ENDOSCOPIC RETRIEVAL OF GASTRIC FOREIGN BODIES IN DOGS -A CLINICAL STUDY OF 14 CASES

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SUMMARY

Gastrointestinal foreign bodies (FB) instigated vomition, decreased appetite, discomfort due to abdominal pain and lethargy in canine are refractory to the medicinal treatment. In the present study, 14 such dogs of either sex, belonging to different breed and age group with obvious history of foreign body ingestion and chronic vomition were subjected to endoscopic examination after radiographic assessment along with haematobiochemical investigation. Radiography helped in identification and localization of foreign bodies in four cases only whereas gastro-endoscopy efficiently provided direct visualization of the radiolucent foreign bodies and aided in their retrieval under general anaesthesia in all the cases. **Keywords:** Gastric foreign bodies, Upper GI Endoscopy, Vomition

Foreign body ingestion should always be considered in differential diagnosis in acutely vomiting dogs with salivation, abdominal pain and sudden changes in appetite regardless of their age. Gianella et al. (2009) stated that the common clinical signs during foreign body ingestion are salivation, retching, gagging, vomiting, regurgitation, anorexia, pain, respiratory distress and restlessness based upon the site of foreign body in the gastro-intestinal tract. Gastric foreign bodies should be removed quickly to prevent entry in the small intestines and avoid possible obstruction. Diagnosis and removal of radiolucent foreign bodies can be quite challenging based on mere history provided by the pet owner and clinical signs. Therefore, the present study was planned with the objective to retrieve the ingested foreign bodies with minimal invasive technique and to evaluate the gross mucosal lesions of oesophagus and stomach by using endoscope.

Fourteen dogs of either sex, belonging to different breed and age group were presented with history of acute vomition, excessive salivation, abdominal pain/discomfort and restlessness and history of ingestion of foreign body. All the dogs underwent a thorough physical, clinical and haemato-biochemical examination to rule out other gastrointestinal conditions. Radiographic examination was done to locate radio-opaque foreign bodies in gastrointestinal tract. Endoscopic examination and retrieval of the foreign bodies was attempted in all the dogs under general anaesthesia. The dogs were pre-medicated with atropine @ 0.04 mg/kg, followed by triflupromazine @ 1 mg/kg. intravenously. Injection propofol @ 6-8 mg/kg intravenously was used as induction agent for anaesthesia followed by maintenance with 2.5% isoflurane up-to effect.

The dogs were restrained on left lateral recumbency for the procedure to enable proper visualization up to the pylorus. Once in deep plane, the insertion tube of the endoscope was advanced slowly through the mouth, into the oesophagus with controlled insufflations of air to traverse the oesophagus into the stomach. The stomach was carefully examined to locate the foreign body. Endoscopic rat-tooth foreign body retrieval forceps were used for grasping and removal of the ingested gastric foreign bodies, whereas linear foreign bodies were retrieved with the help of an endoscopic snare. Various foreign bodies encountered during the study are mentioned in Table 1.

In the present study, 14 dogs of either sex, belonging to different breed and age group with obvious history of foreign body ingestion and chronic vomition were subjected to endoscopic examination after radiographic assessment along with haemato-biochemical investigation. Radiography remains a gold standard technique for diagnosis of foreign body syndrome in small animal practice (Fossum, 2012). The initial screening of the presence, type and location of foreign body was evaluated with plain radiographs in all the dogs. Amongst 14 dogs, obvious radio-opaque foreign bodies like magnet, belt buckle and stones (Fig. 1 and Fig. 3) were located in the stomach on lateral radiographs. Detection of radiolucent foreign bodies like socks, PVC pipe, mango kernel, plastic

