

## CASE REPORT :

### SEPTICEMIC MELIOIDOSIS FOLLOWING NEAR DROWNING

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Melioidosis is an infection caused by *Pseudomonas pseudomallei*, a Gram-negative bacterium, that has been isolated from water and soil in South-east Asia (Finkelstein, 1967). Clinical manifestations of melioidosis are variable and involve many organs (Patamasucon *et al.*, 1982). Infection is probably acquired by inhalation of bacteria (Patterson *et al.*, 1967) or through a contaminated wound (Thin *et al.*, 1970; Jayanetra *et al.*, 1975). Only two case of acute septicemic melioidosis following near drowning have been reported (Vimuktalaba *et al.*, 1985; Lee *et al.*, 1985). We describe here a third case of melioidosis following a near drowning accident.

A 9-year-old girl was found lying unconscious after a five minute immersion in a muddy fresh water pool. Mouth-to-mouth resuscitation was performed immediately by her father who transferred her to Songkhlanagarind Hospital. At the emergency room she appeared severely ill, with marked central cyanosis and in a comatose condition, responding purposefully only to deep pain. Body temperature was 36.5°C, pulse rate 140/minute, and blood pressure 110/70 mmHg. Breathing was apneustic and assisted ventilation was required. She had no bruises or abrasions on her skin. Diffuse fine crepitations and rales were audible over both lung fields and the sputum was frothy. Otherwise the physical examination was unremarkable. A initial chest roentgenogram revealed diffuse bilateral pulmonary infiltration compatible with acute pulmonary edema (Fig 1). The results of laboratory tests on the day of admission revealed hemoglobin 10.6% gm/dl; leukocyte count 12,000/cu mm with 9% segmented neutrophils, 3% band forms 76% lymphocytes and 10% eosinophils; BUN 11.6 mg/dl and creatinine

0.9 mg/dl. Severe hypoxemia and acidosis were noted on arterial blood gas analysis.

Oxygen was administered and respiratory support was instituted. Treatment started with intravenous penicillin G sodium (2 MU/kg/day) and intramuscular gentamicin (5 mg/kg/day). Bicarbonate and furosemide were also given to correct the metabolic acidosis and the pulmonary edema.

The patient regained consciousness one hour later and at the tenth hour of hospitalization she could follow verbal commands. A repeated chest roentgenogram showed marked improvement of the pulmonary infiltration (Fig 2). Sputum culture on the day of admission yielded mixed flora.

On the fiftieth hour of hospitalization, body temperature rose to 40.3°C. A third chest roentgenogram showed progression of the pulmonary infiltration (Fig 3). Gentamicin was then replaced with intravenous ceftazidime (150 mg/kg/day) for a presumed diagnosis of melioidosis.

The blood and sputum cultures obtained before the start of ceftazidime yielded gram-negative bacilli that were identified as *Pseudomonas pseudomallei* by standard criteria (Gilardi, 1985). The organisms were susceptible to ceftazidime, cefotaxime, ceftriaxone, chloramphenicol and cotrimoxazole; intermediately susceptible to ticarcillin and kanamycin; and resistant to cefuroxime, cephalothin, gentamicin, netilmycin and amikacin.

The patient responded very well to the treatment and on the sixth day of hospitalization she was afebrile, and did not require ventilatory support. She was treated intravenously with penicillin for ten days and ceftazidime for twenty-one days and then cotrimoxazole (10 mg trimethoprim/kg/day)

## SEPTICEMIC MELIOIDOSIS

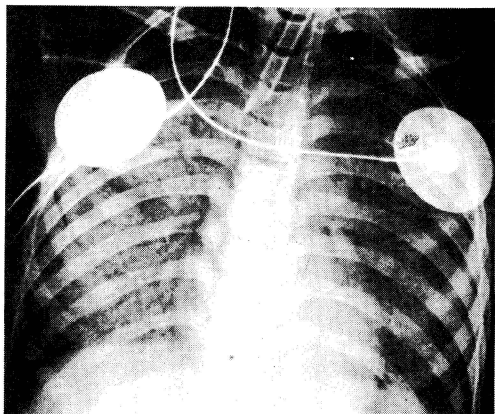


Fig 1—Bilateral pulmonary infiltration.

