The importance of patient positioning for bronchial foreign body extraction: a case report

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ABSTRACT: A bronchial foreign body was found in a dog. A circular foreign body was found radiographically in the left bronchus right after the bifurcation. A lateral thoracotomy was performed at the fifth intercostal space, guided by fluoroscopy. The positioning of the patient on the operating table can dislocate a movable foreign body, making the surgical extraction more challenging.

Keywords: bronchus; foreign body; patient position; fluoroscopy

Tracheal and bronchial foreign bodies have been reported in dogs and cats (Eyster et al., 1976; Richards and Kallenback, 1979; Harris, 1982; Davies, 1989; Gibson and Hedlund, 1992). Small, light objects may be inhaled deep within the bronchial tree, or coughed up and removed. Those remaining may lead to chronic pneumonia, abscesses, pyothorax, and fistulous tracts (Eyster et al., 1976; Caywood et al., 1985). Histories usually include the acute onset of coughing or dyspnoea.

MATERIAL AND METHODS

A five-year old male rottweiler, weighing 47 kg, was presented to a local veterinarian with a history of coughing which had started suddenly three days previously. Since the coughing was intermittent, and present only when the dog was running or jumping, the veterinarian proposed treatment with antibiotics and bronchodilatating agents. However, after seven days of therapy there was no sign of symptom remission.

When the dog was referred to our clinic, he was dyspnoeic, tachypnoeic, shallow-breathing and tachycardic. Routine blood tests were done and values were within normal limits. Radiographically we found a circular foreign body in the left bronchus right after the bifurcation (Figure 1).

Based on these findings, the dog was prepared for removal of the foreign body immediately. Since the foreign body had a smooth circular shape according to X-ray, it was assumed that it could be retrieved from the bronchus. The dog was put under general anaesthesia, and, first, an attempt was made to reach in and retrieve the body with a Fogarty catheter (Kosloske, 1982; Pratschke et al., 1999), but the object was so movable that the catheter was pushing it instead of coming behind it. We decided therefore that a surgical approach was required.

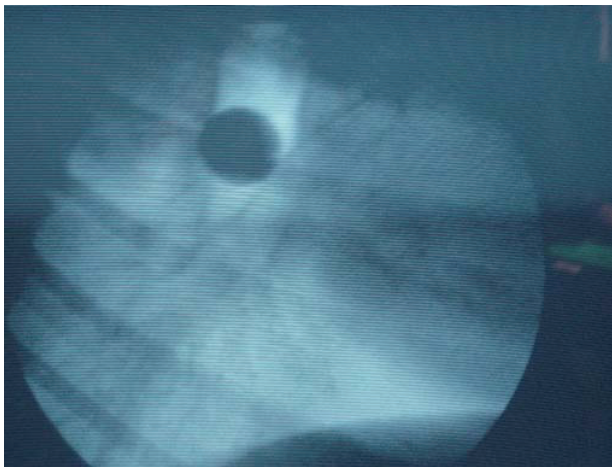

Figure 1. X-ray of a circular foreign body in the left bronchus

Broad spectrum antibiotics, cefuroximum (Ketocef®, Pliva, Zagreb, Croatia) 20 mg/kg *i.v.* and metronidazole (Medazol®, Belupo, Koprivnica, Croatia) 10 mg/kg *i.v.*, were administered.

The patient was premedicated with acetylpromazine (Acepromazine®, PromAce®, Fort Dodge, Iowa, USA) 0.05 mg/kg *i.m.* Surgery was performed under general inhalation anaesthesia induced with ketamine hydrochloride (Narketan 10®, Vetoquinol, Bern, Switzerland) 10 mg/kg *i.v.* and diazepam (Apaurin®, Krka, Novo Mesto, Slovenia) 0.5 mg/kg *i.v.* Prior to intubation, atropine (Atropini sulfas, Belupo, Koprivnica, Croatia) and fentnyl citrate (Fentanyl®, Janssen Pharmaceutica, Beerse, Belgium) 10 µg/kg *i.v.* were administered. Anesthesia was maintained with isoflurane (Forane®, Abbott Laboratories Ltd., Queenborough, UK) 1.5% in an O_2 flow rate of 1 l/min with an average respiratory rate of 12 breaths per minute (IPPV). Additional analgesia was provided with fentanyl 0.3 µg/min CRI.

A lateral thoracotomy at the fifth intercostal space was performed and, guided by the X-ray fluoroscopy an incision at about the midsection of the bronchus was done, where the foreign body was thought to be. In fact, when the bronchus was transsected, nothing was found, but fluoroscopically, a foreign body was still indicated. Switching of the sides by mistake was hardly possible, because the position was double-checked prior to the surgery. The search was continued, since the foreign body was fluoroscopically visible at the exact place of the incision (but not evident by sight), and the other bronchus was also explored, since the bifurcation was near. A children's toy – a marble was found there (Figure 2), and was so movable that it slipped into the other bronchus (the lower one) when the dog was placed in the lateral position.

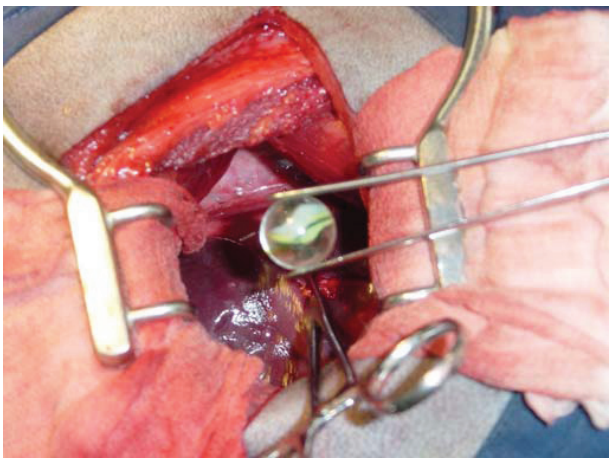

Figure 2. A marble extracted from the bronchus

The mucosa was checked for inflammation and injuries, and, since there was none, the incision was closed in a routine fashion, using simple interrupted polydioxanone (PDS; Ethicon) absorbable sutures in the primary suture line and additional nonabsorbable monofilament sutures, polypropylene 5-0 (Prolene; Ethicon) in the second line to obtain better wall stability (Eyster et al., 1976; Richards and Kallenback, 1979; Wang, 1991), and the antibiotics were administered for another seven days. The dog recovered to a greater extent than what was anticipated and regained the strength and vigour expected of an adult Rottweiler.

DISCUSSION

The important issue that a surgeon in such a case should bear in mind, and which follows from this report, is that when a very easily movable foreign body is found in the bronchi, further dislocations caused by the positioning of the patient on the operating table should be avoided. The repositioning of a patient with an open thoracic cavity is both tricky to perform and is also dangerous for the patient. The recommendation in such a case would be the sternal position, since it keeps the patient in its natural position.

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