International Journal of Infectious Diseases (2008) **12**, e147—e148

ELSEVIER

INTERNATIONAL SOCIETY FOR INFECTIOUS DISEASES

http://intl.elsevierhealth.com/journals/ijid

CORRESPONDENCE

A case of human pulmonary dirofilariasis

An 81-year-old man, heavy smoker, with no significant past medical history, underwent a chest X-ray for a screening program. It revealed a solitary, non-calcified nodule in the right middle lobe of the lung. The patient was asymptomatic. Physical examination, routine hematology, and blood biochemistry were normal. Computed tomography (CT) defined the pulmonary lesion as a nodule of 1.5 cm maximum diameter with sharp outlines and a rounded small protuberance, peripherally positioned in the parenchyma of the middle lobe (Figure 1). The nodule was successfully removed by videothoracoscopic wedge resection. Histopathological examination of the specimen showed a necrotic and ischemic granuloma including fragments of the parasite *Dirofilaria immitis* (Figure 2).

Dirofilaria immitis (canine heartworm) is a filarial nematode naturally hosted by dogs, cats, foxes, muskrats, and wolves. Humans are a dead-end host, but they may acquire an infection with the bite of mosquitoes of the genera *Aedes*, *Culex*, and *Anopheles*, which are the main vectors of the disease.[1]

In humans, *Dirofilaria immitis* is injected by the intermediate hosts. It seldom resides and matures in the subcutaneous tissues and reaches the right ventricle where it dies; fragments may reach the pulmonary artery where small branches can develop embolism events. These pathophysiological events are represented histopathologically by a self-limiting granulomatous reaction with a peripheral fibrous tissue.[2]

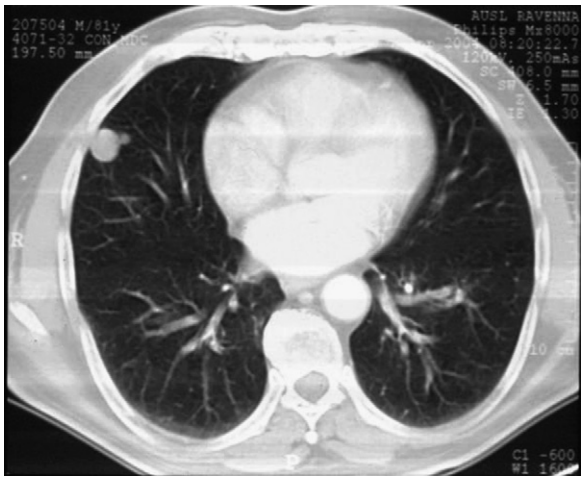

Figure 1 CT showing a pulmonary nodule of 1.5 cm in the subpleural parenchyma of the right middle lobe, with sharp outlines and a rounded small protuberance.

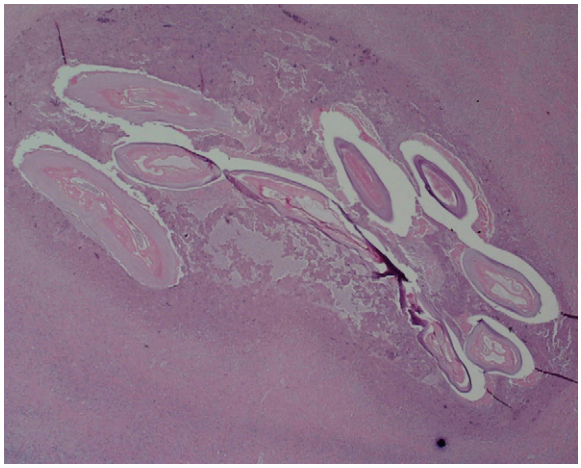

Figure 2 Cross-section of the pulmonary nodule revealing a necrotic and ischemic granuloma including fragments of the parasite *Dirofilaria immitis*.

Patients are usually asymptomatic, as in this case, but also symptoms like cough, chest pain, hemoptysis, and wheezing have been described.[3] Eosinophilia, commonly relevant in parasite infections, has been detected in only 15% of patients with pulmonary dirofilaria.[2]

At chest X-ray and CT, the granulomatous reaction is induced by the fragments of the worm and appears as an unspecified coin lesion. In our report, CT detected a very rare case of a round homogeneous nodule with a well-defined small protuberance. Differential diagnosis could include carcinoma, tuberculosis, fungal infections, and hamartomas. In the majority of patients, pulmonary dirofilariasis is diagnosed by surgical excision,[4] which is nowadays mainly performed by videothoracoscopy. Poor results have been reported for serological tests of human antibodies to dirofilariasis.[5] Since pulmonary dirofilariasis is a self-limiting benign condition and the only way to diagnose is the ablation of the nodule, additional treatment is not required.[5]

1201-9712/$32.00
doi:10.1016/j.ijid.2008.03.017

Conflict of interest: No conflict of interest to declare.

References

1. Milanez de Campos JR, Barbas CS, Filomeno LT, Fernandez A, Minamoto H, Filho JV, et al. Human pulmonary dirofilariasis: analysis of 24 cases from Sao Paulo, Brazil. *Chest* 1997;**112**: 729—33.
2. Asimacopoulos PJ, Katras A, Christie B. Pulmonary dirofilariasis. The largest single-hospital experience. *Chest* 1992;**102**: 851—5.
3. Flieder DB, Moran CA. Pulmonary dirofilariasis: a clinic-pathologic study of 41 lesions in 39 patients. *Hum Pathol* 1999;**30**: 251—6.
4. Rena O, Leutner M, Casadio C. Human pulmonary dirofilariasis: uncommon cause of pulmonary coin-lesion. *Eur J Cardiothorac Surg* 2002;**22**:157—9.
5. Bielawski BC, Harrington D, Joseph E. A solitary pulmonary nodule with zoonotic implications. *Chest* 2001;**119**:1250—2.

Leonardo Solaini
Luciano Solaini
Thoracic Surgery Unit, Department of Surgery, S. Maria delle Croci Hospital, Ravenna, Italy

Stavros Gourgiotis*
Nikolaos S. Salemis
Second Surgical Department, 401 General Army Hospital of Athens, Greece

*Corresponding author. Tel.: +30 2106525802; fax: +30 2106525802
E-mail address: drsgourgiotis@tiscali.co.uk (S. Gourgiotis)

Corresponding Editor: William Cameron, Ottawa, Canada

3 January 2008