α -fetoprotein can more easily reach the maternal circulation. Another possibility is absorption of fetal blood after tubal abortion.

Our findings support the use of Rh₀ (D) immune globulin in Rh-negative women with ectopic pregnancy. Determination of the α -fetoprotein concentration may also prove useful as an adjunct in the diagnosis of ectopic pregnancy.

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Acute meningitis in early childhood caused by *Aerococcus viridans*

Aerococcus viridans (syn *Gaffkya homari*, *Pediococcus homari*), which is commonly present in dust and air, has been isolated from patients with urinary tract infections,¹ endocarditis, and bacteraemia²; no reports exist on its causative role in meningitis. We report three cases of acute meningitis in children in which *A viridans* was identified as the pathogen.

Patients, methods, and results

The table summarises the clinical and pathological data in the three patients. Cerebrospinal fluid, aspirated on admission, was plated directly at the bedside, with simultaneous smearing for Gram stains. The appearances of the smears from all three cases were similar, showing Gram positive discrete cocci which were extracellular as well as adherent to pus cells in fields with scanty organisms. Meningeal pus from the single fatal case (case 2) obtained at necropsy showed similar appearances.

Clinical and pathological features in *Aerococcus viridans* meningitis in early childhood

Case No and duration of illness before admission	Age (months), sex, history, symptoms, and signs	Peripheral blood		Cerebrospinal fluid			
		Leucocyte count	%, Neutrophils	Leucocyte count	Red cell count	%, Neutrophils	Protein glucose
1, one month	24, F; impaired head control, abnormal gait, decreased alertness, low fever, vomiting; flaccid limbs, decreased tendon reflexes, high stepping gait, truncal ataxia; history of leg impetigo one month before present illness	30 × 10 ⁹ /l	82	60 × 10 ⁶ /l	30 × 10 ⁶ /l	80	0.4 g/l 1.1 mmol/l
2, seven days	5, F; fever, refusal of feeds, generalised convulsions; bulging anterior fontanelle. Died	Not available	—	480 × 10 ⁶ /l	60 × 10 ⁶ /l	55	0.6 g/l 0.6 mmol/l
3, two months	7, F; jerky movements of limbs, irritability; bulging anterior fontanelle; history of upper respiratory tract infection at onset of present illness	11 × 10 ⁹ /l	78	6000 × 10 ⁶ /l	8 × 10 ⁶ /l	93	1.6 g/l 1.7 mmol/l

Conversion: SI to traditional units—Glucose: 1 mmol/l ≈ 18 mg/100 ml.

Cultures of all three specimens of uncentrifuged cerebrospinal fluid (sheep blood agar, 37°C, two days in air) were pure and consisted of α -haemolytic optochin resistant colonies. Nutrient broth and Todd-Hewitt broth cultures of the isolates gave granular turbidity, with the cocci showing tetrads without chain formation. Growth occurred on media containing 40% bile salts, 10% NaCl, and 0.01% potassium tellurite and in media with a pH of 9.6. Growth was absent at 45°C; the cocci survived heating at 60°C for 30 minutes. All three strains from cerebrospinal fluid and a similar isolate from meningeal pus in case 2 gave identical cultural and biochemical reactions which conformed with typical reactions of *A viridans*.²⁻⁵

Antibacterial drug sensitivity disc diffusion tests by the Kirby-Bauer method gave identical antibiograms with all three strains—sensitivity to tetracycline, streptomycin, penicillin, ampicillin, chloramphenicol, gentamicin, co-trimoxazole, sulphonamide, and erythromycin.

Identification of the isolates from the cerebrospinal fluid of cases 2 and 3 as *A viridans* was confirmed by the National Collection of Type Cultures, London.

Two patients (cases 1 and 3) recovered completely with appropriate antibiotic treatment without residual lesions or abnormality in the cerebrospinal fluid. The remaining patient (case 2) developed an intercurrent intestinal and respiratory tract infection and died on the 12th day after admission. Necropsy showed basal and vertical pyogenic meningitis with greenish yellow pus.

Comment

In cases 1 and 3 impetigo and a respiratory tract infection, respectively, appear to have been the antecedent infections and possible sources of the organism. The relatively long history of the illness before admission in two of the three cases contrasts with the more acute meningitis caused by the usual pyogenic cocci and might suggest that *A viridans* is of relatively lower pathogenicity. In the single death intercurrent intestinal and respiratory tract infections might have been a contributory factor.

The presence of cocci adherent to pus cells in the cerebrospinal fluid might suggest "adherence" properties which may be associated with the pathogenicity of this species.

We are grateful to Dr L R Hill (National Collection of Type Cultures, London) for examining two of our isolates of *A viridans*.

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