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S Usha Jyothi
PG Scholar,
Department of Veterinary Surgery and Radiology, College of Veterinary Science, Rajendranagar, Hyderabad, Telangana, India

M Sravanti
Assistant Professor,
Department of Veterinary Surgery and Radiology, College of Veterinary Science, Rajendranagar, Hyderabad, Telangana, India

Lella Lokesh
5th Year BVSc and AH, College of Veterinary Science, Rajendranagar, Hyderabad, Telangana, India

Corresponding Author:
S Usha Jyothi
PG Scholar,
Department of Veterinary Surgery and Radiology, College of Veterinary Science, Rajendranagar, Hyderabad, Telangana, India

Successful retrieval of fish hook from the thorax by oesophagotomy with the help of a magnet in dog: A case report

S Usha Jyothi, M Sravanti and Lella Lokesh

Abstract
An eight month old female pomeranian dog weighing around 10 kg was brought to the veterinary clinical complex hospital (VCC) Rajendranagar, Hyderabad with a history of anorexia, reduced food and water intake and cough. Pain was evinced by the animal while manipulating neck region. Radiograph of neck and thorax in lateral and ventro-dorsal views revealed the presence of curved foreign body with a sharp edge between 1st and 2nd ribs within the oesophagus. Oesophagotomy was performed at caudal end of the neck to retrieve the foreign body with the help of a magnet by taking caudal cervical incision and the animal recovered uneventfully.

Keywords: Foreign body, oesophagotomy, magnet

Introduction
The Ingestion of foreign bodies is common in both dogs and cats, however dogs are more prone than cats to have oesophageal and gastric foreign bodies (Maggi, G *et al.*, 2023) [1]. The most frequently found foreign bodies in the oesophagi of dogs are bones, balls, sharp metal objects (fish hooks, needles and wires), coins, toys, woolen balls and other diverse objects have also been reported (Gokulakrishnan M *et al.*, 2020) [4]. Due to their big size to pass through or sharp edges, foreign bodies become lodged in the oesophagus, mostly at base of the heart, thoracic inlet or diaphram area, as dilatation of oesophagus at these sites is limited by extraesophageal structures (Fossum, 2019) [2]. In light of potential complications, oesophageal foreign bodies ought to be removed as soon as possible or pushed into stomach for gastrotomy or digestion (P. Gianella *et al.*, 2009) [3].

History and Clinical signs
An 8 months old female pomeranian dog was brought to Veterinary Clinical Complex Hospital (VCC) Rajendranagar, Hyderabad with a history of anorexia, unproductive retching, reduced food and water intake, cough, salivation and extended neck. On physical examination of neck region pain was observed. On Clinical examination temperature was recorded as 101°F, heart rate: 110 beats per minute, respiratory rate: 30 breaths/minute, skin tenting time: 1-2 seconds, conjunctival and buccal mucus membranes were pale pink. Radiographic examination of neck and thorax by taking lateral and ventrodorsal views revealed the presence of curved metallic foreign body with a sharp edge within the oesophagus between 1st and 2nd ribs (Fig. 1 &2). The case was diagnosed as oesophageal foreign body and so it was decided to perform oesophagotomy.

Fig.1: Lateral radiographic view of neck and thorax showing curved metallic foreignbody within oesophagus

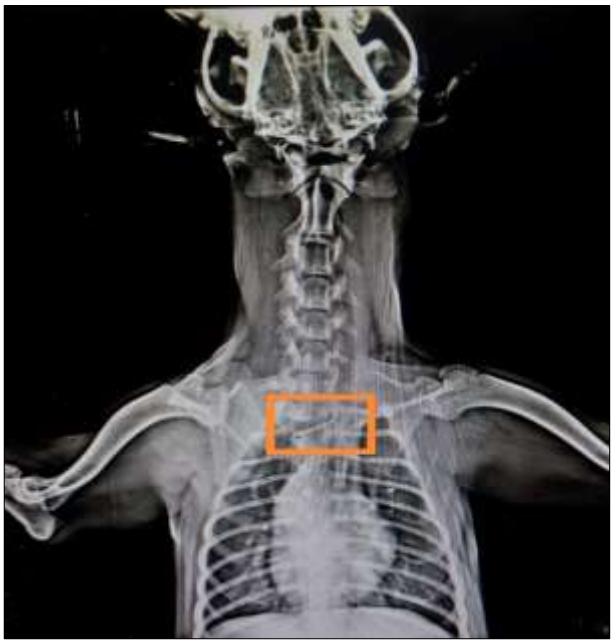

Fig 2: Ventrodorsal radiographic view of neck and thorax evident curved metallic foreignbody between 1st and 2nd ribs

