dairy farm workers, 24 of which had been collected from the Royal Show at Stoneleigh in 1983 and a further 270 locally in Herefordshire; the rest were part of a survey conducted in Derbyshire by the Health and Safety Executive. Of the 400 sera investigated 15 showed a positive result, indicating past infection. *Hardjo* anti-

TABLE III—Cases of *Leptospira* serogroup *hebdomadis* serovar *hardjo* in 1983

Occupation	No	Occupation	No
Farming:		Others:	
Arable	0	Meat inspectors	1
Cowmen	25	Butchers	1
Dairy	17	Veterinarians	2
Sheep	1	Miscellaneous	7
Beef	1		
Total			55

bodies could be detected only at a low titre of 80 to 160. Of the 15 that were positive two were found in the Derbyshire survey and the 13 others in local Herefordshire volunteers. The overall prevalence of antibody in this group was about 4%. In a previous study undertaken in Worcestershire only one case of leptospirosis (icterohaemorrhagiae) was found in 800 sera tested by the microscopic agglutination test.⁸ Assuming the procedures used were similar this suggests that cattle associated leptospirosis is a fairly recent phenomenon and that there is a lack of general awareness of the condition in dairymen.

Conclusion

Leptospirosis is not a new disease in the British Isles, but the epidemiological pattern has changed. Today those most at risk from icterohaemorrhagiae infection are farmers and those who pursue water sports. The predominant infecting serogroup of *Leptospira* has also changed, with *L. hebdomadis* serovar *hardjo* now more frequently reported than *L. icterohaemorrhagiae*. Recent studies of the incidence of cattle associated leptospirosis show that at least 4% of all dairymen are at risk, but on the whole such infections remain undetected.

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Lesson of the Week

Acute respiratory insufficiency from psittacosis

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Introduction

In man psittacosis varies from a mild influenza like illness to a feverish disease characterised by pneumonia and general symptoms.^{1,2} We describe four patients with acute respiratory insufficiency due to psittacosis, which led to the death of three of them.

Patients

Four patients were referred to our hospital because of respiratory insufficiency due to bilateral pneumonia, necessitating mechanical ventila-

Psittacosis should always be borne in mind as a possible cause of fulminating pneumonia with respiratory insufficiency

tion from the day of admission (table). Two patients died within 24 hours, despite treatment including doxycycline, cloxacillin, and amoxycillin for one, and flucloxacillin, tobramycin, and erythromycin for the other. The third patient recovered gradually after treatment with oxytetracycline. In the fourth severe haemoptysis despite normal haemostasis was one of the presenting symptoms. He had been treated elsewhere for nine days with a variety of antimicrobial drugs, including doxycycline for the first two days. Our treatment consisted of doxycycline and rifampicin, to which tobramycin and azlocillin were added when *Pseudomonas aeruginosa* was cultured from his sputum. Nevertheless, the lung abnormalities progressed and hepatic and renal dysfunction and diffuse intravascular coagulation developed. He died on day 17.

Cultures for aerobic bacteria, including legionella and mycobacteria, and attempts at isolating virus on human diploid cells and primary monkey kidney cells did not lead to a diagnosis in our patients. We did not attempt to isolate rickettsiae or chlamydiae. Chlamydia antigens were detected in sputum or lung tissue (table, figure) with an indirect immunofluorescence technique using a rabbit antiserum against purified *Chlamydia psittaci* antigen, prepared in our laboratory. A horse fluorescein isothiocyanate conjugated antirabbit gammaglobulin was used. The control slides were

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treated with serum from non-immune rabbits. The immune adherence haemagglutination test,³ carried out with a commercially available complement fixating antibody (Virion) gave low titres (table). IgM or IgG antibodies were shown with an immunofluorescence assay performed on slides coated with cells infected with *C. trachomatis* (table). For the IgM test the sera were pretreated to remove IgG and rheumatoid factor with anti-Fcγ and then absorbed.⁴

Comment

An unusual feature of our patients with psittacosis was respiratory insufficiency as the presenting symptom. Three of them died of hypoxia, two despite treatment with a tetracycline. Respiratory insufficiency has been described as a cause of death in review articles¹ but well documented case reports have not been published.

The pronounced leucocytosis found in our patients was also unusual, since the number of leucocytes is normal or slightly reduced in psittacosis. A relative bradycardia is often described, but was not seen in any of our patients. In the fourth patient massive haemoptysis was a major feature of his disease. Although the frequency of haemoptysis in psittacosis has been estimated at 11%,^{1,5} we have not found a report of such a severe case.

