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Retrieval of oesophageal foreign body through cervical oesophagotomy following unsuccessful endoscopic attempt in a domestic short hair cat

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Abstract

A 5-month-old free roaming intact male Domestic Short Hair cat was presented at Small Animal Out Patient Surgery Unit at Veterinary Clinical Complex, Veterinary College and Research Institute, Theni with the history of vomiting & inappetence for the past 2 days. Vaccination and deworming protocols were reported to be performed. Clinical examination revealed a painful firm fluctuating palpable cervical mass. Further owner reported that the cat had normal swallows of water and liquid food but had episodes of retching and vomiting with solid foods. Lateral cervical radiography revealed a bone like foreign body at the level of C2-C4 cervical vertebrae. Routine hematobiochemical profile revealed thrombocytopenia, neutrophilia and monocytosis. Since the hematobiochemical profiles were not alarming, emergency endoscopic retrieval was decided. Under safe anesthetic protocol, endoscopy was performed in order to extract the foreign body which was unsuccessful due to anchoring of the bone fragment in the cervical esophagus lumen. A cervical esophagotomy was therefore planned. The foreign body was successfully removed and the animal was maintained under fluid therapy, antibiotics with appropriate-analgesics for 3 days. Review radiograph of cervical region revealed no abnormalities. On the 4th post operative day, suture dehiscence, esophageal perforation was observed, following which wound was debrided and esophageal perforation was corrected through appropriate apposition methods. On 7th post operative day, the wound progressively healed without any complications.

Keywords: Cat, Oesophageal foreign body, unsuccessful endoscopic retrieval, cervical oesophagotomy

Introduction

Case history

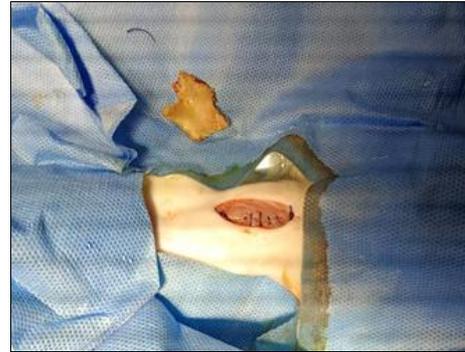
A 5-month-old intact female Domestic Short Hair cat was presented to the Small Animal Out-Patient Surgery Unit, Veterinary Clinical Complex & Research Institute (VC&RI), Theni, with a two-day history of vomiting and inappetence. Vaccination and deworming protocols were reported to be performed. Clinical examination revealed a painful firm fluctuating palpable cervical mass. Further owner reported that the cat had normal swallows of water and liquid food but had episodes of retching and vomiting with solid foods. Lateral cervical radiography revealed a bone like foreign body at the level of C2-C4 cervical vertebrae. Routine hematobiochemical profile revealed thrombocytopenia, neutrophilia and monocytosis. The radiopacity of this foreign body matched that of bone, confirming its identity as a bone fragment. Hematological evaluation revealed thrombocytopenia (platelet count: 1.44 lakhs/ μ L), neutrophilia (73.1%), and monocytosis (14.1%), while all biochemical parameters were within normal limits.



Treatment

The animal was pre medicated with Inj. Diazepam @0.5 mg/kg and Inj. Butorphanol @0.2 mg/kg intravenous respectively. Anesthesia was induced with Propofol @2 mg/kg intravenous, following induction the pet was intubated with cuffed endotracheal tube of 3 mm I.D. and was maintained under Isoflurane with carrier oxygen gas under a non-rebreathing Bains circuit. An emergency endoscopic procedure was performed with a usage of a flexible endoscope of diameter 0.8 cm in order to retrieve the intraluminal cervical foreign body. Retrieval was attempted by introducing alligator-type grasping forceps through the instrument's working channel and directing them toward the foreign body under visual guidance. The bone fragment appeared to be firmly anchored to the esophageal lumen and in order, to prevent any further iatrogenic complications and due to entrapment of the foreign body intraluminal the procedure was withheld and cervical oesophagotomy was opted. The cat was positioned in dorsal recumbency. Surgical site has been aseptically prepared. A longitudinal ventral cervical incision placed on skin, sternohyoid muscles were separated to expose the trachea. Then the trachea was retracted to the right to expose to the esophagus, thyroid artery, carotid sheath, and recurrent laryngeal nerve. Stay sutures were placed cranial and caudal to the proposed line of incision. The site surrounding the surgical area was packed with laparotomy sponge to prevent seepage of esophageal contents. An incision of 2 cm was placed on oesophagus cranial to the foreign body. The foreign body was meticulously retrieved with forceps gently avoiding any unnecessary manipulations. Oesophageal luminal fluid was aspirated through a suction tube and was confirmed of any adhesions and other abnormalities, if any. Two-layer simple interrupted closure with PGA 3-0 with an atraumatic needle was done by incorporating mucosa and submucosa first layer with knots placed within the lumen and incorporating the adventitia, muscularis, submucosa as second layer with the knots tied extraluminally. Esophageal closure integrity was checked for any perforation through a leakage test with normal saline. The sternohyoid muscles were apposed using PGA 3-0 in a simple continuous pattern following which the subcutaneous was apposed in a simple continuous pattern with PGA 3-0. Skin closed with polyamide 2-0. The animal was monitored post operatively for hypothermia and post operative pneumonia. Following anaesthetic recovery, the animal was medicated with injection ceftriaxone @ 10 mg/kg, injection meloxicam @ 0.2 mg/kg and periodic dressing was advised to perform. On 4th post operative day, suture dehiscence, oesophageal perforation and infection were noticed due to self mutilation as the pet had removed the E-collar that was applied. Oesophageal perforation was corrected was done with PGA 3-0, skin closed with

