

Medical Memoranda

Meningococcal Meningitis Complicated by Pericarditis, Panophthalmitis, and Arthritis

British Medical Journal, 1970, 2, 93

Banks (1948) referred to the protean nature of meningococcal infection. While most patients suffering from meningococcal disease present with acute meningitis, a small minority may produce any type of symptoms, causing a great deal of difficulty in diagnosis. We report a case of meningococcal meningitis complicated by pericarditis, panophthalmitis, and arthritis.

Case Report

The patient, an 18-year-old West Indian girl, had lived in Britain for eight years. She presented in January 1969 with a four-day history of headache, sore throat, and pain in the left eye. She also complained of reduced vision and increasing pain in the affected eye.

On admission the patient was conscious but drowsy and was gravely ill with a temperature of 103°F. (39.4°C.). The blood pressure was 120/90 mm.Hg. There was pronounced left periorbital oedema and purulent discharge from the left eye. The cornea of this eye was opaque and the anterior chamber contained pus. There was neck stiffness, early bilateral papilloedema, and a left sixth cranial nerve palsy. The remainder of the physical examination was negative.

Investigations.—C.S.F.: purulent fluid; 12,000 polymorphs/cu.mm.; protein 250 mg./100 ml.; sugar less than 10 mg./100 ml.; film, Gram-negative diplococci; culture, *Neisseria meningitidis*. Blood cultures and throat swab sterile. Haemoglobin 10.9 g./100 ml.; W.B.C. 14,700/cu.mm. (82% polymorphs); E.S.R. 124 mm./hour (Westergren); platelets 650,000/cu.mm. Sickling test negative; plasma protein electrophoresis normal; Mantoux test 1/1,000 negative.

Treatment was begun with benzylpenicillin 2 million units two-hourly by intravenous infusion. One per cent. atropine and cortisone-chloramphenicol drops were instilled into the left eye. After the first 24 hours the dose of benzylpenicillin was reduced to 2 million units six-hourly by intramuscular injection. Repeat lumbar puncture on the third day after admission showed clear C.S.F. containing 250 cells/cu.mm., with a protein content of 162 mg./100 ml.; culture was sterile. On the same day sulphadimidine in a dose of 1 g. by mouth six-hourly was started, with the intention of achieving improved intraocular antibacterial activity.

The patient's condition gradually improved, but on the eighth day after admission she complained of chest pain. Examination elicited a pericardial friction rub, and serial E.C.G.s confirmed pericarditis. She also developed pain in the right elbow joint, which was warm and tender with limitation of movement. X-ray pictures of the joint on two occasions showed no bony lesion.

The sulphadimidine therapy was stopped on the tenth day after admission, and penicillin was continued for a further two days. The subsequent course was one of gradual improvement. The pericardial friction rub disappeared three days after the chemotherapy was stopped and the E.C.G. reverted to normal. The inflammation of the left eye slowly subsided, but there was residual impairment of vision in this eye. The patient could count fingers, but was unable to read small print. The visual acuity on the left eye at the time of discharge was 6/60, and this improved to 6/36 four months later. The pain and tenderness of the right elbow joint cleared up rapidly. The patient was entirely symptom-free when last seen in July 1969.

Comment

The incidence of pericarditis, arthritis, and eye complications in meningococcal infection is rare (see Table). The case presented here is of interest in that the meningitis was asso-

Pericardial, Joint, and Eye Manifestations of Meningococcal Infection

	Total Cases	Pericarditis	Arthritis	Eye Involvement
Beeson and Westerman (1943)	3,575	1 (0.02%)	82 (2.7%)	18 (0.5%)
Banks (1948)	706	0	33 (4.7%)	7 (1.0%)
Koch and Carson (1958)	128	2 (1.6%)	4 (3.1%)	3 (2.4%)
Harries (1942)	500	0	29 (5.8%)	17 (3.1%)
Kaufman, et al. (1951)	242	0	15 (5.5%)	1 (0.4%)

ciated with one relatively unusual manifestation and two rare manifestations of meningococcal disease.

Penny and his colleagues (1966), reviewing the world literature on meningococcal pericarditis, noted that of the 50 reported cases only 15 had occurred since the advent of the sulphonamides in 1937. Pericarditis and myocarditis can, in fact, occur as allergic phenomena in sulphonamide therapy (Waring and Weinstein, 1946). Certainly the pericardial friction rub disappeared some three days after stopping the sulphonamides. Nevertheless, the disseminated nature of the complications in the present case would favour an infective rather than an allergic aetiology.

Neisseria meningitidis is a recognized but comparatively rare cause of eye disease. The infection is usually primary, and Shuttleworth and Benstead (1947) in a review of the world literature on primary meningococcal ophthalmia reported only one case of meningitis and two of septicaemia. In these instances both the meningitis and the septicaemia complicated the eye infection. They did, however, mention one case of ophthalmia occurring during meningococcal meningitis. Panophthalmitis is a fulminating suppurative condition of the eye with varying degrees of destruction of the retina and uveal tract, abscess formation in both vitreous and anterior chambers, corneal necrosis, and orbital cellulitis (Hogan and Zimmerman, 1962).

Arthritis is another uncommon complication of meningococcal infection, and according to Banks (1948) the joint effusion is usually sterile. Pinals and Ropes (1964) stated that commonly two or more joints were involved and that the effusions were relatively painless and seldom caused permanent damage. The joints most often involved were the knee, elbow, ankle, wrist, and metacarpophalangeal joints.

Mr. K. Rubinstein kindly advised on the ophthalmological management of the patient.

D. N. WILLIAMS, M.B., CH.B.,
Senior House-officer.

A. M. GEDDES, M.B., M.R.C.P.ED.,
Consultant Physician,
East Birmingham Hospital, Birmingham 9.

REFERENCES

- Banks, H. S. (1948). *Lancet*, 2, 635.
 Beeson, P. B., and Westerman, E. (1943). *British Medical Journal*, 1, 497.
 Harries, G. E. (1942). *British Medical Journal*, 2, 423.
 Hogan, M. J., and Zimmerman, L. E. (1962). *Ophthalmic Pathology*, 2nd ed., p. 119. Philadelphia, Saunders.
 Kaufman, B., Levy, H., Zalenak, B. D., and Litvak, A. M. (1951). *Journal of Pediatrics*, 38, 705.
 Koch, R., and Carson, M. J. (1958). *New England Journal of Medicine*, 258, 639.
 Penny, J. L., Grace, W. J., and Kennedy, R. J. (1966). *American Journal of Cardiology*, 18, 281.
 Pinals, R. S., and Ropes, M. W. (1964). *Arthritis and Rheumatism*, 7, 241.
 Shuttleworth, F. N., and Benstead, J. G. (1947). *British Medical Journal*, 2, 568.
 Waring, G. W., and Weinstein, L. (1946). *American Practitioner*, 1, 219.