

Intracranial section of the glossopharyngeal and upper roots of the vagus nerves has been recommended, the cardiac dysrhythmia being controlled with atropine, isoprenaline, or transvenous pacemaker. Carbamazepine is known to relieve the pain of uncomplicated glossopharyngeal neuralgia.^{2,3} In our first patient the combination of carbamazepine and demand pacemaker abolished both pain and syncope within hours. The pacemaker was later withdrawn. In the second patient both neuralgia and syncope were suppressed by carbamazepine for one year.

By its inhibitory effect on brain stem reflex activity carbamazepine appears not only to be an effective treatment for the pain of glossopharyngeal neuralgia but also to control the more dangerous bradycardia and asystole.

We thank Dr R Bradley for permission to report case 1.

¹ Jones, R K, *Pennsylvania Medical Journal*, 1960, **63**, 1113.

² Kjellin, K, Muller, R, and Wiken, L, *Neurology*, 1959, **9**, 527.

³ Crill, W E, *Annals of Internal Medicine*, 1973, **79**, 844.

(Accepted 20 December 1978)

Department of Medical Ophthalmology, St Thomas's Hospital, London SE1

R R JACOBSON, MB, MRCP, medical registrar

R W ROSS RUSSELL, MD, FRCP, physician

Gonococcal ophthalmia neonatorum caused by beta-lactamase-producing *Neisseria gonorrhoeae*

Certain strains of *Neisseria gonorrhoeae* produce the enzyme beta-lactamase that destroys the penicillin nucleus, rendering the drug ineffective. In the West these mutant strains probably originated from conjugation between *N gonorrhoeae* and strains of *Escherichia coli* which produce beta-lactamase. There is some evidence that resistant strains in the Far East arose from conjugation between the gonococci and *Haemophilus influenzae*.¹ Genital gonococcal infection by these penicillin resistant strains were first reported in England and the USA² in 1976. Reports followed from Belgium, Sweden, Norway, Ghana, Singapore, Thailand, Philippines, and Korea.³ In Singapore in 1977 22 resistant strains were reported out of a total of 7668 infections (0.29%). In the first six months of 1978 188 were reported out of 4195 infections (4.48%). The number of gonococcal ophthalmia neonatorum cases reported in 1977 and the first six months of 1978 was 20 and 15 respectively. We report a case caused by a beta-lactamase-producing strain of gonococci. It is the first reported in Singapore and, we think, in the world.

Case report

An 8-day-old boy attended outpatients for a bilateral purulent eye discharge for five days. Three days before he had been treated by a general practitioner with parenteral and oral penicillin and sulphacetamide eye drops with no apparent improvement. The infant's mother had had a yellowish vaginal discharge for one week before parturition, otherwise she was asymptomatic. Her last sexual intercourse with her husband had been about one month before delivery. She denied other sexual contacts. Her husband admitted having a urethral discharge at about the same time but he had been treated by a general practitioner with full recovery. The patient was unaware of this and thus remained untreated.

Smears from the infant's eyes and the mother's endocervix and urethra showed Gram-negative intracellular diplococci. Specimens were sent to the laboratory for culture for *N gonorrhoeae*. Gonorrhoea was provisionally diagnosed and both mother and child were admitted. The mother was treated with intramuscular procaine penicillin 4.5 mega units and probenecid 1 g by mouth. The child was given intramuscular crystalline penicillin 100 000 units six-hourly for four doses and crystalline penicillin drops (10 000 units/ml) were instilled into both eyes, after swabbing with normal saline, every 10 minutes in the first hour, every 30 minutes in the second, third, and fourth hours, and thereafter hourly for 60 hours. Despite this, smears from the child's eyes and mother's endocervix still showed Gram-negative intracellular diplococci after three days' treatment. By then the results of culture of the initial specimens had confirmed the presence of penicillin-resistant strains of gonococci. The mother was then treated with intramuscular kanamycin 2 g and the child intramuscular kanamycin 1 g

with intensive eye toilet, as described above, using 1% kanamycin eye drops. Follow-up smear cultures on days 3, 7, and 14 of kanamycin treatment were negative for *N gonorrhoeae*. Both mother and child have since been well.

