



# Diagnosis and treatment of gastric foreign body (earrings) case in a cat

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## ABSTRACT

In this study, information was given about the diagnosis and treatment of a 2-month-old female cat that was admitted to the clinic with the complaint of swallowing a foreign body (earring). The medical history of the case indicated that the cat had a good appetite and defecated normally. Abdominal palpation showed a distended stomach. No clinical findings other than the distended stomach were noted during clinical examination. Radiographic examination revealed a foreign body with hyperechoic contrast in the stomach. Due to the presence of a penetrating foreign body, it was decided to urgently perform an operation. For the operation, the cat was anesthetized with xylazine and ketamine. The foreign body (earring) in the stomach was removed from the body by gastrotomy. Special diet and parenteral antibiotics were applied to the patient in the postoperative period. During the interviews with the owner on the 15th postoperative day, it was learned that the cat continued its normal life.

**Keywords:** Cat; earring; foreign body; gastrotomy (*Source: NLM*).

## RESUMEN

En este estudio se dio información sobre el diagnóstico y tratamiento de una gata de 2 meses que fue llevada a la clínica con la queja de tragar un cuerpo extraño (pendiente). En la anamnesis tomada del dueño, se supo que el apetito y la defecación del gato eran normales. El examen con palpación reveló plenitud en el estómago. A excepción de la plenitud en el estómago, no se encontraron hallazgos clínicos en el gato. El examen radiográfico reveló un cuerpo extraño con contraste hiperecoico en el estómago. Debido a la presencia de un cuerpo extraño penetrante, se decidió realizar una operación de forma urgente. Para la operación, el gato fue anestesiado administrándole xilacina y ketamina. El cuerpo extraño (pendiente) en el estómago se extrajo del cuerpo mediante gastrotomía. Se le aplicó al paciente dieta especial y antibióticos parenterales en el postoperatorio. Durante las entrevistas con el dueño el día 15 del postoperatorio, se supo que el gato continuaba con su vida normal.

**Palabras clave:** Cuerpo extraño; gastrotomía; gato; pendiente (*Fuente: NLM*).

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## INTRODUCTION

Ingestion of non-food foreign bodies is one of the most common problems in cats and dogs. Although it is a problem encountered in cats and dogs of all ages, it is mostly seen in newborns and young (1,2,3,4,5). Similar to the oral period in babies, the needs, perceptions and ways of expressing themselves in a certain period of time (neonatal period and transition period) for kittens and puppies are focused on their mouths. During this period, cats and dogs can swallow these objects while using their mouths to recognize foreign objects in the environment (4,6,7). Ingestion of foreign bodies in adult cats and dogs mostly occurs depending on the pica condition. The most commonly swallowed foreign objects by cats and dogs are plastic toys, needles, wooden pieces, money, bone and fabric pieces (4,5,8). 33% of foreign bodies encountered in the gastrointestinal tract are found in the stomach. Gastric foreign bodies are more common in dogs than cats (4,9).

Gastric foreign bodies can cause clinical findings such as abdominal pain, abdominal tension, vomiting and constipation. However, features such as the size, shape, and character of ingested foreign bodies can alter the severity of symptoms and the prognosis. For example, swallowed sharp objects can cause gastric ruptures, while blunt objects often cause complete or partial obstruction. In cases that the foreign bodies are small and have no sharp part, no symptoms can be observed. However, complications such as peritonitis, abscess, and septicemia can occur in the case of gastric ruptures associated with foreign bodies (1,4,8,9,10).

The most important diagnostic methods in the diagnosis of gastric foreign bodies are direct and indirect radiography. Gastric foreign bodies can be detected with direct radiography applications at a rate of 95%. Indirect radiography applications may be required in diagnosing some radiolucent foreign bodies. If a gastric rupture is suspected, however, water-soluble iodine-containing contrast media should be used instead of positive contrast media. Detection of free air in the abdominal cavity on direct radiography indicates a gastric rupture. In ultrasonographic examination, gastric foreign bodies cause a decrease in gastric motility. One of the most important diagnostic methods is endoscopy (1,3,4,9,11).

