CASE REPORTS

**Pasteurella multocida meningitis**

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**Summary**

*Pasteurella multocida* appears to be a very rare cause of meningitis. The bacterium has morphological similarities with other causative organisms, particularly *Haemophilus influenzae*, and its apparent rarity may be due partly to misidentification. This case, only the fourth reported from the United Kingdom, could not be distinguished clinically from the meningitis, owing to other pyogenic bacteria.

**Case report**

A 35-year-old male publisher presented in August 1978 with a 36-hr history of earache followed by drowsiness. There was a past history of chronic otitis media, with a persistent painless aural discharge following an atticotomy in 1972. On examination he was pyrexial (37.5°C) and only responded to simple questions. He had marked neck stiffness but neurological examination was otherwise normal. The right external auditory meatus contained a purulent discharge.

The CSF was cloudy with a protein of 0.3 g/l and glucose 3.3 mmol/l. There were 870 polymorphonuclear leucocytes/mm³ but no organism was seen on Gram-staining. There was a peripheral polymorphonuclear leucocytosis of 29 x 10⁹/l and the ESR was 69 mm/hr (Westergren). *Pasteurella multocida* was cultured from the CSF and a mixed growth of *Escherichia coli* and diphtheroids from an ear swab.

He was treated with ampicillin (50 mg/kg body weight as a bolus intravenous injection every 4 hr) and within 24 hr was mentally alert. He complained of a severe headache and had developed early papilloedema. Forty-eight hours later he was asymptomatic and the fundal appearances had returned to normal by the fifth day.

**Discussion**

*P. multocida* is a non-motile, Gram-negative, pleomorphic coccobacillus having morphological similarities to *H. influenzae*, but possessing distinctive fermentation characteristics. A frequent veterinary pathogen and commensal, it is the commonest infection acquired after a dog bite. Systemic involvement occurs most frequently in the respiratory tract and is unrelated to animal bite (Hubbert and Rosen, 1970).

*P. multocida* meningitis is under-diagnosed. Only 16 cases had been reported by 1967 (Whitmore and Whelan, 1963; Conroni and Jones, 1967) yet a further 6 were found in the United States of America over a 3-year period (Hubbert and Rosen, 1970). These latter cases represented 5% of systemic *P. multocida* infections. All age groups are affected with a male predominance, and the infection may follow a skull fracture or previous neurosurgical procedure. A long incubation period has been reported by Conroni and Jones (1967) but based purely on the interval between previous skull trauma and subsequently clinically manifest infection. A history of close animal contact is obtained in about 75% of cases, and was present in this patient who kept 4 cats. Spread of the infection from the middle ear has been described and was a possible mechanism in this case. The usual CSF findings are a polymorphonuclear leucocytosis with a depressed glucose concentration. The recorded mortality is around 50% despite the fact that the organism is very sensitive to the penicillins. Fatalities continue to occur despite appropriate antibiotic therapy. Reports of erythromycin resistance suggest that chloramphenicol or tetracycline are indicated in a penicillin-sensitive patient (Francis, Holmes and Brandon, 1975).

*P. multocida* may be dismissed as a contaminant or misidentified as *H. influenzae*. It may therefore account for some of the variability in the incidence and antibiotic sensitivity of meningitis due to that organism. Similarly, some cases of meningitis where no organisms are identified (20% in one survey by Goldacre and Miller, 1976) may represent infections by this agent.

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References


Pasteurella multocida meningitis.

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