 10 days, fat-free liquid foods were given, as in accordance with the literature (5, 14).

In conclusion, with this case report, the importance of finding the reason instead of direct symptomatic treatments of dogs with complaints such as sudden

vomiting, anorexia, and inability to defecate was revealed. We believe that it will be effective to include this study in the literature as an important indicator that accurate and early diagnosis will lead to the correct treatment and this will increase the success.

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