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Surgical management of hiatal hernia in a queen cat

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Abstract
Hiatal hernia is defined as any protrusion of abdominal contents through the oesophageal hiatus of the diaphragm into the thoracic cavity in the presence of an intact phrenico-oesophageal ligament. A six-year-old queen was referred to the Madras Veterinary College and Teaching Hospital, with a history of a road traffic accident one week back. Dyspnea, grunting and collapse had developed over the 12 hours previous to presentation Stabilization was accomplished using plication of the diaphragm to narrow the hiatus, esophagopexy and gastropexy to prevent cranial displacement of the stomach. This case of a hiatal hernia in a cat was managed by simple reduction and stabilization, respectively.

Keywords: hiatal hernia, queen cat, surgical management

Introduction
Hiatal hernia is defined as any protrusion of abdominal contents through the oesophageal hiatus of the diaphragm into the thoracic cavity in the presence of an intact phrenico-oesophageal ligament (Rahal *et al.*, 2003) [7]. Hiatal herniation developed due to an abnormality or laxity in the phrenico-oesophageal ligament (Hunt and Johnson, 2003) [4].

Case History and Observation
A six-year-old queen was referred to the Madras Veterinary College and Teaching Hospital, with a history of a road traffic accident one week back accompanied by dyspnea , grunting and collapse. On clinical examination both respiratory and cardiac
sounds were muffled on the left side. Lateromedial and ventrodorsal radiographs demonstrated oval soft tissue opacity in the midline of the caudodorsal thorax superimposed on the diaphragm, causing border effacement with the right crus suggesting that the opacity was a partially herniated gastric fundus containing rugal folds. (Fig 1 and 2) Haematological examination revealed anaemia (Hb: 3.5%, RBC: 8000 million cells/c.mm, PCV: 24) and hypoproteinemia (Total protein value less than 5.0g/dl).

Treatment and Discussion
Due to the persistence of dyspnoea, caused by space occupying effect of the hernia, surgical intervention was recommended. Stabilization was accomplished using plication of the diaphragm to narrow the hiatus, esophagopexy and gastropexy to prevent cranial displacement of the stomach. (De Moore *et al*, 2014). The cat was preoxygenated and premedicated with Inj. Diazepam @0.25mg/kg i/v, followed by anesthetic induction with Inj. Propofol @ 4mg/kg I/v and was maintained with isoflurane in open circuit. The hernia was approached via a ventral midline celiotomy incision extending from the xiphoid process to the pubis. A type I (sliding) hiatal hernia was identified allowing the gastro-oesophageal junction and gastric cardia to lie within the thoracic cavity. The oesophageal hiatus measured approximately 0.5cm diameter but was otherwise normal in gross appearance. The liver was retracted to the right side of the abdomen while caudal traction was placed on the stomach and the hernia was reduced satisfactorily. The cat recovered uneventfully with no further episodes of dyspnoea from surgery, with postoperative analgesia provided by 1 mg/kg tramadol intravenously. Antibiotics Cephalexin 10mg/kg b.i.d. PO was prescribed for 7 days.
A number of interrelated factors, including displacement of the lower oesophageal sphincter (LOS); changes in the angle of insertion of the oesophagus into the stomach; anatomical changes to the hiatal canal and phrenico-oesophageal ligament; oesophageal mobility disorders; underlying respiratory, neurological or neuromuscular disease; and others had been indicated in the aetiopathogenesis (Sivacolundhu *et al.*, 2002) [8]. Although most cases

reported in dogs and cats were congenital, acquired hiatal hernias had occurred secondary to trauma as observed in this report or after diaphragmatic hernia repair. (Bright *et al.*, 1990) [1]. Clinical signs can be constant as observed in the present case or, more commonly, intermittent due to the herniated organs moving back and forth from the abdominal to thoracic cavities. The recommended surgical management in dogs and cats was simple reduction and stabilization (Pisoni *et al*., 2014) [5] as performed in this case. This case of a hiatal hernia in a cat was managed by simple reduction and stabilization, respectively. Since long-term medical therapy would have been impractical in a free roaming cat, it was critical that surgical intervention resulted in a successful outcome.

Fig 1: Lateral view

Fig 2: Ventro Dorsal view

Summary
A six-year-old queen cat with a history of a road traffic accident one week back with dyspnea, grunting and collapse. Stabilization was accomplished using plication of the diaphragm to narrow the hiatus, esophagopexy and gastropexy to prevent cranial displacement of the stomach.

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