

# Correspondence

## Extrinsic allergic alveolitis caused by a cold water humidifier

SIR—We read with interest the report by Dr AS Robertson and others (January 1987;42:32-7) of extrinsic allergic alveolitis caused by a cold water humidifier. The causative agent among the humidifier sludge responsible for the extrinsic allergic alveolitis remained elusive. There is a possibility that the alveolitis was due to bird fancier's lung caused by inhalation of avian droppings. This was not specifically sought by bronchial provocation testing despite the authors' findings of precipitating antibodies to budgerigar and pigeon droppings in all three subjects. Although there was no known contact with birds in any of these subjects, we have recently observed a reactivation of bird fancier's lung in a previous fancier who initially appeared to have had no avian contact for several years. Detailed investigations showed that she had been exposed to pigeon droppings through a skylight in the roof of the building in which she worked. Therefore can the authors reassure us that there was absolutely no likelihood of contamination of the humidifier with avian protein? In addition, we feel that it would have been informative to perform bronchial challenge testing with avian protein since a positive response in the presence of precipitins would be highly suggestive that this was the offending antigen in the sludge.

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\*.\*This letter was sent to the authors, and Drs Robertson and Burge reply below.

SIR—Drs Williams and Gordon raise an important question of avian antigen specificity. Bird fancier's lung is due to hypersensitivity to avian serum proteins, particularly immunoglobulin.<sup>1</sup> To cause alveolitis relatively large quantities of antigen must be inhaled. Pigeon droppings must first dry before antigen can become airborne; this may take at least a week. The major source of avian antigen in bird fanciers is probably the bloom off the feathers, which contain immunoglobulin. The droppings contain not only immunoglobulin but also many bacterial and fungal antigens. Teichoic acid is found in droppings and is a constituent of bacterial cell walls, resulting in non-specific precipitin reactions.<sup>2</sup> Of 81 bird fanciers investigated by Hargreaves and Pepys with bronchial provocation testing, only three reacted to exposure to avian droppings but not to serum.<sup>3</sup> Each required a minimum of 10 minutes' exposure to an extract of at least 10 mg/ml, a dose which was about 20 times higher than that used in our patients, and one which might cause non-specific reactions. Our patients had precipitins to avian droppings but not to avian serum, and reacted to a five minute exposure to humidifier antigens at 1 mg/ml. We have also shown that the humidifier antigen was specific—not resulting in any reaction in two unexposed asthmatic patients.

Our humidifier antigen has cross reacting antibodies with

avian droppings on double diffusion plates, but no reaction with avian serum, which would fit with a bacterial (or fungal) antigen common to both. Nor were there precipitins to ovalbumin, which can account for the finding of avian serum precipitins in coeliac patients.<sup>4</sup> Antibodies to ovalbumin are also sometimes seen in patients with bird fancier's lung. It is possible that eating hen's eggs containing ovalbumin may cause a deterioration in patients with bird fancier's lung and may be a feature in Dr Williams' patient. Even without identifiable exposure some patients with bird fancier's lung continue to deteriorate.

The workers' factory had never been known to have birds inside the printing area. It would theoretically have been possible for a pigeon to get into the water spray humidifiers, but as these were run continuously any bird would have been beaten to the ground and not have had time to liberate significant amounts of antigen into the 22 700 litre reservoir of each humidifier. There was no chance that droppings excreted outside could enter the humidifiers.

The confusion could be avoided by the use of avian serum rather than droppings for routine precipitin testing. The droppings are, however, cheaper and more plentiful!

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- 2 Faux JA, Holford-Strevens V, Wells ID, Pepys J. "False positive" precipitation reactions to extracts of organic dusts due to teichoic acid from *S aureus*. *Clin Exp Immunol* 1970;7:897-907.
- 3 Hargreave FE, Pepys J. Allergic respiratory reactions in bird fanciers provoked by allergen inhalation provocation tests. *J Allergy Clin Immunol* 1972;50:157-73.
- 4 Faux JA, Hendrick DJ, Anand BS. Precipitins to different avian serum antigens in bird fancier's lung and coeliac disease. *Clin Allergy* 1978;8:101-8.

## Rapid diagnosis of sputum negative miliary tuberculosis using the flexible fiberoptic bronchoscope

SIR,—The paper by Dr PA Willcox and others (September 1986;41:681-7) on the need for the use of the flexible fiberoptic bronchoscope in the rapid diagnosis of sputum negative miliary tuberculosis is to be welcomed. We feel, however, that the sensitivity and efficiency will be substantially enhanced when serial paraffin sections are made and stained with Ziehl-Neelsen (ZN) and auramine-rhodamine (AR)<sup>1</sup> methods for histological identification of *Mycobacterium tuberculosis*.

