

A standard dose of the beta-adrenoceptor-blocking drug oxprenolol which was sufficient to produce a significant fall in pulse rate and systolic blood pressure had no obvious effect on either overall speech performance or anxiety scores. Analysis of the results was complicated by the effect of timing of the administration of the drugs. Those subjects who took oxprenolol on the first day of each assessment tended to do better than those given placebo, while the reverse occurred on the second day. There was a tendency for performance on the second day to be similar to the first. This tendency has been reported,<sup>13</sup> and possibly these behavioural effects were greater than the drug effects being investigated. We recommend that in future studies one group should be given placebo on both days in addition to the standard cross-over groups.

Beta-blockade is likely to be most effective in very anxious subjects, but despite efforts to make the test stressful the level of anxiety achieved was not very great. The pretest anxiety scores were much lower than those obtained in a similar study,<sup>13</sup> in which oxprenolol had a significant effect on performance and the placebo pulse rate was lower—88 compared with 99. We have seen several trained subjects who seemed to benefit from the drug when they were under stress, such as when being interviewed for an important post, and who requested the drug for subsequent occasions. We therefore conclude that the drug may still be of value in very anxious subjects or on stressful occasions, though there is no evidence that additional fluency can be expected when the drug is given routinely.

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# Adult respiratory distress syndrome in *Leptospira canicola* infection

M ZALTZMAN, J M KALLENBACH, G D GOSS, M LEWIS, S ZWI, J H S GEAR

## Abstract

**A man was admitted to the Johannesburg Hospital with a history of fever, diarrhoea, and dry cough for four days. He began to produce bloodstained sputum and was found to have severe arterial hypoxaemia. Radiography showed widespread opacification over both lung fields, and the clinical and haemodynamic features were consistent with the adult respiratory distress syndrome. Serology for *Leptospira canicola* was positive. Despite antibiotics, supportive therapy, and ventilation the patient died. Necropsy excluded cardiac disease.**

**This case shows that leptospirosis may cause the adult respiratory distress syndrome.**

## Introduction

The adult respiratory distress syndrome (non-cardiogenic pulmonary oedema<sup>1</sup>) may complicate infection caused by a wide variety of micro-organisms.<sup>2</sup> Its occurrence in leptospirosis has not been proved. We report a case of *Leptospira canicola* infection in which the pulmonary findings and haemodynamic measurements were consistent with the syndrome.

## Case history

A 28-year-old white man was admitted to the Johannesburg Hospital after a camping trip during which he had come into contact with dogs and goats. Headache, fever, diarrhoea, and a non-productive cough had been present for four days. He was tachypnoeic and cyanosed with a temperature of 39.2°C and had noticeable conjunctival suffusion. Diffuse pulmonary crepitations were heard but there was no evidence of cardiac failure. Pronounced neck stiffness was present.

Results of investigations on admission were: haemoglobin concentration 11.3 g/dl; white cell count  $7.5 \times 10^9/l$  (7500/mm<sup>3</sup>); platelet count  $220 \times 10^9/l$  (220 000/mm<sup>3</sup>); blood urea concentration 2.2 mmol/l (13.3 mg/100 ml); serum electrolyte values normal; total serum bilirubin concentration 49 μmol/l (2.9 mg/100 ml); and direct serum bilirubin concentration 46 μmol/l (2.7 mg/100 ml). Cerebrospinal fluid contained one polymorphonuclear leucocyte and 12 lymphocytes per high-power field and showed protein and glucose concentrations of 0.17 g/l and 4.7 mmol/l (85 mg/100 ml), respectively; no organisms were seen or cultured. Apart from sinus tachycardia the electrocardiogram was normal. A chest radiograph showed extensive bilateral confluent opacification (figure).

Department of Medicine, University of the Witwatersrand, and Johannesburg Hospital, Johannesburg, South Africa

M ZALTZMAN, FCP(SA), physician

J M KALLENBACH, MB, MRCP, senior physician

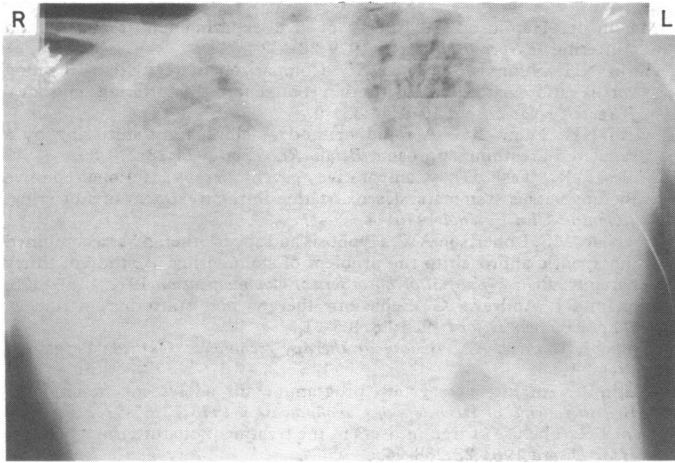
G D GOSS, MB, BCH, registrar

M LEWIS, FCP(SA), physician

S ZWI, BSC, FRCP, professor of respiratory medicine

Department of Tropical Medicine, South African Institute for Medical Research, Johannesburg

J H S GEAR, MD(HON), FRCP, honorary professor of tropical medicine



Erect radiograph showing extensive bilateral confluent opacification.