Treatment and Discussion

The dog was pre anesthetized with a subcutaneous injection of atropine sulphate @ 0.02mg/kg b.wt and sedated with an intramuscular injection of xylazine + ketamine @ 1mg/kg and 10mg/kg b.wt respectively. The surgical site was aseptically prepared in a standard manner. A stomach tube was passed for easy identification of the oesophagus. The animal was maintained under propofol @ 1mg/kg b.wt. The animal was placed in dorsal recumbency and the point of obstruction was marked based on radiography findings. A ventral midline caudal cervical incision was made, sternohyoid muscles were separated to expose the trachea, trachea was retracted to right and the oesophagus was identified with the help of a stomach tube (Fig.3). A 2 inches incision was taken on oesophagus after applying stay sutures, with the help of doyen's intestinal clamp a magnet was introduced into oesophagus to retrieve the foreign body which was a fish hook (Fig. 4). Leak test was performed after suturing the oesophagus in a simple interrupted pattern with absorbable suture material (No. 2-0 vicryl) (Fig. 5). Sternohyoid muscles followed by subcutaneous tissues were apposed in a simple continuous pattern using absorbable suture matterial (No. 2-0 vicryl). The skin was sutured with cross mattress suture technique using polyamide No. 2-0 (Fig. 6). Post operatively the dog was strictly maintained only on intravenous fluids (5% dextrose and ringer's lactate) for 1st 3 days BID along with inj. Ceftriaxone & tazobactum @ 20mg/kg b.wt for five days, inj. Meloxicam @ 0.2mg/kg b.wt, inj. Histanil @ 0.5mg/kg b.wt for three days and regular antiseptic dressing of the surgical site. From 4th day to 6th day the dog was administered with intravenous fluids and oral rehydrating solutions then gradually semi-solid and solid diet was resumed. The skin sutures were removed on 15th post operative day. The animal recovered successfully without any complications.

Fig 3: Arrow pointing out the oesophagus identified with the help of a stomach tube

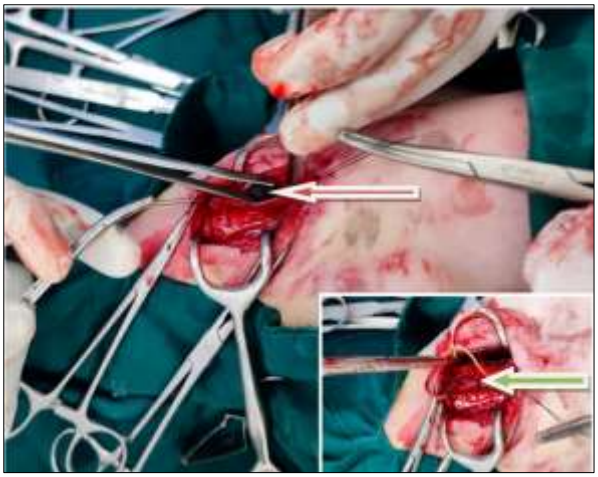

Fig 4: Brown and green arrows pointing out the magnet introduced into the oesophagus and the fish hook retrieved from the oesophagus respectively

Fig 5: Performing leak test after suturing oesophagus by simple interrupted suture pattern

Fig 6: Skin incision closed by cross mattress suture pattern

Discussion

In dogs, esophageal foreign bodies are a prevalent clinical issue that can be fatal. The diagnosis of oesophageal foreign body entrapment relies heavily on anamnesis, clinical signs, survey radiographs, endoscopy (Sale CS, 2006) [5]. In the present study, using a magnet to retrieve fish hook entrapped within the oesophagus was found to be effective. Although surgical techniques like oesophagoscopy, transthoracic oesophagotomy are in practice, usage of a magnet to retrieve oesophageal foreign bodies can also be employed in specific circumstances such as lack of access to sophisticated equipment, affordability of owner etc. Postoperative diet and management are of paramount importance, which helped for faster healing process with the present case and the prognosis was good.

Conclusion

In the presented case report, the retrieval of a fish hook from the thorax of an 8-month-old female Pomeranian was successfully achieved using oesophagotomy facilitated by a magnet. This innovative approach highlights the feasibility and effectiveness of using a magnet for foreign body retrieval in circumstances where advanced surgical equipment may not be accessible. The procedure was executed by making a caudal cervical incision, applying standard aseptic techniques, and utilizing appropriate pre- and post-operative care to ensure the animal's recovery. The choice of a magnet proved advantageous, especially considering the potential complications associated with oesophageal foreign bodies, such as obstruction and perforation.

The success of this case underscores the importance of timely and accurate diagnosis using clinical signs and radiographic examination. Additionally, it emphasizes the critical role of postoperative management, including strict dietary control and proper wound care, in promoting uneventful recovery. This case serves as a valuable reference for veterinary practitioners dealing with similar oesophageal foreign bodies, demonstrating that innovative yet straightforward techniques can be effectively employed when more sophisticated methods are unavailable. Overall, the positive outcome of this procedure supports the use of magnets as a viable alternative in specific clinical scenarios, contributing to the broader knowledge and practices in veterinary surgery.

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