Prompted by an experience, we performed a prospective study of simultaneous staining of ZN and AR methods between January 1983 and January 1987. The tissue blocks were prepared and 11 serial sections, each 5 µm thick, were obtained from each block. The first four sections were stained with the ZN stain and the second four with the AR, and three were stained with haematoxylin and eosin, periodic acid-Schiff, and trichrome. Twenty five patients were obtained (16 *M tuberculosis*, one *M marinum*, one *M avium* type 3 and one type 4, and one BCG strain; five cases were diagnosed without culture). Twenty one cases were

diagnosed by this combination of ZN (19 positive cases) and AR (18 positive cases) staining techniques, eight of which were pulmonary tuberculosis (two cases of miliary tuberculosis). Only four cases were not detected by these techniques, probably as a result of sampling error (no granulomatous tissue), the diagnosis being later established by bacteriological examination. There was only one sputum positive case.

Our data demonstrated the superiority of the AR method over the ZN method, but they were also complementary and used in combination allow faster screening for the organism. The sensitivity and efficiency were substantially enhanced when the two stains were combined and were done on serial sections.<sup>2</sup>

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- 1 Kuper SWA, May JR. Detection of acid-fast organisms in tissue sections by fluorescence microscopy. *J Pathol Bacteriol* 1960;79:59-68.
- 2 Kommareddi S, Abramowsky CR, Swinehart GL, Hrabak L. Nontuberculous mycobacterial infections: comparison of the fluorescent auramine-O and Ziehl-Neelsen techniques in tissue diagnosis. *Hum Pathol* 1984;15:1085-9.

## Book notice

**Surgery of Coronary Artery Disease.** DJ Wheatley. (Pp 676; £47.50 hardback.) London: Chapman and Hall, 1986. ISBN 0412270102.

This new book represents a landmark in coronary surgery—the subject has come of age to be encapsulated in a compendium like this. Professor Wheatley has fulfilled this heavy responsibility admirably. We are reminded of the anatomy and physiology of the coronary circulation and the myocardial cell, and the pathology, epidemiology, and clinical features of coronary disease. We are fully informed of traditional and new investigatory techniques. All aspects of the surgery of coronary disease, with associated skills, technical options, and varieties of clinical situations, are described in a practical way and we are brought up to date with the latest long term results. This book is beautifully printed and bound; at today's prices £47.50 is good value for a non-recurrent expense like this, which will support a surgeon's working decisions for much of his active lifetime. It contains the manifestos of the cream of the world's authorities on each topic, which are unlikely to change for a generation. It enables a surgeon to support his decisions confidently against the better rehearsed arguments of less practically committed physicians. The authors leave few arguments unanswered or controversies undisputed. There are still no answers to the questions not answered in the book. There

can be few complaints. To succeed in sounding like operating room conversations of the world's top coronary surgeons, colonial levels of split infinitives and adjectival nouns must be expected. There is only one transposed photo-caption; today's aspirin treatment makes bleeding times more relevant; the value of echocardiographs in post-infarction papillary muscle rupture or ventricular septal defect and of risk factor reduction in conjunction with surgery could both be said to be underemphasised. This book has all the well established information a coronary surgeon needs in his working lifetime. It should be bought rather than borrowed, and is an excellent investment.—AHB

## Notices

### Henry Blair and Asthma Society essay prize

A prize funded by friends and colleagues of the late Dr Henry Blair is intended to stimulate improvements in the care of patients with asthma. Dr Blair worked as a general practitioner and a hospital allergist with an active clinical and research interest in asthma, and in the outcome in children with the disease. The prize, worth £250, will be awarded annually for the best essay on the subject "Delivery of care to the patient with asthma." The competition is open to nurses, doctors, and other health professionals in hospital or the community, and entries will be expected to describe work or practices that may be used by others to improve the care of patients with asthma. Essays should be 1500-3000 words in length and the closing date for the 1987 prize will be 20 September. Full details for the prize and entry conditions are obtainable from the Director of the Asthma Society, 300 Upper Street, London N1 2XX.

### European Society of Pulmonology congress

The European Society of Pulmonology is holding its seventh congress on 5-9 September 1988 in Budapest, Hungary; with the collaboration of the Hungarian Society of Pneumology "Korányi." The main topics of the congress are prevention of and screening for lung diseases and the lung and infection. Further details from the Congress Bureau MOTESZ/SEI Congress, H 1361 Budapest, POB 32, Hungary.

### Symposium on Surgical Stapling

The First British Symposium on Surgical Stapling will be held on 22 and 23 October 1987 in Manchester. The chairman will be Professor WD George. Further details from Conference Co-ordinates, Confer House, 69 Kingston Road, New Malden, Surrey KT3 3PB.