

## Visceral larva migrans caused by *Trichuris vulpis* presenting as a pulmonary mass

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While the incidence of many parasitic diseases has decreased because of the development of anthelmintics and environmental hygiene, infection by *Trichuris* still occurs. This parasite exhibits some special parasitological and clinical features. Beaver *et al* introduced the term visceral larva migrans in the case of toxocariasis.<sup>1</sup> While the visceral larva migrans syndrome has been reported to be caused by many parasites,<sup>2-4</sup> no report of this syndrome occurring as a result of *Trichuris vulpis* has appeared. We report a case of visceral larva migrans caused by *Trichuris vulpis* that was confirmed by parasite morphology and immunoelectrophoretic study.

### Case report

A 66 year old woman was seen at the Kure Mutual Aid Hospital because of an abnormal shadow on the chest radiograph. She had no pulmonary symptoms and had never kept a dog in her house. The chest radiograph showed an abnormal round shadow in the right lower zone (fig 1). Tomography showed a 2 cm coin lesion containing a partially radiolucent area. The tumour mass itself remained stable but the radiolucent area enlarged in her clinical course. Examination of sputum and bronchial washing fluids for fungi, *Mycobacterium tuberculosis*, and malignant cells was negative. The erythrocyte sedimentation rate was slightly raised. No eosinophilia or hyper-IgE was detected. Stool examination was not carried out. She underwent exploratory thoracotomy. The resected mass was 2 × 1.8 cm in size, firm, and light grey in colour. There was necrotic tissue inside the mass. Histological sections stained with haematoxylin-eosin and periodic acid-Schiff indicated that the mass consisted of clot necrotic tissue associated with many epithelioid cells and lymphocytes and a few foreign body giant cells in the peripheral area. No eosinophils were found in this lesion but we detected fragments of parasite (fig 2a). This parasite was 400 µm in diameter. Cuticle, muscle layer, and genital organs could be seen. In some parts a 50 µm sized oesophagus formed by gobang like cytoplasm (that is, stichosome) and a bacillary band were seen (fig 2b). Because of this typical structure the parasite was identified as *Trichuris*. The patient's serum gave negative results with *Ascaris lumbricoides*,

*Dirofilaria immitis*, *Anisakis* larvae, *Schistosoma japonicum*, *Fasciola hepatica*, *Clonorchis sinensis*, *Paragonimus westermanii*, *Paragonimus miyazaki*, and *Taenia saginata*, but positive results with *Trichuris vulpis* by the Ouchterlony method. According to the immunoelectrophoresis, the patient's serum had a strong precipitate reaction to *Trichuris vulpis* antigen. Five months after her operation the precipitate reaction to *Trichuris vulpis* antigen could no longer be detected. We compared the section of this parasite with *Trichuris vulpis* taken from the experimental dog and confirmed the identity of these two samples. Thus this lung tumour was caused by the ectopic parasitism of *Trichuris vulpis* (that is, visceral larva migrans).

### Discussion

*Trichuris trichiura* is a linear parasite distributed throughout the world and is a typical gastrointestinal parasite. While recently the incidence of disease caused by *Ascaris* and hookworm has fallen in Japan because of developments in drug treatment and hygiene, the incidence of *Trichuris trichiura* infection is still high because this parasite itself is comparatively resistant and the effective drug, thiabendazole, is not available in Japan.

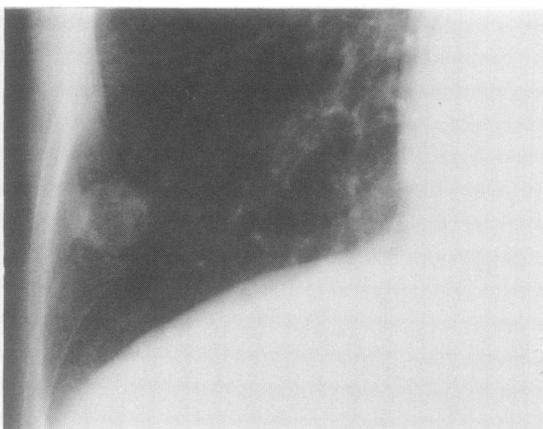


Fig 1 Chest radiograph showing a round mass in the right lower zone with a sharp margin and a radiolucent area.

