

## SHORT COMMUNICATION

### RUPTURE OF THORACIC AORTA IN A DOG ASSOCIATED WITH *SPIROCERCA LUPI* INFECTION

**SUMMARY:** A case of sudden death in a two-year-old Dachshund dog with haemorrhage in the thoracic cavity due to a rupture of the thoracic aorta is described.

**Key words:** spirocercosis, aortic rupture

#### INTRODUCTION

*Spirocerca lupi* is common in most warm countries. It occurs in the wall of the oesophagus, stomach and aorta and more rarely, free in the stomach and other organs of the dog, fox, wolf and jackal (Soulsby, 1968). A coprophagus beetle acts as the intermediate host while various other animals, such as frogs, reptiles and chickens, may act as transport hosts with the mammal being the final host. The oesophagus is the normal final site of the parasite.

Spirocercosis has been previously recorded in Malaysia. Necropsy examination of stray dogs revealed prevalence rates of 43.5 per cent in Alor Star (Fadzil, 1967), 43 per cent in Ipoh (Shanta *et al.*, 1977) and 26 per cent in Kuala Lumpur (Sheikh Omar *et al.*, 1985). In these surveys, the nematode was detected in oesophageal nodules.

This paper describes a case of sudden death in a two-year-old dachshund with fatal haemorrhage in the thoracic cavity due to rupture of an aortic spirocerca nodule.

#### MATERIALS AND METHODS

A dead two-year-old Dachshund bitch was presented for necropsy at the Veterinary Research Institute, Ipoh, Malaysia. She had died suddenly during the night without showing previous signs of disease. A complete post-mortem examination was carried out and the thoracic aorta and some visceral organs were collected in 10 per cent buffered neutral formalin. The tissues were embedded in paraffin wax, sectioned at 5 µm and stained with haematoxylin and eosin (H & E), Van Gieson, Von Kossa and Verhoeff's stains.

#### RESULTS

The carcass was in good physical condition with no signs of bruises or wounds on any part of the body. The thoracic cavity was filled with large amounts of blood clots of varying sizes. About one litre of blood-stained fluid was present in the thoracic cavity. The visceral organs were generally pale.

The thoracic portion of the aorta contained multiple nodular growths, 0.5 to 1 cm in diameter, with many haemorrhagic foci in the walls of the aorta. In some parts, the intimal surface of the aorta was roughened, irregularly thickened and hardened while in some areas, a few aneurysmal dilatations were observed. Numerous worms, which were later identified as *Spirocerca lupi*, were found within the wall of the aorta and were seen protruding from the affected nodules.



Histopathological examination of the aorta revealed destruction of normal tissue and large worm-filled tunnels, especially in the tunica media and adventitia (Fig. 1). Zones of necrosis, neutrophils, macrophages, eosinophils and lymphocytes surrounded the enclosed worms (Fig. 2). Extensive fibrosis had replaced the normal structure of the wall of the aorta. There was no evidence of aortic calcification. No significant findings were observed in other organs.



FIG. 1: Section of aorta with a large worm-filled cavity. The intima is indicated by an arrow. (HE x 100)



FIG. 2: Section of a worm in aorta surrounded by necrosis, fibrosis and inflammatory cells. (HE x 100)



## DISCUSSION

Spirocercosis has been reported throughout the world. Rupture of the aorta due to *Spirocerca lupi* occurs occasionally in dogs (Robinson and Maxie, 1985) and consequent mortalities have been recorded (Rao and Choudary, 1982; Hamir, 1984).

In Malaysia, although oesophageal spirocercosis has been reported frequently, fatality due to rupture of the aorta does not appear to have been recorded. This is the first reported case of fatal aortic aneurysm and rupture. This may not be the first case to occur in this country as many pet owners do not submit their dead pets for necropsy examination.

In this case, the sudden death was obviously due to hypovolemic shock from acute haemorrhage from the ruptured aorta. However, it could not be determined whether the aortic rupture was due to pressure atrophy or from digestion of the aortic wall by the juveniles of *Spirocerca lupi*. The migrating juveniles possess glands that secrete proteolytic enzymes to break down host tissue (Chhabra and Singh, 1972).

It is surprising that despite weakening of the thoracic aorta, the dog did not exhibit any clinical signs. Spirocercosis should, therefore, be considered a differential diagnosis in cases of sudden death of adult dogs in this country.

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## REFERENCES

- CHHABRA, R.C. and SINGH, K. S. (1972). Study on the life-history of *Spirocerca lupi*: histotropic juveniles in dogs *Ind. J. Anim. Sci.* **42**: 628-636.
- FADZIL, M. Y. (1967). A note on the prevalence of *Spirocerca lupi* in dogs in and around Alor Star. *Kaj. Vet., Malaysia -Singapore.* **1**: 63-65.
- HAMIR, A. N. (1986). Oesophageal perforation and pyothorax associated with *Spirocerca lupi* infestation in a dog. *Vet. Rec.* **119**: 276.
- RAO, M.R.K.M. and CHOUDARY, C. (1982). A case of sudden death associated with *S. lupi* infestation in an alsatian dog. *Ind. Vet. J.* **59**: 658.
- ROBINSON, W. F. and MAXIE, M. G (1985). The cardiovascular system. In: Pathology of Domestic Animals, ed. K.V.F. Jubb, P.C. Kennedy, and N. Palmer, 3rd edn., Vol. 3. p 41-42. Academic Press.
- SHANTA, C. S., WAN, S. P., SONG, C. Y and KWONG, K. H. (1977). A survey of the endo and ectoparasites of dogs in and around Ipoh, West Malaysia. *Mal. Vet. J.* **6**: 95-110.
- SHEIKH - OMAR, A. R., LEE, C. C. and WHITTEN, L. K. (1985). A survey of helminths and arthropods in stray dogs in Kuala Lumpur. *Kajian Vet.* **17**: 19-23.
- SOULSBY, E.J.L. (1986). Helminths, Arthropods and Protozoa of Domesticated Animals. 6th edn., p 277-279. The English language Book Society and Bailliere, Tindall Cassell, Ltd. London.

## RINGKASAN

*RUPTUR DI AORTA TORASIK PADA SEEKOR ANJING YANG DIJANGKITI DENGAN SPIROCERCA LUPI.*

*Satu kes kematian terkejut pada seekor anjing dachshund yang berumur 2 tahun dilaporkan di mana terdapat perdarahan pada kaviti torasik akibat ruptur pada aorta torasik.*