

C-ARM FLUOROSCOPY GUIDED RETRIEVAL OF OESOPHAGEAL FOREIGN BODY IN A CAT- A CASE REPORT

Varsha pradeep¹, P. Sankar^{2*}, M. Sabarinathan³, S. Deepika⁴
S. Dharmaceelan⁵, S. Kokila⁶ and S. Kathirvel⁷

Department of Veterinary Surgery and Radiology
Veterinary College and Research Institute
Tamil Nadu Veterinary and Animal Sciences University
Namakkal -637 002

ABSTRACT

A six month old intact white female domestic short hair cat weighing 2 kgs was presented to the Veterinary Clinical Complex with a history of acute onset of repeated regurgitation, hypersalivation and anorexia for the past 24 hours. The animal showed progressive dysphagia and reluctance to consume both solid and liquid feed since the onset of clinical signs. Radiographic examination of head and neck revealed a linear radiopaque foreign body lodged within the cervical part of oesophagus. There was no evidence of pneumothorax, pleural effusion or mediastinal emphysema was observed on radiographic evaluation. Under fluoroscopic examination (C-arm) a distinct linear radiopaque foreign body was visualized within the cervical oesophagus extending longitudinally along the oesophageal lumen. Under xylazine (1mg/kg), ketamine (10mg/kg) and diazepam (0.5mg/kg) anaesthesia, a sewing needle was retrieved with the help of long grasping forceps under real time fluoroscopic examination. The cat recovered uneventfully after removal of the foreign body. The present case highlights the clinical utility of C-arm fluoroscopy as a minimally invasive, real time imaging modality for precise localization and safe retrieval of oesophageal linear foreign bodies in feline patients. Early diagnosis and minimally invasive intervention significantly improve prognosis and reduce morbidity associated with oesophageal foreign bodies in cats.

Key words: C-arm, potential foreign body, oesophagus, minimally invasive retrieval.

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¹M.V.Sc. Scholar,

²Associate Professor, *Corresponding Author Email :
sansurvet@gmail.com

³M.V.Sc., Scholar

⁴Internship student,

⁵Professor and Head

⁶Assistant Professor, Veterinary Clinical Complex,

⁷Professor and Head, Veterinary Clinical Complex,

INTRODUCTION

Foreign body ingestion is reported more frequently in young and playful cats because of their inquisitive behaviour and tendency to chew linear or sharp objects during play activities (Abd Elkader *et al.*, 2020). Among feline oesophageal

foreign bodies, sewing needles, bones, fish hooks and linear radiopaque materials are commonly encountered (Augusto *et al.*, 2005). The feline oesophagus possesses several anatomical curvatures and narrow regions, particularly near the thoracic inlet and caudal pharyngeal region, predisposing foreign materials to become lodged within the lumen (Abd Elkader *et al.*, 2020). The severity of obstruction may vary depending on the size, shape, duration and location of the foreign body (Papazoglou *et al.*, 2003, Hayes, 2009, Johnson and Sherding 2000, Gualitieri 2001 and Augusto *et al.*, 2005). Dysphagia, regurgitation, ptyalism, gagging, repeated swallowing attempts, anorexia and cervical pain are among the commonly reported clinical signs in affected cats (Abd Elkader *et al.*, 2020). Chronic obstruction may predispose to severe complications including oesophagitis, aspiration pneumonia, oesophageal perforation, stricture formation and pyothorax (Augusto *et al.*, 2005 and Abd Elkader *et al.*, 2020). Linear and sharp foreign bodies may penetrate or embed within the oesophageal wall, increasing the risk of local inflammation and migration into surrounding tissues (Kim *et al.*, 2011). Prompt diagnosis and early intervention are therefore essential to minimize tissue trauma and improve prognosis. Survey radiography remains the primary diagnostic modality for localization and characterization of radiopaque oesophageal foreign bodies in cats (Abd Elkader *et al.*, 2020).

The present case report describes successful retrieval of an oesophageal linear foreign body in a cat using C-arm

fluoroscopic guidance and highlights the diagnostic and therapeutic advantages of minimally invasive image-guided intervention in feline cervical oesophageal foreign body management.

