



ISSN: 2456-2912

VET 2023; 8(6): 72-74

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Received: 02-08-2023

Accepted: 09-09-2023

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## Successful surgical retrieval of intestinal linear foreign body in a Persian cat: A case report

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DOI: <https://doi.org/10.22271/veterinary.2023.v8.i6b.809>

### Abstract

The present study reports a case of 9 month old Persian cat with a history of anorexia, vomiting, dullness and difficulty in passing faeces for the past 7 days. Based on the history, clinical signs and contrast radiography the case was diagnosed as linear foreign body in the intestine. Enterotomy was performed linear foreign body cotton thread was removed successfully.

**Keywords:** Linear foreign body, enterotomy, anaesthesia, contrast radiography

### Introduction

Intestinal obstruction in pets due to swallowed foreign body is a critical veterinary emergency (Pratt *et al.* 2014) <sup>[12]</sup>. Cats tendency to eat indiscriminately makes them susceptible to ingesting foreign bodies. The extent of the obstruction, whether partial or complete, is determined by the size and shape of the foreign body (Papazoglou *et al.*, 2003) <sup>[10]</sup>. The clinical signs could vary depending on the location, severity, duration, and nature of the obstruction (Hayes, 2009) <sup>[9]</sup>. The diagnosis of intestinal obstruction due to a foreign body often depends on the veterinarian's ability to physically examine the oral cavity, esophagus, and abdomen. Prolonged partial obstruction can lead to more serious outcomes such as complete obstruction, perforation or peritonitis, influenced by factors such as the foreign body's location, composition and the intensity of intestinal muscle peristaltic contractions (Saundra and Charles, 1991) <sup>[13]</sup>. This case report highlights the successful surgical treatment of intestinal obstruction in a Persian cat caused by a linear foreign body, specifically a cotton thread.

### Case History and Clinical Observation

A 9 month old Persian cat was brought to the small animal surgery ward at Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal. The cat had been experiencing anorexia, vomiting, dullness, and difficulty in passing feces for the past 7 days. During the clinical examination, the cat displayed lethargy and pain on palpation of the abdomen, while all physiological parameters remained within the normal range. An oral cavity examination identified a linear foreign body entangled around the base of the tongue, which proved challenging to remove.

### Diagnosis

The lateral plain abdominal radiograph (Fig.1) demonstrated noticeable distention in the intestinal loops. Lateral contrast radiography was conducted using barium sulfate, with intervals of 1 hour and 12 hours, (Fig 2 & 3) revealing both intestinal plication and the presence of barium stasis within the intestines. The blood analysis displayed leukocytosis with a left shift, elevated packed cell volume, and total protein levels, along with a decrease in serum albumin concentration. Consequently, the diagnosis for this case was determined to be intestinal obstruction caused by a linear foreign body a cotton thread entangled at the base of the tongue.

### Treatment

To stabilize the animal before surgery, intravenously Amoxicillin and cloxacillin 10 mg/kg was given prophylactically and for managing fluid, acid-base, and electrolyte imbalances Ringer's lactate was given intravenously 10ml/kg. The cat was positioned in dorsal recumbency, and aseptic preparation was carried out on the ventral midline for surgery. To induce and maintain general anesthesia, intramuscularly a combination of xylazine 1 mg/kg BW and ketamine (20 mg/kg BW i.v.) were administered. Following this, a ventral midline celiotomy incision was performed, allowing access to the intestine. During palpation at the ileum, an obstructing hard mass was identified. The intestine exhibited normal coloration and motility. To address the foreign body, an enterotomy was performed, involving an incision on the mesenteric border distal to the obstructing mass. Through the enterotomy incision, the cotton thread was extracted after releasing the cotton thread from the base of the tongue. A linear foreign body (cotton thread) measuring approximately 90 cm was successfully removed (Fig.4). Upon extraction of the intestinal foreign bodies, the incision was closed using 2-0 PGA, and the incision site was covered with omentum. Closure of the linea alba was achieved with 1-0 PGA. The skin was sutured using a cross mattress suture pattern. In the postoperative phase, the cat received treatment, including Inj. Amoxicillin and cloxacillin (10 mg/kg BW i.v.), Inj. Tramadol (2mg/kg BW s/c), Inj. Pantoprazole (1 mg/kg BW i.v.), and fluid therapy for a duration of 3 days. Suture removal was performed on the 10<sup>th</sup> post operative day. The cat began drinking milk on a subsequent day and displayed no signs of vomiting. Normal voiding of feces was observed in the following days, indicating an uneventful recovery process (Fig.5).