Endoscopic methods are frequently used to remove gastric foreign bodies. However, in cases that foreign bodies have sharp surfaces, gastrotomy operations are preferred to avoid the risk of damage to the stomach and esophagus (8,10,12). Gastrotomy operations have significant advantages over enterotomy operations. For example, the vascularization of the stomach is greater than that of the intestines, resulting in a shorter recovery time. In addition, the acidic content of the stomach also reduces the risk of postoperative bacterial infection (4,5,11).

In this study, the diagnosis and treatment process of a foreign body (earring) case encountered in the stomach of a 2-month-old female mixed breed cat was shared.

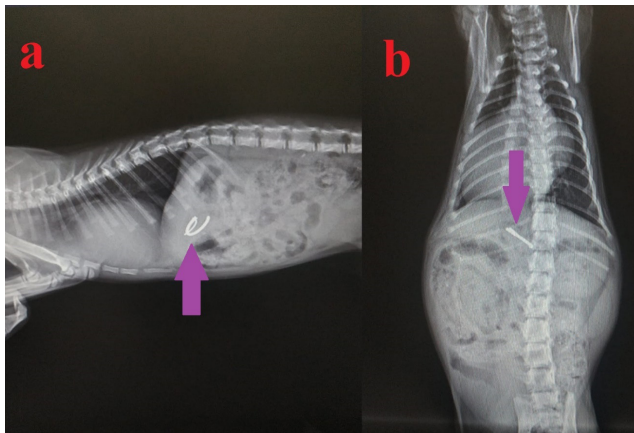
## CASE REPORT

In this study, the treatment process of a 2-month-old female cross breed cat brought to Firat University Animal Hospital Surgery Clinic with the suspicion of swallowing a foreign body (earring) was shared. According to the history, it was learned that the cat swallowed an earring about 12 hours ago. It was stated that the cat had a good appetite and defecated normally.

On the clinical examination, abdominal palpation revealed a slight tension. The rectal body temperatures (37.8°C) and the hematological variables (Table 1) were normal. It was decided to take laterolateral and ventrodorsal abdominal radiographs based on the medical history and clinical findings. A ring-shaped radiopaque foreign body was detected in the stomach in both laterolateral and ventrodorsal abdominal radiographs of the cat (Figure 1a, 1b).

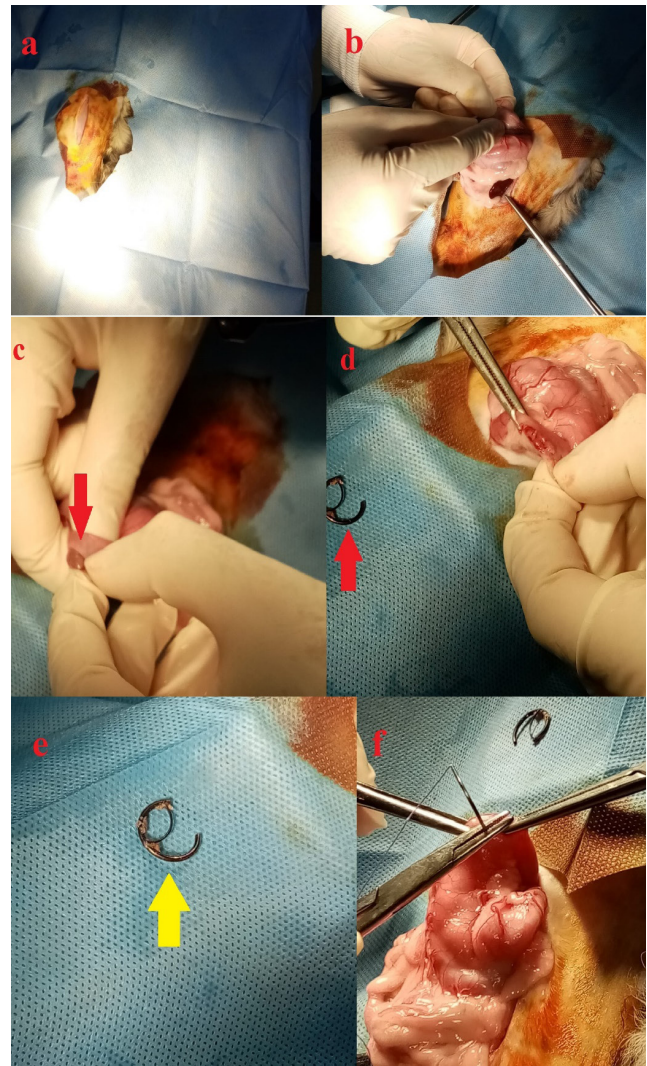
**Table 1.**Hematological results.

