Oesophageal stricture in a cat due to oral administration of tetracyclines

A three-year-old, male neutered domestic shorthair cat was presented with dysphagia and regurgitation following treatment with oral doxycycline and oxytetracycline for Haemobartonella felis infection. Fluoroscopy confirmed the presence of multiple strictures along the entire length of the oesophagus. Balloon dilatation was performed successfully on two occasions and the symptoms resolved. To the authors' knowledge, this is the first report of oesophageal strictures associated with oral administration of tetracyclines in a cat in the UK.

INTRODUCTION

Oesophageal strictures are an uncommon finding in cats (Burk and others 1987). Strictures are usually caused by severe oesophagitis and result in regurgitation, dysphagia and weight loss. The most common causes of oesophagitis include gastric reflux under general anaesthesia, vomiting, foreign bodies and ingestion of caustic agents. However, up to 15 per cent of strictures in humans lack an apparent aetiology (Cronstedt and others 1978). Oral medications have been proven to cause oesophagitis with stricture formation in humans (Carlborg and others 1983) and cats (Carlborg and Densert 1980). Oral tetracyclines, especially doxycycline, appear to increase the risk of oesophagitis, and thus stricture formation, in both man and animals (Carlborg and others 1983).

To the authors' knowledge, this is the first report of oesophageal stricture occurring secondarily to oral administration of tetracyclines in a cat in the UK.

CASE HISTORY

A three-year-old, male neutered domestic shorthair cat was presented with a two-month history of lethargy and weight loss. Biochemistry demonstrated increased alkaline phosphatase, alanine transferase (222 U/litre, reference range 30 to 60 U/litre) and hyperglobulinaemia (56 g/litre, reference range 19 to 48 g/litre). Hae matology revealed severe regenerative anaemia (haematocrit 8 per cent, reference range 30 to 45 per cent) and the presence of Haemobartonella felis. Therapy for H felis was initiated with oral prednisolone (Prednidale 5; Arnolds), at 2 mg/kg twice daily, and doxycycline (Ronaxan 20; Merial), at 10 mg/kg orally twice daily. Seven days later, doxycycline therapy was substituted with oxytetracycline (Oxycare 50; Animalcare) at 10 mg/kg orally three times daily. After a further 10 days, the cat developed dysphagia, regurgitation of all solids and some liquids. The oropharynx was examined under sedation, but no abnormalities were detected. A barium swallow study demonstrated retention of a small amount of barium in the oesophagus at the level of the thoracic inlet.

On presentation at the University of Glasgow Veterinary School, the cat was in poor bodily condition, mouth breathing and tachypnoeic with marked respiratory effort. Harsh lung sounds were audible on auscultation, referred from the upper respiratory tract. There were frequent gagging noises and copious amounts of saliva produced. The cat's mucous membranes were pale, but the capillary refill time was normal. The cat initially appeared interested in food and ate willingly, but within one or two minutes regurgitated forcibly.

The haematological changes observed earlier were confirmed; that is, regenerative anaemia (haematocrit 23 per cent) with a leucocytosis (20·4 × 10⁹/litre, reference range 5·5 to 15·5 × 10⁹/litre) due to a mature neutrophilia (18·15 × 10⁹/litre, reference range 2·5 to 12·5 × 10⁹/litre). No red blood cell parasites were seen on the blood smear and platelet numbers were normal. Serum biochemistry revealed a mild increase in alanine transferase (52 U/litre, reference range <35 U/litre), but was otherwise normal.
unremarkable. The cat tested negative for feline leukaemia virus and feline immunodeficiency virus.

General anaesthesia was induced with intravenous propofol (Rapinovet; Schering Plough), at 4 mg/kg, and maintained with isoflurane (Isoflivet; Schering Plough Animal Health) and 100 per cent oxygen. Thoracic and lateral cervical radiographs were normal. Abdominal radiographs revealed gas-distended intestines and stomach. Upper gastrointestinal endoscopy (Olympus WM 30) was performed following radiography. The 5 mm diameter endoscope could not be passed more than 5 cm into the oesophagus, but eventually a 3 mm diameter urinary catheter was passed with difficulty. A barium oesopgram performed under fluoroscopy confirmed the presence of multiple oesophageal strictures. The longest stricture extended over a distance of 2 to 3 cm from just cranial to the thoracic inlet. Two shorter strictures were present in the caudal oesophagus. There was no evidence of distension of the oesophageal cranial to the strictures.

The next day, the cat was anaesthetised (as before) and an oesophageal dilator (8·5 F, 4 cm Balloon Dilatation Catheter, Cooks, inflated balloon diameter 23 mm) was passed into the oesophagus alongside the endoscope. The catheter was positioned centrally in the most cranial stricture and the balloon was slowly inflated with ioversol (Optiray 300; Mallinckrodt UK) under fluoroscopic guidance to a diameter of 20 mm. Inflation was maintained for one minute. This process was repeated in the caudal portion of the oesophagus. Post-dilatation, a small amount of haemorrhage was visualised endoscopically at the dilatation sites.

Postoperatively, the cat’s recovery was very slow and, at one hour, a blood sample indicated a haematocrit of 7 per cent. The cat was slowly transfused following blood typing with 30 ml of blood. Within 24 hours, the cat was eating well, regurgi-
The oesophagus. Surgical treatment of strictures and the poor healing capacity of this case due to the extensive nature of the surgical treatment was inappropriate in techniques in both man and animals. Enrofloxacin has been reported to be effective against H felis (Winter 1993) and might have been used in this patient, although at present it remains unlicensed for this purpose. The H felis infection was initially managed with oxytetracycline administered by subcutaneous injection and subsequently with oral doxycycline tablets crushed to a powder and mixed with food. The use of powdered medications given in food should reduce the risk of prolonged contact with the oesophageal mucosa (Westfall and others 2001).

Conclusions
Veterinary surgeons should be aware of the potential for oesophageal damage associated with oral treatment with tetracyclines. Tablets should be administered with food or followed by a water bolus to reduce the risk of oesophageal retention and subsequent oesophagitis.

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References

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