### Discussion

Foreign body obstruction was more prevalent among younger cats, with mean age of 2.7 years (Felts *et al.*, 1984)<sup>[8]</sup> and a median age of less than 1 year (Basher and Fowler, 1987)<sup>[11]</sup>. These obstructions encompass large circular foreign bodies as well as smaller irregular or linear foreign bodies. A complete obstruction was often caused by large circular foreign bodies, while linear foreign bodies like thread, string, fabric, elastic tape and others can become lodged around the base of the tongue and pylorus, leading to partial obstruction. The resulting increased peristaltic activity can contribute to intestinal wall ulceration and plicating (Evans *et al.*, 1994; Hayes, 2009)<sup>[7, 9]</sup>. Linear foreign body obstructions were more common in cats than dogs (Evans *et al.*, 1994)<sup>[7]</sup> and could result in chronic, intermittent gastrointestinal issues (Saundra and Charles, 1991)<sup>[13]</sup>. Clinical signs include anorexia, vomiting, abdominal pain, and occasional bloody diarrhoea. Water intake decreases, and vomiting frequency rises over time (Felts *et al.*, 1984)<sup>[8]</sup>. Diagnosing foreign bodies often involves oral examinations and direct radiographs, though these methods may not always confirm the diagnosis (Elser *et al.*, 2020)<sup>[6]</sup>. Contrast-enhanced radiography or ultrasound are recommended for radiolucent items like threads (Codrenau *et al.*, 2019)<sup>[4]</sup>. Radiographically, linear foreign body obstruction shows intestinal plication and increased numbers of eccentrically located luminal gas bubbles (Papazoglou *et al.*, 2003)<sup>[10]</sup>. Treatment approaches for linear foreign bodies range from conservative to surgical approach. Conservative methods involve releasing the thread at the base of the tongue,

administering laxatives, or endoscopic retrieval (Pratt *et al.*, 2014)<sup>[12]</sup>. Regular radiographic monitoring guides treatment decisions, with surgical intervention needed if clinical signs persist or if the foreign body remains in place for over 72 hours (Birk *et al.*, 2016; Becq *et al.*, 2021)<sup>[3, 2]</sup>. Surgical management involves a single enterotomy placed along the obstruction site and sometimes multiple enterotomies had to be performed for complete foreign body removal and to prevent excessive traction and perforation (Ellison, 1998)<sup>[5]</sup>. If left untreated, digestive tract foreign bodies can lead to severe infection, mucosal lacerations, pressure necrosis, appetite loss, and even death by starvation. Intussusception and peritonitis are potential sequelae of intestinal foreign body obstruction (Papazoglou *et al.*, 2003)<sup>[10]</sup>.



Fig 1: Plain Lateral radiograph showing distended intestinal loops



Fig 2: Lateral Contrast radiography after 1 hours of barium meal showing intestinal plication



Fig 3: Lateral Contrast radiography after 12 hours of barium meal showing barium stasis



Fig 4: Surgical removal of a linear foreign body



**Fig 5:** Postoperative recovery

### Conclusion

A thorough oral examination, particularly in symptomatic cats displaying gastrointestinal issues like vomiting, appetite loss, and irregular bowel movements, could facilitate early detection of foreign bodies. Timely diagnosis and proper treatment of intestinal foreign bodies often lead to a favorable prognosis.

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