ACCURACY OF THE ULTRASOUND INVESTIGATION IN GASTROINTESTINAL LINEAR FOREIGN BODIES IN CATS

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Abstract

This paper briefly reviews the basic definitions of gastrointestinal foreign body in cats. Gastrointestinal foreign body may cause severe pathogenetic effects resulting in plication of the intestine, intussusception, potentially ruptured bowel and peritonitis.

This study was conducted in the Clinic of Faculty of Veterinary Medicine in the period between april 2018 - january 2019 on a number of three cats presented in the clinic with digestive syndrome. On physical examination, cats were slightly depressed, dehydrated, and expressed signs of abdominal pain (n=3), diarrhea (n=2), vomiting (n=3) and inappetence (n=3). The sonographic images were obtained with MyLab30 and they identify the presence of a hyperechoic linear structure within the gastric lumen for one cat and in the intestinal lumen in two cats. In real time, the intestinal path was followed through many “hairpin” turns, and during this process the lumen was observed for identification of a linear structure. The diagnosis established a foreign body with thread and needle in two cases and a foreign body with only thread in the another case.

The treatment consisted in two cases in surgery, and in the other case in monitoring the natural elimination of the foreign body.

As a conclusion the findings in this cases suggest that in a small animal with a gastrointestinal foreign body, ultrasonography alone could be used to make the diagnosis.

Key words: gastrointestinal linear foreign body, ultrasound, cats.

INTRODUCTION

The definition of a 'foreign body' is a non-food object located within the digestive tract by accident or intentionally.

Particularly a dangerous type of foreign body, most common in cats, is referred to as a linear foreign body. Linear foreign bodies are a serious, potentially life-threatening condition causing partial or complete intestinal obstruction following ingestion of thread with needle, wool or string (John, 2014).

Gastrointestinal foreign body in dogs and cats may cause severe pathogenetic effects resulting implication of the intestine, intussusception, potentially ruptured bowel and peritonitis (Trevor, 2002).

Examination of the oral cavity is mandatory to rule out any suspicion of a string foreign body tethered beneath the tongue, especially in cats (Steagall et al., 2014).

The thread may cut the frenulum of the tongue and can deepen into soft tissues, so it is recommended that the tongue should be lifted and the underside inspected carefully.

After the passage of the oral cavity the linear foreign bodies may become caught in the esophagus, and a thoracic radiograph should be taken if this is suspected. However, most linear foreign bodies bunch up and lodge at the level of the pylorus (Taylor and Harvey, 2015).
Localization at the gastric level causes an acute onset of vomiting, anorexia, lethargy and, in some cases, polydipsia and abdominal pain (Calvo et al., 2014). Haematemesis may be observed if the foreign body has damaged the mucosa (Holden et al., 2014). Some foreign bodies can remain in situ for prolonged periods, causing only occasional vomiting or anorexia. Clinical biochemistry and haematology recorded frequently mild hyponatraemia, hypochloraemia and hypokalaemia as a consequence of vomiting.

Symptomatology of in intestinal linear foreign body consists in lethargy, diarrhea, abdominal tenderness or pain, inappetence or anorexia, tenesmus or producing small amounts of feces. Prognosis in gastrointestinal linear foreign body is based on the location, duration of any obstruction, size, shape and characteristics of the foreign body, and the health status of the animal previous of the ingestion (Baral, 2012). At surgery, the minimal number of intestinal procedures should be performed to restore the integrity of the alimentary tract.

**MATERIALS AND METHODS**

This study was performed in the Clinic of Faculty of Veterinary Medicine in the period between april 2018 - january 2019 on a number of three cats presented in the clinic with digestive syndrome. The animals were reviewed for signalment, medical history, physical examination findings, diagnostic test results, ultrasound imaging and x-rays. On physical examination, cats were slightly depressed, dehydrated, and expressed signs of abdominal pain (n=3), diarrhea (n=2), vomiting (n=3) and inappetence (n=3). A thorough oral examination was performed to rule out the possibility of a string that may be looped around the base of the tongue. Sometimes a string will be seen protruding from the mouth, or protruding from the anus. The sonographic investigations and the included images were obtained using a linear probe of 12-18 MHz - MyLab30, being possible to identify the presence of hyperechoic linear structures within the gastric lumen for one cat and in the intestinal lumen in two cats. In real time, the intestinal path was followed through many “hairpin” turns, and during this process the lumen was examined for identification of a linear structure (Dayle et al., 2006).

The diagnosis established a foreign body with thread and needle in two cases and a foreign body with only thread in the another case. The treatment consisted in two cases in surgery, and in the other case in monitoring the natural elimination of the foreign body (Carney et al., 2012).
RESULTS AND DISCUSSIONS

The specific literature describes situations where the ultrasound exam has established a diagnosis for the presence of linear foreign body (needle, thread) compared with X-rays that did not surprise certain modifications to establish diagnosis and surgery (Hayes, 2009). In one study the X-rays have established the diagnosis of foreign bodies in 9 animals in comparison with the ultrasound technique that detected foreign bodies in all 16 animals.

Figure 4. Hyperechoic linear structure within the intestinal lumen with moderate aspect of ileus of the affected intestine

Figure 5. Hyperechoic linear structure within the intestinal lumen with subsequent changes of the intestine aspect

Figure 6. Within the intestinal lumen can be identified the presence of an hyperechoic linear structure

Figure 7. Hyperechoic linear structure within the intestinal lumen

Figure 8. Hyperechoic linear structure within the intestinal lumen

Figure 9. Radiopaque linear foreign body

Figure 10. Enterectomy and extraction of the foreign body

Figure 11. Thread and needle — foreign body

Figure 12. Enterectomy and extraction of the foreign body

Figure 13. The presence of an hyperechoic linear structure within the gastric lumen (1.33 cm size)

Figure 13. Hyperechoic linear structure within the gastric lumen – 2.63 cm size
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In one study the X-rays have established the diagnosis of foreign bodies in 9 animals in comparison with the ultrasound technique that detected foreign bodies in all 16 animals.
CONCLUSIONS

The findings in this cases suggest that in case of small animals with a gastrointestinal foreign body, ultrasonography alone could be used to establish the diagnosis. It is important in the preliminary evaluation of the patients so suspected, the clinician takes into account the complications that can emerged.
The earlier the diagnosis of a linear foreign body is made, the so the pathogenetic consequences are limited and the prognosis is improved.
Early presentation, diagnosis and surgical intervention improve the outcome of gastrointestinal obstruction by foreign bodies.

REFERENCES