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Case-wise location of gastric foreign bodies and endoscopic appearance of the mucosal alteration					
Sr. No.	Breed	Age	Endoscopic Findings/ Diagnosis	Location of foreign body	Endoscopic appearance of mucosal changes seen, if any.
1.	Beagle	3 mo.	Button	Fundus	
2.	Lab. Retriever	7 mo.	Latex glove	Fundus	Sight redness
3.	Golden retriever	8 mo.	Stones	Fundus	Erythema
4.	Husky	1 yr	Sock	Fundus	Stomach showed presence of excess amount of mucus.
5.	Golden retriever	1 yr	Belt Buckle	Fundus	Some redness was seen, belt buckle was present entangled with strands of hair
6.	Labrador	1 yr	Toy along with magnet	Along the body of stomach & pyloric antrum	Normal looking gastric mucosa, slight redness seen along with excess mucus.
7.	Husky	1.5 yr	Mango seed	Body of the stomach	_
8.	Labrador	2 yr	PVC pipe, corn knobs and some plastic	Body of the stomach	Slight erythema was seen.
9.	Havanese	2 yr	Hair band	No hair band found	No hair band could be located. The whole stomach mucosa showed lined with whitish froth.
10.	Lab. Retriever	2.9 yr	Plastic spoon	Pyloric sphincter	The gastric mucosa showed redness and congestion in several points which were probably due to the sharp edges of the spoon.
11.	Poodle	3 yr	Chicken pieces and carrot pieces were seen	Fundus	Bleeding tracts were observed on mucosa.
12.	Shih Tzu	4.6 yr	Mango kernel	Fundus	Inflamed and reddened mucosa
13.	Lab. Retriever	5 yr	Mud/stones	Tiny stones and mud were present covering the whole of the stomach mucosa.	The mucosa appeared erythematous and covered with mud and stones.
14.	Labrador	2 yr	Plastic lollipop	Fundus pipe	The gastric mucosa appeared inflamed

Table 1

Case-wise location of gastric foreign bodies and endoscopic appearance of the mucosal alteration

spoon etc. that were found in nine dogs, was challenging on plain radiography. The findings corroborated with studies on gastric FB syndrome in dogs by Sharma *et al.* (2017).

Gastro-endoscopy proved to be a useful modality for examination of the mucosa for gross lesion and for minimal invasive retrieval of the foreign bodies in the current study. Foreign bodies like plastic spoon, monkey toy with an entrapped magnet and metal belt buckle could be quickly and easily grasped from the stomach and retrieved with the help of rat tooth forceps with its grasping edge (Figs. 2, 4, 5, 6). Bekkerman *et al.* (2016) recommended using retrieval net, forceps, or a polypectomy snare for endoscopic removal of foreign body from the oesophagus or stomach. Similarly, Lokhande (2008) stated that snares were very useful for grasping and removal of round shaped foreign bodies as well as linear foreign bodies because it provides a strong grip around the objects. Roshanzamir *et al.* (2014) and Mohanambal *et al.* (2018) performed endoscopic removal of a sewing needle and a metal bottle cap from the stomach using long alligator forceps and endoscopic snare respectively.

Three cases were brought to TVCC within few hours after deglutition of the foreign body due to the alertness of the owner. Therefore, even though the foreign bodies were retrieved, endoscopic examination revealed normal looking gastric mucosa with sufficient gastric secretions and normally appearing smooth rugal folds. Whereas in



Fig.1: (Dorso-ventral) and (Lateral) radiograph of abdomen in Labrador showing presence of belt buckle in the stomach



Fig. 3: Lateral radiograph of abdomen showing presence of radioopaque FB (stones & mud) in the stomach



Fig. 5 Gastroscopic appearance of FB (Toy) present in the stomach showing inflamed mucosa.



Fig. 2 Belt buckle covered with hair, endoscopically retrieved from fundus.



Fig.4 Endoscopic retrieval of plastic spoon using grasping forcep and presence inflammatory lesion on gastricmucosa mucosa.



Fig. 6 Gastroscopic appearance of metallic foreign body near the incisura angularis.



Fig. 7. Gastric Mucosa showing hemorrhage/bleeding caused by ingested foreign body

Fig. 8. Mango Kernel retrieved through gastroscopy

remaining 10 cases where the contact of FB was for longer duration caused macroscopic mucosal changes like erythema, inflammation, petechiae and haemorrhages as mentioned in Table 1 (Fig.7.). These findings of current study were equivocated by Thompson *et al.* (2012) who further stated that degree of mucosal damage was directly proportional to the duration of existence of foreign body and its contact with the mucosa. All the foreign bodies observed in this study were less than 6 cm in diameter and could be easily grasped and retrieved with rat tooth forceps and snare (Fig. 8.). The findings of this study are in correspondence with Lokhande (2008) and Bekkerman *et al.* (2016).

Hemoconcentration and elevated PCV values were the common findings reported, indicating dehydration. There was no significant difference seen in the TLC and DLC, except for neutrophilia in some cases. Similar findings were recorded by Luna *et al.* (2007) who reported no change in the values of haemoglobin, RBC, WBC, platelets and DLC in dogs showing drug induced gastritis. All dogs had serum biochemical parameters viz. BUN, creatinine, ALT and AST within the normal physiological limits. Endoscopy is competent to visualize, locate and facilitate non-invasive retrieval of the ingested foreign bodies and also helps to examine the alternation in oesophagus and gastric mucosa.

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