PENICILLINASE (B-LACTAMASE) PRODUCING NEISSERIA GONORRHOEAE IN KERALA

K Prasanna Moorthy, Koshy Thomas, P Sasidharan and Cynthia Papali

This report describes two cases of gonorrhoea from whom B-lactamase-producing gonococci were cultured.

Key Words : B-lactamase, Gonorrhoea.

Published literature on penicillinase producing *Neisseria gonorrhoeae* (PPNG) from India is scanty.[1,2] It is so far not a major health problem in India. The first case of PPNG was reported in 1976 from UK.[3] Almost simultaneously, two more cases were reported from USA.[4,5] Since then, PPNG strains have been reported[6] from some other countries as well. PPNG strains account for 30-60% of all cases of gonorrhoea in Singapore and other South East Asian countries.[7-9]

We are reporting two cases of penicillin resistant gonorrhoea caused by PPNG from Trivandrum.

Case Reports

Case 1

A 26-year-old man reported on 23-8-1983 with purulent genital discharge and burning micturition of 3 weeks duration. He had had sexual contact with a prostitute 7 months back followed by dysuria and purulent discharge per urethra. He took treatment from a dermatologist with penicillin injections (dose not known) with temporary relief. Since then he had had several recurrences during the intervening 7 months. He had taken treatment from various other sources with penicillin, erythromycin and co-trimoxazole.

From The Department of Dermatology and Venereology, Medical College Hospital, Trivandrum-695 011, Kerala, India.

Address correspondence to : Dr. K. Prasanna Moorthy, Govinda Mandiram, Kunnukuzhy, Trivandrum-695 001, Kerala, India.

The case was diagnosed as gonorrhoea on the basis of history, clinical examination and a positive urethral smear for Gram-negative diplococci. He was given injection procaine penicillin 4.8 mega units with 1 gm probenecid orally. Five days later, there was relief of dysuria and the urethral discharge became scanty. Urine deposits showed a few pus cells but no Gram-negative diplococci. The patient got married in the middle of September, 1983 and on 11-10-1983, he again reported with dysuria and purulent discharge per urethra. A Gram stained urethral smear showed Gram-negative diplococci. He denied any extra-marital contact. His wife also denied any pre-marital or extra-marital sexual contact. She did not have any evidence of gonorrhoea both clinically and bacteriologically.

The pus was inoculated on chocolate agar medium and gonococci were grown in culture. The organism was sensitive to tetracycline, but resistant to erythromycin, chloramphenicol, penicillin, ampicillin and co-trimoxazole. The patient was treated with tetracycline 500 mg four times a day orally for 5 days. Epidemiological treatment with tetracycline 500 mg 4 times a day orally for 5 days was given to his wife as well. The cultured strain of gonococci was tested for B-lactamase production by the Rapid Iodometric method and found to be positive. The case was followed up for 20 weeks and there was no relapse of gonorrhoea, though in between, the patient and his wife developed condyloma acuminata which was

treated successfully with 25% podophyllin in tincture benzoin topically. Blood VDRL test was repeatedly non-reactive.

Case 2

A 29-year-old unmarried man came on 2-10-1983 with dysuria and purulent discharge per urethra of 4 days duration. He had had sexual contact with a prostitute 5 days earlier. A diagnosis of gonorrhoea was made on the basis of clinical examination and a positive urethral smear for Gram-negative diplococci. He was given procaine penicillin 4.8 mega units intramuscularly with 1 gm probenecid orally. After 48 hours, dysuria had almost disappeared and urethral discharge was thin and scanty, but the urethral smear still showed Gram-negative diplococci. Seven days later, the patient reported with a full relapse of symptoms. Examination of the urethral smear showed Gram-negative diplococci. A culture and sensitivity test of the discharge material on chocolate agar medium showed gonococci sensitive to cephalosporin only, and resistant to penicillin, tetracycline, erythromycin, chloramphenicol and co-trimoxazole. This prompted us to test for penicillinase production by the Rapid Iodometric method; B-lactamase was detected. The patient was given cephalexin brand of cephalosporin 500 mg four times a day for 2 days. He was followed up for 6 weeks. Clinical and laboratory data showed a cure. Blood VDRL test was repeatedly non-reactive.

Comments

Till recently, the routine treatment for acute gonorrhoea was 1.2-2.4 mega units of procaine penicillin intramuscularly with 1 gm of probenecid orally. A few cases of gonorrhoea did require a higher dose of penicillin which was attributed to a relative resistance to penicillin. Hence the routine treatment of gonorrhoea was increased to 4.8 mega units of procaine penicillin intramuscularly with 1 gm probenecid orally. This observation has been reported by many workers from different centres.[2,10,11] Even though relative resistance of gonococci to penicillin has been noted earlier, absolute resistance of gonococci to penicillin due to penicillinase production was never reported from Kerala so far.[12] This is the first report describing cases of penicillin resistant gonorrhoea caused by penicillinase producing *Neisseria gonorrhoeae* from Kerala.

As the emergence of penicillinase producing strains of gonococci is a warning for an impending disaster which can shatter the economy of the country, we have to mobilise all the forces to activate the efforts to detect and weed out such strains as and when they appear. Further bacteriological and epidemiological studies are essential to find out, whether or not the resistance is plasmid-mediated and how far it is prevalent in the society.

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