Immunofluorescent study of lung tissue from case 4 with monospecific antibodies against chlamydia showing suspicious inclusion bodies in a pneumocyte.

Details of patients

Patient No	1	2	3	4
Age (years)	33	34	43	62
Sex	F	F	F	M
Duration of symptoms before admission (days) (cough, dyspnoea, fever)	4	14	7	1
Contact with birds	yes	no	no	yes
White cell count (10 ⁹ /l)	20	23.6	23.5	20.2
PaO ₂ (kPa)	3.2	3.3	3.6	3.5
PacO ₂ (kPa)	4.5	4.5	6.3	2.9
Immunofluorescence test result for chlamydia antigens	positive*	positive*	positive†	positive††
Immune adherence test (highest titres)	64	64	32	64
Immunofluorescence assay: IgG (highest titres)	not done	not done	>256	64
Immunofluorescence assay: IgM (highest titres)	32	1024	negative	negative

*Postmortem lung tissue. †Lung biopsy specimen. ‡Sputum.

In all cases the diagnosis was based on the presence of inclusion bodies in pneumocytes that were positive for *C. psittaci* antigen with the immunofluorescence test. In our last patient sputum was also tested with this technique and found positive for *C. psittaci* antigen in ciliated cells as well. IgM or IgG antibodies were shown in the sera of all patients, and because of these findings we were able to initiate specific treatment with tetracycline in cases 3 and 4.

These cases illustrate that in patients who present with respiratory insufficiency due to pneumonia the diagnosis of psittacosis should be considered even if there has been no known contact with birds. If possible, chlamydia antigens should be sought for in sputum or biopsy specimens, and sera should be screened for IgM and IgG antibodies. While the results of investigations are being awaited antimicrobial treatment should include a tetracycline preparation.

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A fit man aged 70, apart from some osteoarthritis, complains of excessive foul smelling flatus which he has had for several months. He passes two or three fairly soft stools a day. He takes twice daily medication of a non-steroidal anti-inflammatory drug, the retard form of which gave him severe diarrhoea for over two days. Is any special investigation indicated?

Excessive passage of flatus may be due to aerophagy or excessive fermentation of unabsorbed nutrients, usually carbohydrates. The latter may occur in a normal individual who eats large quantities of cabbage or beans, or less commonly in patients with malabsorption usually due to lactase deficiency. Non-steroidal anti-inflammatory drugs commonly lead to diarrhoea or constipation, and even steatorrhoea has been reported.¹ "Flatulence" is a less common side effect, however, and few studies specify whether the term means flatus. Only 76 patients of 1500 taking indoprofen (Flosint) admitted to flatulence and only four of these to excessive flatus (personal communication, J Powell, Farmitalia Carlo Erba Limited). The mechanism of production of excessive flatus by Flosint is unknown. Levitt's methods of measuring and analysing flatus distinguish between an aerophagist and a patient with excessive carbohydrate fermentation.² If this patient does not seem to be an aerophagist or to eat large amounts of cabbage or beans it would seem sensible to stop the drug without any investigations and then to be guided by his clinical progress.—JAMES COX, senior registrar, Hull.

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2 Bond JH, Levitt MD. Gaseousness and intestinal gas. *Med Clin North Am* 1978;62:155-64.

What treatment is advised for a young woman who has had a traumatic rupture of the anterior cruciate ligament of her knee?

There is still controversy about the role of the anterior cruciate ligament. Some believe that its rupture, in isolation, causes no problems of stability, these only arise when other structures, such as the capsule, are damaged. Others think that the anterior cruciate ligament is all important and should be repaired or augmented whenever injury to it is diagnosed. Most orthopaedic surgeons agree that such repairs are best undertaken in the acute phase of the injury. Regrettably it is rarely diagnosed at this stage. Late repairs of this ligament should be approached with caution. The patient should be taught quadriceps and hamstring exercises and these, coupled with modification of athletic requirements, may be sufficient to permit her to live a perfectly normal life. If the knee is so unstable that it disrupts her life severely then surgery should be considered. This step should not be taken lightly, and most patients are well advised to pursue the conservative regimen of management. The unstable knee can cause meniscal damage and early degenerative arthritis in the joint. Stabilisation may well prevent the damage to the meniscus occurring, but it is unlikely to prevent the early onset of arthritis, for the knee has been subjected to the insult of the initial injury, the surgery for the repair, and the immobilisation required for the repair to consolidate.—C D R LIGHTOWLER, consultant orthopaedic surgeon, London.

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