CASE HISTORY AND OBSERVATION

A six-month-old intact white female domestic short hair cat weighing 2 kgs was presented to the Veterinary Clinical Complex with a history of acute onset of repeated regurgitation, hypersalivation and anorexia for the past 24 hours. The animal showed progressive dysphagia and reluctance to consume both solid and liquid food since the onset of clinical signs. On physical examination, the cat was dull, mildly dehydrated and exhibited intermittent retching with frequent swallowing attempts. Mild discomfort was elicited on palpation of the cervical region. Rectal temperature, heart rate and respiratory rate were within normal physiological limits. Oral cavity examination did not reveal any visible foreign material or oral trauma. Haematological examination revealed mild haemoconcentration suggestive of dehydration along with a mild stress leukogram characterized by neutrophilia and relative lymphopenia. Radiographic examination of head and neck revealed a radio-opaque foreign body similar to metal opaqueness within the pharynx and extended up to cervical part of oesophagus (Fig.1). There was no evidence of pneumothorax, pleural effusion or mediastinal emphysema was observed on radiographic evaluation. Based on the clinical presentation, radiographic examination and fluoroscopic evaluation a

thin metallic dense potential foreign body lodged within the pharynx and cervical part of oesophagus was confirmed. Considering the location and configuration of the foreign material, fluoroscopy-guided retrieval using C-arm radiography was planned to facilitate minimally invasive removal and to minimize the risk of oesophageal trauma and surgical complications. Real-time fluoroscopic imaging enabled precise localization of the foreign material and assessment of its orientation, extent and mobility within the oesophagus. The foreign body appeared fixed within the cervical part of the oesophagus without evidence of migration into adjacent soft tissues. The C-arm fluoroscopic evaluation was particularly advantageous in delineating the exact position of the foreign body in relation to surrounding thoracic structures and facilitated continuous intra operative monitoring during manipulation and retrieval attempts.

TREATMENT AND DISCUSSION

The cat was stabilized initially with intravenous fluid therapy using Ringer's lactate solution 10ml/kg body weight. Preoperative broad-spectrum antibiotic therapy was initiated with ceftriaxone at the dose rate of 15 mg/kg body weight intravenously to minimize the risk of secondary bacterial infection associated with oesophageal mucosal injury. Pantoprazole 1 mg/kg body weight (IV) and ondansetron @ 0.5 mg/kg body weight (IV) were also administered as supportive management. The animal was premedicated with xylazine @ 1 mg/kg body weight (IM) and anaesthesia was induced with diazepam

@ 0.5mg/kg body weight and ketamine @ 10 mg/kg body weight intravenously. The cat was positioned in right lateral recumbency for fluoroscopic examination. Under continuous fluoroscopic guidance, the sewing needle was clearly visualized within the cervical part of oesophagus and the sewing thread was not independently visualized fluoroscopically. Real time imaging facilitated accurate assessment of the orientation, extent and stability of the foreign material during manipulation. With the help of long grasping forceps cervical foreign body was carefully removed (Fig.2). Immediate post retrieval fluoroscopic examination confirmed complete removal of the foreign material with no residual radiopaque fragments within the oesophageal lumen (Fig.3). No evidence of oesophageal perforation, mediastinal emphysema or aspiration complications were observed during or after the procedure due to potential foreign body (Fig.4). Postoperatively, the cat was maintained on intravenous fluids, antibiotics and proton pump inhibitors. Soft diet feeding was advised after recovery from anaesthesia. The animal showed marked improvement in appetite and complete resolution of regurgitation within 24hr following the procedure.

CONCLUSION

The present case demonstrated successful diagnosis and minimally invasive retrieval of a cervical oesophageal linear foreign body attached sewing needle in a cat using C-arm fluoroscopic guidance. Early diagnosis combined with prompt image-guided retrieval contributed to an uneventful

postoperative recovery and favourable clinical outcome. The case highlights the clinical importance of C-arm fluoroscopy as an effective diagnostic and therapeutic aid in the management of feline oesophageal foreign bodies, particularly in situations where minimally invasive intervention is preferred to reduce surgical morbidity and postoperative complications.

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Fig.1. Survey radiograph showing radio opaque cervical oesophageal foreign body

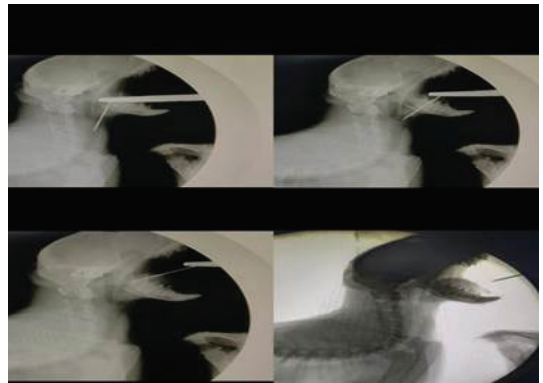


Fig.2. Fluoroscopy guided stages of removal of potential foreign body from oesophagus



Fig.3 Retrieved foreignbody (fluroscopic image)



Fig.4 Retrieved potential and linear foreign body

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