Parameters	Result	Reference	Unit
<b>HCT</b>	36.2	29-45	%
<b>WBC</b>	5.69	5.5-19.5	x10 <sup>3</sup> /mm <sup>3</sup>
<b>HGB</b>	14.9	9.5-15	g/dl
<b>RBC</b>	7.2	6-10	x10 <sup>6</sup> /mm <sup>3</sup>
<b>MCV</b>	44.0	41-54	fl
<b>MCH</b>	13.9	13.3-17.5	pg
<b>PLT</b>	329	150-600	x10 <sup>3</sup> /mm <sup>3</sup>



**Figure 1.** Earring appearance on patient's laterolateral (a) and ventrodorsal (b) abdominal radiographs (purple arrows)

Since the foreign body in the stomach has a surface that can cause perforation, it was considered contraindicated to use endoscopic methods and to expect it to be excreted from the body with the feces. For this reason, it was decided to urgently perform gastrotomy. The operation area was prepared by shaving and disinfecting. For sedation, xylazine hydrochloride (XylazinBio %2, 23.3 mg/ml, Bioveta, Czech Republic) was administered intramuscularly at a dose of 2 mg/kg to the patient. After 10 minutes, the patient was anesthetized by intramuscular administration of ketamine hydrochloride (Ketasol %10, 100 mg/ml, Richter Pharma AG, Austria) at a dose of 15 mg/kg. After the operation area was limited with surgical drapes, antisepsis procedure was performed. Then, a 4 cm long incision was made on the median line, 0.5 cm behind the processus xiphoideus (Figure 2a). After the abdominal muscle was incised, the abdomen was examined by inspection. The stomach was then removed from the abdomen with slow movements (Figure 2b). An area where vascularization was not intense was detected between the curvatura major and curvatura minor of the stomach, which was taken out of the abdomen. A 0.5 cm long incision was made on this area and the foreign body (earring) was removed (Figure 2c, 2d, 2e). Then, after performing antisepsis procedures in the incision area of the stomach, the mucosa and submucosa were closed with simple continuous sutures (Figure 2f). Lembert suture was applied to prevent peritonitis due to leakage. After the sutures were completed, the stomach was reinserted into the abdomen. After the abdominal muscles were closed with simple continuous sutures, the skin was closed with simple sutures.



**Figure 2.** Median incision made on the patient's linea alba (a), removing the stomach from the abdomen (b), opening the stomach with an incision (red arrow) (c), removing the earring (red arrow) from the stomach (d), the appearance of the earring (yellow arrow) removed from the stomach (e), suturing the stomach (f)

Amoxicillin-clavunic acid (*Synulox*, 175 mg/ml, *Haupt Pharma Latina*, Italy) at a dose of 8.75 mg/kg was administered intramuscularly for 5 days to prevent postoperative infections. In order to reduce postoperative pain, meloxicam (*Maxicam*, 5 mg/ml, *Sanovel*, Turkey) was administered subcutaneously at a dose of 0.3 mg/kg. In the postoperative period, the patient was fed with soft and fat-free foods. In the examination performed on the 15th postoperative day, it was determined that the patient's health status was good (Figure 3).





