Sliding hiatus hernia with reflux oesophagitis in two dogs

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ABSTRACT

Two cases of sliding hiatus hernia with gastro-oesophageal reflux and oesophagitis in the dog are described. The diagnosis was based on fluoroscopic examination and confirmed by oesophagoscopy. In both cases corrective surgery was attempted.

INTRODUCTION

Sliding hiatus hernia, where a portion of stomach is temporarily displaced through the oesophageal hiatus, is a well recognized condition in man and may be associated with gastro-oesophageal reflux and oesophagitis (Ellis, 1972). Congenital diaphragmatic defects with permanent displacement of stomach and her abdominal organs into the thorax or pericardial sac have been described in the dog (Baker & Williams, 1966; Pearson, 1970). Several cases of gastro-oesophageal intussusception are recorded in the literature (Pollock & Rhodes, 1970). A diagnosis of sliding hiatus hernia based on post-mortem findings has been reported in a Boxer by Kluth & Kennea (1964). More recently, Rogers & onovan (1973) recorded a case of peptic oesophagitis diagnosed by fluoroscopy, and associated with gastro-oesophageal reflux. The clinical signs included drooling saliva and frequent regurgitation of clear viscid fluid.

This paper summarizes the clinical and radiological findings in two cases of sliding hiatus hernia, and emphasizes the importance of fluoroscopic examination in diagnosis.

CASE HISTORIES

Case 1

An 8-week-old male Irish Setter was presented with a history of regurgitation...
of frothy fluid, sometimes blood-tinged, after feeding, and occasional vomiting. Drooling of saliva was marked and the animal was underweight. The dog appeared hungry but ate slowly and with apparent discomfort. Plain thoracic radiograph followed by a conventional barium swallow showed no abnormalities. The dog was discharged and the owners instructed to feed small amounts of food frequently. On re-examination 4 weeks later the dog had not grown well and the clinical signs persisted. Fluoroscopic examination of the upper alimentary tract was made using a horizontal X-ray beam and with the animal in a standing position. A mixture of barium sulphate (Micropaque—Damancy) and milk was taken voluntarily by the dog from floor level. Swallowing function appeared normal and regular peristalsis occurred throughout the entire oesophagus. Passive reflux of gastric contents was seen both towards an oesophageal peristaltic wave (Fig. 1).

![Fig. 1. Case 1. Selected 35 mm cineradiographic frames from a sequence of sixty-five frames taken at thirty-two frames per second. Reflux of contrast material from the stomach towards an oncoming oesophageal bolus is seen. Herniation of a portion of stomach is visible at the hiatus in frames C and D.](image-url)
FIG. 2. Case 1. Cineradiographic frames from a sequence of forty frames showing reflux of gastric contents not associated with oesophageal peristalsis. Herniation of stomach at the hiatus is seen in both frames.

Id also into a relaxed and empty oesophagus (Fig. 2). In each case refluxed aterial returned to the stomach with the subsequent oesophageal peristaltic ave. Intermittent herniation of a portion of stomach occurred at the hiatus (Fig. 3) and was frequently associated with reflux (Figs. 1 & 2). Under general anaesthesia, oesophagoscopy using a fibre-optic endoscope (Colonofiberscope—olympus) revealed a small amount of blood-stained fluid within the stomach and distal oesophagus and a number of ulcerated areas just proximal to the gastro-oesophageal junction. On the basis of these findings a diagnosis of sliding hiatus ernia with reflux oesophagitis was made. Surgery was performed in an attempt to prevent further herniation using the Nissen technique of fundoplication and
gastropexy described by Krupp & Rossetti (1966). Post-operatively there was immediate clinical improvement with cessation of the regurgitation and drool and the dog was discharged 1 week later. On re-examination after a further 4 months, the animal had grown well and remained clinically normal. Fluoroscopic examination at this time showed no evidence of herniation or reflux at the gastoesophageal junction and the oesophagus appeared normal on endoscopy.

Case 2
An 11-month-old male Irish Setter was presented with a 3-month history of vomiting clear, viscid fluid after meals and during exercise. Excessive salivation was also noted, but the dog was otherwise normal and in good condition. Plain radiographs of the thorax and abdomen and a conventional barium swallow study showed no abnormality. Fluoroscopic examination using the procedure described in Case 1 showed normal swallowing and oesophageal peristalsis but there was a marked widening at the hiatus, a so-called patulous cardia (Fig. 4)
Gastro-oesophageal reflux occurred passively both associated and unassociated with oesophageal peristalsis (Fig. 5). Fibre-optic oesophagoscopy under general anaesthesia revealed areas of inflammation within the distal oesophagus. Corrective surgery was performed as in Case 1 but the post-operative recovery was complicated by bilateral pneumothorax. Following a slight clinical improvement after surgery, vomiting and excessive salivation returned within a few days. Further radiographic studies showed evidence of gastric dilatation but no gastro-oesophageal reflux could be demonstrated. Oesophagoscopy, however, showed persistence of oesophagitis. During the following week the gastric tympany subsided and the dog was discharged. The animal was reported to be doing well at home but 3 weeks later became dyspnoeic, collapsed and died as a result of collapse of the stomach.
DISCUSSION

The diagnosis of sliding hiatus hernia with reflux oesophagitis in man is based upon the fluoroscopic demonstration of herniation of a portion of stomach through the oesophageal hiatus and passive reflux of gastric contents into the oesophagus (Brombard, 1967). Wolf (1973), discussing the sometimes confusing radiographic appearance, states that demonstration of a widening of the gastro-oesophageal junction, a patulous cardia, should also be taken as evidence of the presence of hiatus hernia. However, radiographic evidence of hiatus hernia may be seen in the absence of clinical signs and emphasis is placed on the demonstration of gastro-oesophageal reflux (Ellis, 1972). The use of various manoeuvres such as abdominal compression to induce reflux has been suggested, but may lead to spurious findings, and oesophagoscopy is essential for diagnostic confirmation of oesophagitis (Ellis, 1972).

In these dogs, extensive and frequent gastro-oesophageal reflux was fluoroscopically under normal feeding conditions and positioning. This reflux was associated in one case with an obvious herniation of stomach and in the other with a patulous gastro-oesophageal junction. The endoscopic demonstration of oesophagitis confirmed the tentative diagnosis of gastro-oesophageal reflux suggested by the clinical signs and radiological examination. Following correction of the hernia, there was a marked clinical improvement in Case 1 with no radiographical or endoscopic evidence of gastro-oesophageal reflux and oesophagitis. In Case 2, oesophagitis persisted as did the clinical signs although no further evidence of reflux was seen radiographically. It is interesting that both cases of this uncommon condition should occur in dogs of the same breed.

Fluoroscopic examination is necessary for confirmation of diagnosis in cases where the defect is essentially functional. Routine barium swallow examination may reveal no abnormality and serial radiographs will not distinguish between refluxed material and a normal oesophageal bolus. The value of fluoroscopy has been stressed in the diagnosis of hiatus hernia in man (Brombard, 1967). The use of cineradiographic recordings has the advantage over direct fluoroscopy in allowing repeated examination of a sequence of events, and may be of considerable value in making a diagnosis (Jorgens, 1969).

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REFERENCES


Résumé. On décrit deux cas d’hernie glissante de l’hiatus chez le chien, avec reflux gastroesophagien et oesophagite. On a basé le diagnostic sur un examen fluoroscopique et on en a donné confirmation par oesophagoscopie—Dans les deux cas on a tenté la chirurgie corrective.
