

Successful Endoscopic Diagnosis and Treatment of Spirocercosis: A Case Study

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Received: December 29, 2020; **Published:** February 27, 2021

Abstract

A 1.5 year old female bull terrier presented with persistent vomiting of frothy bilious contents and regurgitating for over a month. The case diagnosis was done on the basis of history, clinical signs and diagnostic imaging. The objective is to note that absence of parasite ova in the stool or vomitus does not indicate absence of *Spirocerca lupi*. Visualising pathognomonic oesophageal nodule endoscopically aided in successful diagnosis, treatment and resolution of all signs and symptoms.

Keywords: *Spirocerca lupi*; Oesophageal Nodule; Spirocercosis

Introduction

Spirocerca lupi is an oesophageal parasite of the canid family, especially domestic dog, mostly prevalent in warmer climatic conditions in the tropical and sub-tropical countries [11]. Fecal tests show a 23% prevalence while necropsy shows 23.5% prevalence in India [3,10]. Primarily the lesions observed are oesophageal mass at the terminal end of the oesophagus, spondylitis of the thoracic vertebrae and undulation of the aortic borders. The mature oesophageal mass is seen to be actively dividing fibroblasts [6]. Study shows the oesophageal wall to sometimes be transitional between granuloma and sarcoma [2]. The granulomata containing fibroblasts have the possibility of being metastatic and hence shows a direct or strong indirect relationship between sarcomas and *Spirocerca lupi* [1]. Clinically, vomiting, regurgitation and hypersalivation are considered hallmark for *Spirocerca lupi* infection [7]. Diagnostics like fecal analysis for the ova, thoracic radiographs for posterior mediastinal masses and spondylitis and endoscopy for parasitic tumours or nodules are indicated.

Case Presentation

A 1.5 year old spayed female bull terrier was brought to Happy Tails Veterinary Speciality and Critical Care Centre, Mumbai, with the complaint of vomiting bile and undigested food post meals, excessive coughing and regurgitation. Diagnostic radiographs of the abdomen and thorax were taken. Thoracic X-Ray had no abnormalities (Figure 1a). Abdominal X-Ray showed dilated colonic loop and possible bowel plications (Figure 1b). A partial obstruction was suspected and oral Psyllium husk and ondansetron was prescribed.



Figure 1a: Thoracic radiograph.



Figure 1b: Abdominal radiograph.

Vomiting persisted with frothy contents and blood. A series of barium meal radiographs were taken which showed no gastric masses or evidence of obstruction. The stomach should be free of barium within 1 - 4 hours [4]. The patient showed an empty stomach at the 3 hour mark indicating normal motility. There was no evidence of megaesophagus or oesophageal masses on the barium study (Figure 2a and 2b).

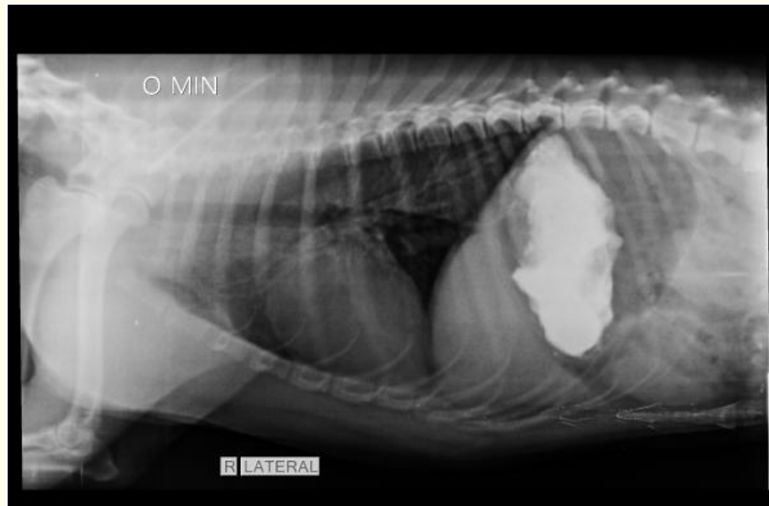


Figure 2a: Barium study right after ingestion.

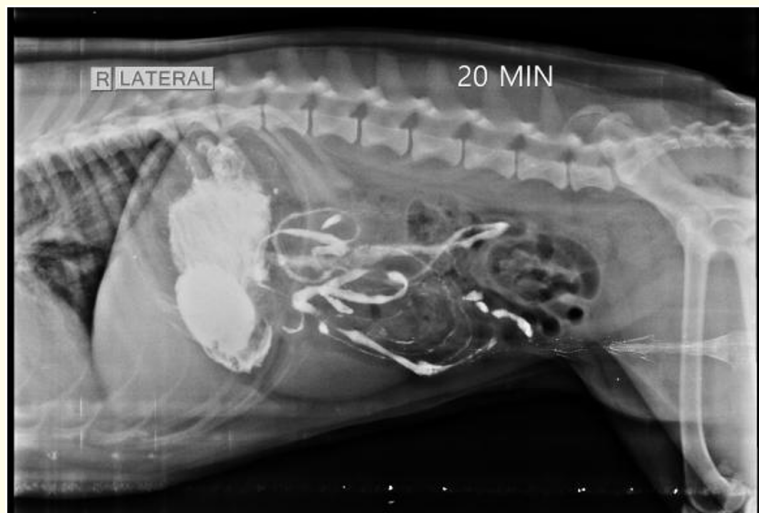


Figure 2b: Barium study 20 mins after ingestion.