Comment

Crede's method of instilling silver nitrate eye drops to newborns has not been practised in Singapore for many years. The low incidence of gonococcal ophthalmia neonatorum, about 0.07% of total live births a year, reflects satisfactory control and antenatal screening. But with the increase in cases of genital infections caused by penicillin-resistant gonococci in the East we expect this incidence to rise. We have treated 356 cases of beta-lactamase-producing gonorrhoea with single intramuscular doses of 2 g kanamycin, with an overall cure rate of 98.2%. We therefore think that kanamycin is very effective.

In a recent study we found that treatment of gonococcal ophthalmia neonatorum with intensive eye toilet alone is unsatisfactory. The failure rate was 18.75%. But combined local and parenteral therapy with penicillin cleared infections in 100% of cases.⁴ We therefore emphasise the importance of combined treatment.

¹ Percival, A, et al, *Lancet*, 1976, **2**, 1379.

² *British Medical Journal*, 1976, **2**, 963.

³ WHO Scientific Group, *Neisseria Gonorrhoeae and Gonococcal Infections*, WHO Technical Report Series 616, p 124. WHO, Geneva, 1978.

⁴ Rajan, V S, Pang, R, and Sng, E H, *Singapore Medical Journal*, 1978, **19**, 86.

(Accepted 5 December 1978)

Middle Road Hospital, Singapore 7

R PANG, MB, DIPVEN, medical officer

L B TEH, MB, MMED, registrar

V S RAJAN, FRCPED, FRCPGLAS, medical superintendent and senior dermatologist

Department of Pathology, Singapore General Hospital, Singapore 3

E H SNG, MB, DIPBACT, senior immunologist

Reactive arthritis associated with *Campylobacter jejuni* enteritis

Reactive arthritis, defined as an acute arthritis associated with an infection elsewhere in the body and without the infecting micro-organism being present in the joints, may follow infections of the intestinal and urinary tract. The intestinal pathogens *Shigella*, *Salmonella*, and *Yersinia enterocolitica* have been associated with reactive arthritis. We describe a patient who developed an arthritis after enteritis caused by *Campylobacter jejuni*, a bacterium which has not been described as an aetiological agent in reactive arthritis.

Case report

A 20-year-old man was seen with arthritis of both ankle joints. Five weeks before he had become suddenly ill with fever (39.5°C), watery diarrhoea contaminated with blood, anorexia, and weight loss of 6 kg. These symptoms lasted for five days. *C jejuni* was isolated from the faeces. Two weeks after the onset of the enteritis an acute arthritis of both ankle joints developed. He had no dysuria, conjunctivitis, skin abnormalities, or lesions of the mucous membranes and no history of bowel or joint complaints. When seen three weeks after the onset of the arthritis the ankle joints were warm, tender, red, and swollen. The other peripheral joints and the spine, skin, nails, mucous membranes, penis, and eyes were normal. Laboratory examination initially showed an erythrocyte sedimentation rate of 40 mm in 1 hour, which later became normal. Haemoglobin, leucocyte and platelet counts, serum creatinine, urate, cholesterol, liver function tests, and complement factors C3, factor B, and C4 were within normal limits. A PPD skin test was negative. Aspiration of the right ankle joint produced clear yellow synovial fluid. No micro-organisms or polymorphonuclear leucocytes were seen in the Gram smear. Culture of the aspirate failed to grow *C jejuni*. Bacteriological examination of the stool at this time was also negative for *C jejuni* as well as for salmonella, *Yersinia enterocolitica*, and shigella. Serological tests were negative for rheumatoid factors, antinuclear and antiperinuclear antibodies, complement fixing antibodies against *Neisseria gonorrhoeae*, and agglutinating antibodies against *Y enterocolitica* types 3 and 9 and *Y pseudotuberculosis*. When *C jejuni* were isolated from the stools no