

## Short reports

### *Giardia lamblia* in bronchoalveolar lavage fluid

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Bronchoalveolar lavage (BAL) has gained widespread acceptance as a useful diagnostic technique in interstitial lung disease. We report here the identification of *Giardia lamblia* as a rare contaminant in BAL fluid.

#### Case report

A 63-year-old man presented with recurrent episodes of acute wheezy bronchitis accompanied by fever (39.5°C). His illness had started three months before admission. After treatment with intramuscular ampicillin (1 g three times daily) fever subsided but he continued to cough and wheeze. Because of these symptoms the patient was sent for further examination. History revealed a subtotal gastrectomy at the age of 45 years for a stomach ulcer. He was a heavy smoker. Clinical examination revealed only crepitations over the right upper part of the lung. Electrocardiographic tracings showed no abnormalities. Chest radiographs and tomograms revealed a massive non-excavated infiltration of the posterior segment of the right upper lobe; an air-bronchogram was present. Laboratory tests showed a marked elevation of the erythrocyte sedimentation rate and raised serum uric acid. On fiberoptic bronchoscopy there were no signs of intraluminal tumour or foreign body. Large amounts of clear liquid were aspirated. Cytological examination of the aspirate and a brush preparation from the posterior part of the upper lobe were negative for malignant cells. Transthoracic needle puncture showed atypical cells, Papanicolaou class III. Cultures of the bronchial and lung aspirates were negative for *M. tuberculosis*. After these inconclusive examinations the patient left hospital on his own responsibility.

He was admitted again four months later because of recurrent febrile episodes. The chest radiograph showed an additional infiltrate in the lingula. Bronchoalveolar lavage was performed of the posterior segment of the right upper lobe. During an episode of cough, yellow fluid appeared from the apex of the lower lobe and was aspirated. The aspirate was negative for tumour cells. Cultures were positive for *E. coli*. Examination of a coloured preparation of the lavage fluid revealed 6% lymphocytes and numerous parasites, which could be identified as *Giardia lamblia* (figure). Subsequently the same parasite was found in massive amounts in the patient's stools and in the gastric aspirate. After the bronchoalveolar lavage the patient's temperature rose to

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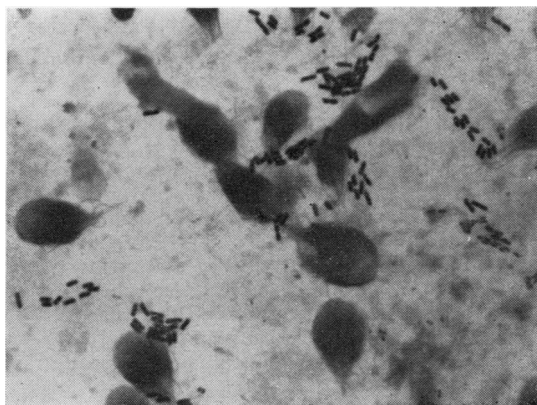


Figure *Giardia lamblia* in bronchoalveolar lavage.

38°C. A barium meal showed massive reflux from the duodenum. No fistula was seen. Oesophagoscopy revealed moderate oesophagitis. Treatment was started with tinidazole which had to be discontinued 10 days later because of a rash. At that time *Giardia lamblia* had disappeared from the stools and the fever had disappeared. The pulmonary infiltrate on the right side persisted but the small infiltrate in the lingula had disappeared. A right thoracotomy was finally performed, which showed massive tumour infiltration of the upper lobe and the apex of the lower lobe. Peroperative histology revealed malignant cells in both lobes, and a right pneumonectomy was carried out. Further pathological examinations of the resected lung showed the presence of bronchiolo-alveolar carcinoma.

#### Discussion

Although the massive consolidation in the right upper lobe could finally be attributed to bronchiolo-alveolar carcinoma, it is quite likely that recurrent febrile episodes and a small infiltrate in the lingula had been caused by regurgitation from the gastrointestinal tract and infestation with *Giardia lamblia*, in view of their disappearance after specific treatment.

To our knowledge this is the first report of giardiasis detected by bronchoalveolar lavage and the first demonstration of this organism in pulmonary tissues.