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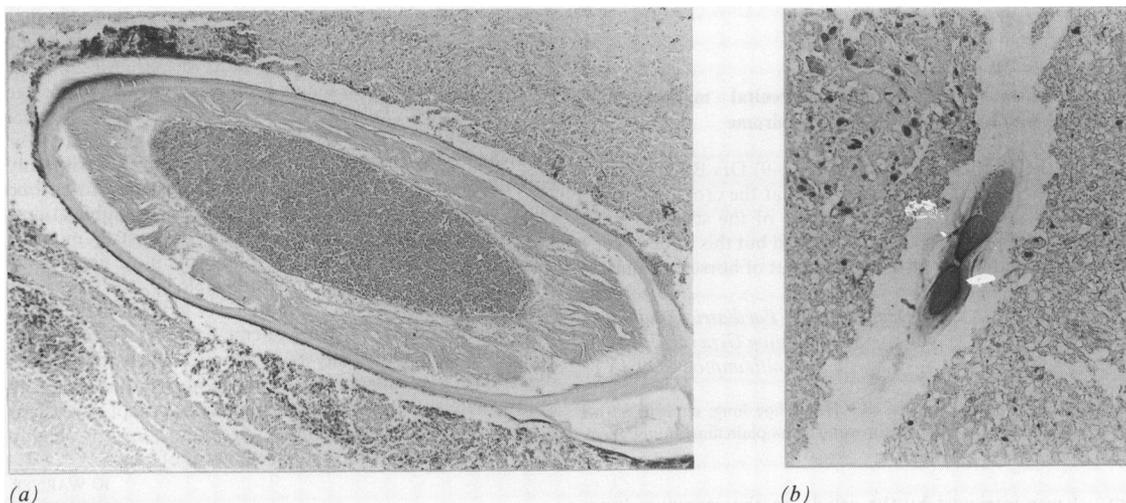


Fig 2 (a) Transverse section of the body of a parasite in necrotic tissue. (b) Section of parasite: the structure observed at the centre seems to be stichosome. (Haematoxylin and eosin.)

*Trichuris vulpis* is a universal parasite in dogs but infection is uncommon in man. To our knowledge there are only two reports. Sakano reported two cases diagnosed immunologically.<sup>5</sup> His cases showed eosinophilia and an increase in serum IgE concentration. Hall and Sonnenberg detected eggs and bodies in the patient's stool.<sup>6</sup> Eosinophilia and increase in IgE were absent in our patient and no eosinophils were found in the region of the mass. Histological examination, however, showed the non-specific granuloma with foreign body giant cells. The typical oesophageal structures of *Trichuris* were found. These histological appearances and those of the body of this parasite were similar to those seen in the dog's gastrointestinal tract. Moreover, we detected a strong precipitate reaction between the patient's serum and *Trichuris vulpis* by immunoelectrophoresis.<sup>7</sup> Thus we conclude that this lung mass represented visceral larva migrans caused by *Trichuris vulpis*. We believe that this is the first time these phenomena have been reported.

#### References

- 1 Beaver PC, Snyder CH, Carrera GM, Dent JH, Lafferty JW. Chronic eosinophilia due to visceral larva migrans. Report of three cases. *Pediatrics* 1952;9:7–19.
- 2 Mok CH. Visceral larva migrans: a discussion based on review of the literature. *Clin Pediatr (Phil)* 1968;7:565–73.
- 3 Snyder CH. Visceral larva migrans. Ten years' experience. *Pediatrics* 1961;28:85–91.
- 4 Huntley CC, Costas MC, Lyerly A. Visceral larva migrans syndrome: clinical characteristics and immunologic studies in 51 patients. *Pediatrics* 1965;36:523–6.
- 5 Sakano T, Hamamoto K, Kobayashi Y, Sakata Y, Tsuji M, Usui T. Visceral larva migrans caused by *Trichuris vulpis*. *Arch Dis Child* 1980;55:631–3.
- 6 Hall JW, Sonnenberg B. An apparent case of human infection with the whipworm of dogs, *Trichuris vulpis*. *J Parasitol* 1956; 42:197–9.
- 7 Tsuji M. The new biochemical methods of parasite infections. *Medical Technology* 1977;23:335.