Shortly after admission the patient became confused and began to produce large amounts of bloodstained sputum. He had severe arterial hypoxaemia ( $PO_2$  4.6 kPa; 34.6 mm Hg) with normal arterial  $PCO_2$  (4.7 kPa; 35.3 mm Hg) while breathing 60% oxygen—normal values for Johannesburg (altitude 1760 m): arterial  $PO_2$  10 kPa (75 mm Hg);  $PCO_2$  4.6 kPa (34.6 mm Hg). The trachea was intubated and mechanical ventilation with positive end expiratory pressure begun. A Swan-Ganz catheter was introduced and pressures measured: right atrium 4 mm Hg, pulmonary capillary wedge 6 mm Hg; cardiac output was 7.42 l/min (cardiac index 3.71 l/min/m<sup>2</sup>).

The result of the leptospira complement fixation test, which was negative on admission, showed a titre of 1/60 against *L. canicola* by the third hospital day and 1/480 by the seventh day. The microscopical agglutination test for *L. canicola* initially gave a negative result and became positive in a titre exceeding 1/3200 against *L. canicola* after one week. All blood cultures and serological tests for various other pathogenic organisms were negative. Initial treatment included ampicillin and erythromycin. Penicillin was administered intravenously from the seventh hospital day in a dosage of 2 million units four-hourly.

Progressive respiratory failure necessitated using high inspired oxygen concentrations (up to 60%) and increasing levels of positive end expiratory pressure (up to 26 cm H<sub>2</sub>O). At no time was there any clinical evidence of cardiac failure, and the pulmonary capillary wedge pressure remained normal throughout. Effective ventilation became progressively more difficult, and on the tenth hospital day the patient died.

Lung tissue removed at necropsy showed a chronic interstitial inflammatory cell infiltrate with hyaline membrane formation and areas of focal capillary rupture resulting in alveolar haemorrhage. Alveolar spaces were filled with a granular exudate, with evidence of a proliferative fibroblastic reaction. There was no evidence of cardiac disease either macroscopically or microscopically.

### Comment

Ramachandran and Perera found histological evidence of pulmonary oedema in seven fatal cases of leptospirosis.<sup>3</sup> In each case, however, kidney dysfunction had been detected and cardiac abnormalities were noted at necropsy. In the absence of haemodynamic data, cardiac failure cannot be excluded as the cause of the pulmonary oedema.

Profuse haemoptysis, such as occurred in our case, was reported in one patient with leptospirosis.<sup>4</sup> This may have been a manifestation of haemorrhagic pulmonary oedema, as occurs with adult respiratory distress syndrome.<sup>5</sup> The patient survived and no histological or haemodynamic findings were available.

The clinical, radiological, haemodynamic, and pathological features in our case were consistent with the syndrome, which resulted in death from irreversible respiratory failure. Leptospirosis may thus be added to the growing number of organisms reported to cause adult respiratory distress syndrome.

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Requests for reprints should be addressed to: Dr M Zaltzman, Department of Medicine, Medical School, Hospital Street, Johannesburg, 2001 South Africa.

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**FUMITORY.** Our common Fumitory is a tender sappy herb, sends forth from one square, a slender weak stalk, and leaning downwards on all sides, many branches two or three feet long, with finely cut and jagged leaves of a whitish or rather blueish sea green colour; At the tops of the branches stand many small flowers, as it were in a long spike one above another, made like little birds, of a reddish purple colour, whitish bellies, after which come small round husks, containing small black seeds. The root is yellow, small, and not very long, full of juice while it is green, but quickly perishes with the ripe seed. In the corn fields in Cornwall, it bears white flowers.

It grows in corn fields almost every where, as well as in gardens. It flowers in May, for the most part, and the seed ripens shortly after.

Saturn owns the herb, and presents it to the world as a cure for his own disease, and a strengthener of the parts of the body he rules. If by my astrological judgment of diseases, from the decumbiture, you find Saturn author of the disease, or if by direction from a nativity you fear a saturnine disease approaching, you may by this herb prevent it in the one, and cure it in the other, and therefore it is fit you keep a syrup of it always by you. The juice or syrup made thereof, or the decoction made in whey by itself, with some other purging or opening herbs and roots to cause it to work the better (itself being but weak) is very effectual for the liver and spleen,

opening the obstructions thereof, and clarifying the blood from saltish, choleric, and adust humours, which cause leprosy, scabs, tetters, and itches, and such like breakings-out of the skin, and after the purgings doth strengthen all the inwards parts. It is also good against the yellow-jaundice, and spends it by urine, which it procures in abundance. The powder of the dried herb given for some time together, cures melancholy, but the seed is strongest in operation for all the former diseases. The distilled water of the herb is also of good effect in the former diseases, and conduces much against the plague and pestilence, being taken with good treacle. The distilled water also, with a little water and honey of roses, helps all sores of the mouth or throat, being gargled often therewith. The juice dropped into the eyes, clears the sight and takes away redness and other defects in them, although it procure some pain for the present, and cause tears. Dioscorides saith it hinders any fresh springing of hairs on the eye-lids (after they are pulled away) if the eye-lids be anointed with the juice hereof, with Gum Arabic dissolved therein. The juice of the Fumitory and Docks mingled with vinegar, and the places gently washed therewith, cures all sorts of scabs, pimples, blotches, wheals, and pushes which arise on the face or hands or any other parts of the body. (Nicholas Culpeper (1616-54) *The Complete Herbal*, 1850.)