**Figure 3.** Postoperative (after gastrotomy) 15th day

## DISCUSSION

Obstruction due to foreign bodies in the gastrointestinal tract is one of the important problems encountered in small animal medicine. Plastic toys, pieces of wood, needles, pieces of fabric and bones are the most common foreign bodies in the digestive tract (1,3,4,5,8). In this study, the diagnosis and treatment process of a 2-month-old female cat brought with the complaint of swallowing earrings 12 hours ago was discussed.

Foreign bodies with a cutting and penetrating surface can cause perforations in the gastrointestinal tract. In cases with perforation, fatal complications such as peritonitis, intra-abdominal abscess and generalized septicemia may occur (1,5,8,10). In this study, it was found that the foreign body encountered in the stomach of the cat did not cause perforation in the digestive system, although it had a sharp surface.

Foreign bodies in the digestive system can cause clinical symptoms such as loss of appetite, coughing, abdominal tension, pain, vomiting,

constipation and diarrhea (1,8,9,10). Siallagan et al (5), reported that clinical signs such as loss of appetite and vomiting were observed in a cat with a needle in the esophagus. Koenhems et al (1), observed anorexia, abdominal tension, pain and weakness in a Doberman dog in which they detected a foreign body (bone) in the stomach. Civelek (8), reported that the only vomited in a dog in which it had detected a foreign body in its stomach. On the other hand, Patil et al (3), reported only vomiting as a common symptom in five dogs in which they detected foreign bodies in the stomach. Also, Sajeni et al (4), reported weakness, loss of appetite, dehydration and abdominal pain in a cheetah in which they detected a foreign body (rubber sandal pieces) in its stomach. In this study, it was determined that there was abdominal tension in a cat with a foreign body (earring) in its stomach. It is thought that the reason for not encountering any other symptoms is that the foreign body does not cause obstruction in the digestive system. Vomiting usually occurs 24-72 hours after obstruction. In this study, there was no evidence of vomiting because the patient was brought 12 hours after swallowing the foreign body and it did not cause obstruction.

Direct and indirect radiography and endoscopy are the most commonly used techniques in the diagnosis of foreign bodies in the digestive system. In direct radiography applications, radiopaque foreign bodies can be detected at a rate of 95% (1,3,4,11). In this study, a radiopaque foreign body in the stomach was easily detected by direct radiography.

The shape, size, and location of foreign bodies in the digestive system are very important in determining the treatment method. Small size objects in the gastrointestinal tract, which have a low risk of causing obstruction and perforation, can be expected to be excreted with defecation in the first 24 hours. If the foreign body cannot be removed by defecation, endoscopic or operative methods (such as gastrotomy, enterotomy, esophagotomy) can be applied. Some esophageal and gastric foreign bodies can be tried to be removed by inducing vomiting. Endoscopic and operative methods are mostly used to remove foreign bodies in the digestive system. Endoscopic methods are used to remove blunt and flexible objects, while operative methods are used to remove objects with cutting and penetrating surfaces (4,5,9,10,12). Siallagan et al (5), reported that they removed the esophageal foreign body (needle) in a

10-month-old cat and Civelek (8), removed the gastric foreign body (packaging) in a 3-year-old Doberman dog by endoscopic methods. On the other hand, Patil et al (3), reported that they treated five dogs with gastrotomy in whom they detected foreign bodies in their stomach. Sajeni et al (4), reported that they removed the foreign body (rubber sandal pieces) in the stomach of a cheetah by gastrotomy. In this study, the foreign body (earring) in the stomach of the cat was removed by gastrotomy due to its stinging surface.

In conclusion, gastric foreign bodies are health problems that can lead to significant complications in small animal medicine. It is very important to determine the most rational and fastest intervention method in the removal

of gastric foreign bodies. It is expected that foreign bodies which have a low risk to perform an obstruction and a perforation can be removed from the body by defecation within the first 24 hours. However, if gastric foreign bodies cannot be removed from the body during this time, endoscopic or operative methods should be applied. Electrolyte balance can be disturbed, especially in cases of excessive vomiting and inability to defecate. In these cases, the foreign body must be removed before clinical symptoms worsen.

### Conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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