A SNAP cPL test was done which was non-reactive, ruling out pancreatitis. The patient was given DNS intravenously with injectable ondansetron @ 0.3 mg/kg, pantoprazole @ 1 mg/kg, maropitant @ 1 mg/kg, ranitidine @1 mg/kg and buprenorphine @ 0.02 mg/kg. Endoscopy was suggested if the vomiting persisted.

Since vomiting was persistent despite medical therapy, upper GI endoscopy was performed under general anaesthesia.

A tough fibrous growth occupying approximately 70% of lumen was seen in thoracic esophagus at 40cms from mouth, close to the lower oesophageal sphincter on endoscopy (Figure 3). Esophageal dilatation was seen proximal to the growth. No gastric abnormalities were observed. Non ulcerated, fibrous, thoracic growth in the esophagus was noted to be suggestive of *Spirocerca Lupi*. No worms were

seen. A fecal test for *Spirocerca* oocytes was performed with this suspicion but was negative. Histopathology of the mass also showed only fibrous tissue. Patient was prescribed a course of injectable ivermectin given subcutaneously thrice at intervals of two weeks @600 mcg/kg [6,9] along with supportive symptomatic treatment because of the pathognomonic lesion and its location.

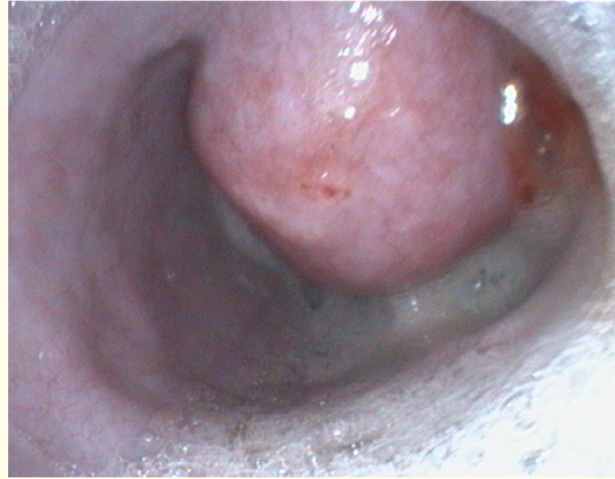


Figure 3: Growth observed at 40cms in thoracic oesophagus.

Regurgitation in small quantities was seen a few times during treatment but food was retained with vertical feeding. A repeat oesophagoscopy was scheduled 53 days after the first endoscopy procedure.

A significant nodular regression was observed occupying only 20% of the lumen space. Successful resolution of vomiting and regurgitation was also observed (Figure 4).



Figure 4: Nodular regression at 53 days post treatment.

Discussion and Conclusion

Dogs most commonly acquire *Spirocerca lupi* after consumption of the paratenic host (poultry, lizards, rodents etc.) in which the parasite has re-encysted from the intermediate host, a variety of coprophagous beetles [6]. Before the parasite matures and forms oesophageal granulomas, the larvae (L3 stage) penetrate the gastric mucosa, migrate within the gastro-epiploic arteries and reach the thoracic aorta three weeks after ingestion of the paratenic host [5]. Mature worms are found in the oesophageal nodules 3 - 9 months after ingestion and *S. lupi* eggs are passed from the oesophagus and seen in the faeces and vomitus [6]. It is not necessary for the parasite to be visualised always for a confirmatory result. Endoscopy is more sensitive than radiography in diagnosing a *S. lupi* infection, which has only progressed to small nodule formation within the oesophagus [6]. Mazaki-Tovi, *et al.* (2002) showed a 100% sensitivity of endoscopy compared to an 80% sensitivity of faecal flotation and 53% sensitivity of radiographs in diagnosing an oesophageal mass [6,8].

Conclusion

The authors conclude that a negative fecal test with absence of the parasitic ova does not necessarily indicate absence of the parasite itself from the body. In this case, Barium meal study and histopathology also did not aid in diagnosis. Diagnostic imaging such as endoscopy helps to visualise certain pathognomonic lesions and subsequently treat it.

Conflict of Interest

The authors declare no conflict of interest.

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Volume 6 Issue 3 March 2021

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