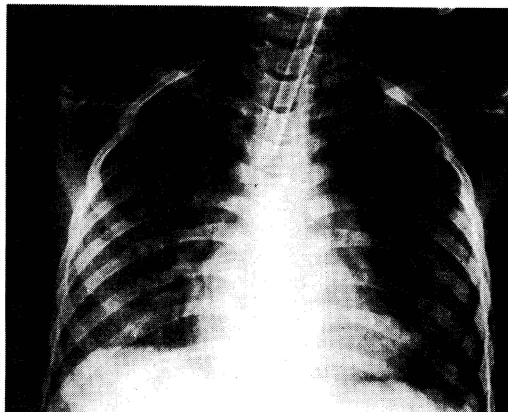


Fig 3—Progression of the pulmonary infiltration.

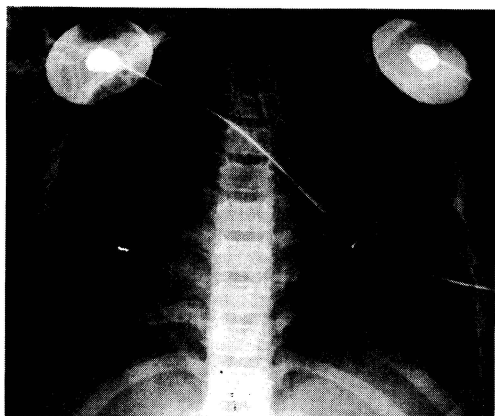


Fig 2—Marked improvement of the pulmonary infiltration.

was administered orally for four months. At the last follow up twenty months later, there was no evidence of relapse or recrudescence.

Melioidosis was first described by Whitmore and Krishnaswami in 1912 in morphine addicts and vagabonds found dead in the streets of Rangoon, Burma. It has been observed in all age groups with variable clinical manifestations which mimic many other diseases (Patamasucon *et al*, 1982). The clinical presentation of septicemic melioidosis ranges from simple acute febrile illness to fulminating septicemia. Most patients are seriously ill and about one-third complicated by septic shock (Chaowagul *et al*, 1989). A variety of antimicrobials have been recommended for the treatment of melioidosis on the basis of *in vitro* sensitivity test (Chau *et al*, 1986; Ashdown, 1988; Puthuchery *et al*, 1987; Eickhoff *et al*, 1970).

Ceftazidime, a third-generation cephalosporin, is now considered as the treatment of choice for severe melioidosis since it is bactericidal, safe, highly active *in vitro* and associated with a 50% lower overall mortality (White *et al*, 1989). The optimum duration of treatment however, is not known, although relapses are common if treatment is given for less than one month. Current practice is to give intravenous and then oral antimicrobial therapy for six weeks to four months depending on the site of the infection (Chaowagul *et al*, 1989).

The successful treatment in the present case is ascribed to early diagnosis of the infection with administration of the effective antimicrobial agent.

Case of acute pulmonary and septicemic melioidosis following near drowning accidents have been reported from Thailand (Vimuktalaba *et al*, 1985) and Taiwan (Lee *et al*, 1985). The infection in our case probably was acquired by aspiration of contaminated water since in Songkhla, since *Pseudomonas pseudomallei* has been isolated in 61% of the surface soil samples from rubber plantations and 78% of the bottom sediments in rice fields (Na Chiangmai *et al*, 1985).

In conclusion, the possibility of *Pseudomonas pseudomallei* infection should be considered in the case of a victim of fresh-water near-drowning in Southeast Asia. Appropriate cultures should be obtained and effective antimicrobial therapy should be started early.

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