

circulating immune complexes seems the most likely explanation. We believe that this is the first case of pyoderma gangrenosum to occur after elective surgery. It highlights the importance of early clinical diagnosis in a condition that is usually highly amenable to treatment.

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Meningitis and pneumonia due to novel multiply resistant pneumococci

Multiply resistant pneumococci associated originally with nosocomial infection¹ and more recently with community acquired disease^{2,3} have been characterised by resistance to β lactam antibiotics in addition to other agents. We report the isolation of novel multiply resistant pneumococci showing

sedimentation rate 67 mm in first hour. A pneumococcus with the resistance pattern found in case 1 was isolated from the blood but was unavailable for serotyping. The patient improved with benzylpenicillin. We discovered later that he had received co-trimoxazole during the week before admission. Four children attending the same crèche were examined for nasopharyngeal carriage of resistant pneumococci (table).

Case 3—A 46 year old white man suffering from multiple myeloma was admitted to the Johannesburg Hospital in October 1984 with signs and symptoms of pneumonia. Blood culture taken on admission grew *Str pneumoniae* serotype 6B showing the same resistance pattern and minimum inhibitory concentrations of drugs as in the other two cases. He responded to benzylpenicillin. Nasopharyngeal swabs were taken from 17 adult patients and staff at the convalescence home where he lived (table).

Case 4—A 2 year old black boy was admitted to the Baragwanath Hospital, Soweto, in December 1985. He was feverish (38.9°C) and showed clinical and radiological signs of pneumonia. A pneumococcus (serotype 14) isolated from blood culture showed the same resistance pattern as in cases 1-3. His mother disclosed that for five days before admission he had been given erythromycin (250 mg thrice daily) prescribed for a toe infection. Resistant pneumococci were not isolated from nasopharyngeal swabs from two other children in the household (table).

Comment

The emergence of community acquired nasopharyngeal and clinical isolates of pneumococci resistant to tetracycline, erythromycin, clindamycin, and co-trimoxazole but susceptible to benzylpenicillin is reported for the first time. Multiple resistance in *Str pneumoniae* with more than three antimicrobial agents has to date been associated with resistance to β lactam antibiotics. All three children reported here gave a history of prior treatment with antimicrobial agents to which the pneumococci were resistant. A relation between exposure to antibiotics and nasopharyngeal carriage of penicillin resistant pneumococci has been described in hospitalised patients.⁵

The strains noted here are not likely to pose therapeutic problems for serious pneumococcal infections requiring admission to hospital. The presence of these organisms does, however, demand urgent consideration of resistant organisms in the management of community acquired pneumococcal diseases such as otitis media and sinusitis, for which erythromycin and co-trimoxazole are often prescribed.

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Nasopharyngeal carriage of multiply resistant pneumococci

	No of subjects tested	No carrying multiple resistant strains	Serotypes	% Carriage
Day care centre 1*	29	2	14+19F	6.9
Day care centre 2†	4	2	14+14	50.0
Convalescence home‡	17			
Private household§	2			

*Case 1 attended day care centre 1. ‡Case 3 lived in convalescence home.
†Case 2 attended day care centre 2. §Case 4 came from this household.

susceptibility to β lactam antibiotics but resistance to tetracycline, clindamycin, erythromycin, and co-trimoxazole.

Case reports

Case 1—A 15 month old white boy was admitted to the Johannesburg Hospital in September 1984 with a one day history of lethargy and vomiting. He was feverish and drowsy with pronounced neck stiffness. Lumbar puncture yielded cerebrospinal fluid containing 1260×10^6 neutrophils, 44×10^6 lymphocytes, and 0.38 g protein per l; glucose 4.4 mmol/l (79.3 mg/100 ml); and chloride 125 mmol(mEq)/l. Staining of the fluid disclosed Gram positive diplococci resembling pneumococci, and *Streptococcus pneumoniae* serotype 14 (antipneumococcal serum, Statens Seruminstitut, Copenhagen) was subsequently isolated. The organism was susceptible to benzylpenicillin but resistant to tetracycline, erythromycin, and clindamycin by disc susceptibility testing (Mastring-S, Mast Laboratories Ltd, UK). Minimum inhibitory concentrations using the agar dilution method⁴ (with Columbia agar (Oxoid, Basingstoke) as the base) were: penicillin 7.0 μ g/l; tetracycline 4.0 mg/l; and erythromycin, clindamycin, and co-trimoxazole >8 mg/l. The patient responded to initial treatment with benzylpenicillin and chloramphenicol, which was subsequently changed to benzylpenicillin alone. He had had a dose of tetracycline syrup eight weeks before admission. The table gives the results of nasopharyngeal swabs taken from 29 children from the same crèche.

Case 2—This 20 month old white boy was also admitted to the Johannesburg Hospital in September 1984. He had a two week history of fever and coughing and on the day of admission had a convulsion accompanied by a fever of 38.9°C, right sided otitis media, and radiologically confirmed left upper lobe pneumonia. Blood leucocyte count was 50.2×10^9 /l, haemoglobin concentration 9.8 g/l, and

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