polyamide 2-0. Syrup cefpodoxime @10 mg/kg, Tablet Pantoprazole, Semi gravy feed, Ointment Hydroheal and strict E collar has been advised. On 7th day progressive wound healing and no adverse exudates were noticed. On 14th day the wound completely healed.



Case discussion

Oesophageal foreign bodies, whether cervical or intrathoracic, are a common cause of dysphagia and regurgitation in small animals (Rousseau *et al*, 2007) [14]. If a foreign body remains lodged for several days or exerts prolonged pressure on the oesophageal wall, pressure necrosis and eventual perforation can follow as not observed in the present case as the incidence and diagnosis was of short duration. (Plunkett, 2013) [12]. The most frequent oesophageal foreign bodies in dogs and cats include bones, small toys, balls, needles, dental chews and fishhooks. The anatomy of oesophagus—its angulations and bends—predisposes certain sites to lodgement, while the foreign body's shape and size influence its movement and the complexity of removal. (Rendano, *et al.*, 1988) [13]. Clinical signs vary with the obstruction's location, severity, and duration. Typical findings are dysphagia and regurgitation; less commonly, animals show gagging, ptyalism, discomfort, respiratory distress, or cyanosis. Respiratory signs such as coughing, crackles, and fever can indicate aspiration pneumonia even when regurgitation was not observed. Oesophageal surgery carries a higher risk of postoperative complications than procedures on other gastrointestinal

segments. (Fossum, 2018; Harari, 2004) [6, 8]. Frequent complications include oesophageal perforation, esophagitis, wound dehiscence, leakage, stricture formation, aspiration pneumonia, infection, fistula, and abscess. Prompt, appropriate treatment and meticulous surgical technique reduce these risks.

Differential diagnoses to consider include rabies, trigeminal neuropathy, periodontal disease, oropharyngeal or tracheal foreign body, oesophageal tumour, oesophageal stricture, diverticula, and insect bites (Bojrab *et al.*, 2014) [5]. Although the oesophagus is not usually visible on radiographs, many foreign bodies are radio-opaque and can be seen on survey radiographs. Radiographic signs suggesting complications include pneumomediastinum, mediastinal soft tissue density, and pleural effusion, which may indicate perforation with mediastinitis or pleuritis. (Fossum *et al.*, 2018) [6]. When plain radiography is inconclusive, contrast fluoroscopy or barium studies are useful, and definitive diagnosis is obtained by endoscopy for direct visualisation. Treatment choice depends on the foreign body's location and nature and on any associated complications (Weil 2009). Endoscopic removal is minimally invasive and is preferred when feasible; however, surgical removal is indicated when the object is inaccessible endoscopically or has a shape that precludes safe extraction as observed in the above case. (Abd Elkader *et al.*, 2020; Binvel *et al.*, 2018) [1, 4]. After surgical removal, patients should be monitored closely for 2–3 days for signs of leakage that occurred in the present case due to self-mutilation following esophagitis that led to perforation. Regurgitation or vomiting increases the risk of aspiration pneumonia that was unusual in the cat (Johnston *et al.*, 2017) [10]. Antibiotics are indicated when esophagitis, pneumonia, mediastinitis, or pleuritis are present. Sharp objects should ideally be removed within 24 hours because of the heightened risk of complications. If a needle penetrates from the oesophagus into the thoracic cavity but does not injure the heart or cause obvious oesophageal ulceration, the inflammatory response may still be minimal. Potential local sequelae include mucosal abrasion, laceration, necrosis, and later stricture formation. Because puncture wounds can seed infection, systemic antibiotics are commonly given after removal, and antiemetics are used to prevent vomiting that could exacerbate oesophageal injury as followed in the present case.

Conflict of Interest

Not available

Financial Support

Not available

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