was encountered after the three hours during which the acute meningitis became clinically apparent, and hence this possibility is excluded.

Welt *et al.* (1952) discuss the salt-wasting syndrome which has been described in a group of patients with a variety of cerebral lesions (Peters *et al.*, 1950). The very nature of the cerebral disease, which was diffuse in each instance, defied any attempt to analyse the site of the responsible lesion. It would seem that hypothalamic involvement leads to renal tubular loss of sodium and chloride. These patients, however, responded favourably to the administration of salt; this was not so in the present case.

Adrenal apoplexy due to the Waterhouse-Friderichsen syndrome presents a typical fulminating picture; this was not seen during the evolution of the present case, and can undoubtedly be dismissed on clinical grounds alone.

The normal daily production of cerebrospinal fluid in a patient of this age is only 100–150 ml., but it has been shown that if artificial drainage is provided several litres a day may be produced (Best and Taylor, 1955). It is impossible to estimate the amount of C.S.F. lost by this child, but it must have been considerable. On one day alone, the child received 3,050 ml. of fluid plus additional salt orally and 925 ml. of normal saline intravenously. In spite of this, although the clinical evidence of dehydration became less marked, the blood electrolytes failed to return to normal. The low pressure of the cerebrospinal fluid is probably another indication of the seriousness of the leak. It was only after the fistula was sealed off surgically that the patient rapidly improved and the blood electrolytes returned to normal values.

Summary

A case is presented in which a child sustained a fracture of the base of the skull complicated by pneumococcal meningitis and a copious C.S.F. otorrhoea.

The loss of C.S.F. induced serious dehydration due to a "salt-losing" syndrome, and surgical intervention was necessary to close the fistula.

Our thanks are due to Professor A. V. Neale for much helpful criticism and advice. We are also grateful to Dr. J. E. Cates, Mr. G. L. Alexander, and Mr. A. L. Eyre-Brook, under whose united care the patient came during his stay in hospital, for permission to publish this case.

REFERENCES

- Best, C. H., and Taylor, N. B. (1955). *Physiological Basis of Medical Practice*, 6th ed. Baillière, London.
Doxiadis, S. A., Goldfinch, M. K., and Philpott, M. G. (1954). *Brit. med. J.*, 1, 1406.
Harris, P. (1957). *Arch. Dis. Childh.*, 32, 488.
Pengelly, C. D. R. (1955). *Brit. med. J.*, 1, 870.
Peters, J. P., Welt, L. G., Sims, E. A. H., Orloff, J., and Needham, J. (1950). *Trans. Ass. Amer. Physns.*, 63, 57.
Welt, L. G., Seldin, D. W., Nelson, W. P., German, W. J., and Peters, J. P. (1952). *A.M.A. Arch. Intern. Med.*, 90, 355.

"There appear to be two schools of thought as to the duty of hospitals towards the elderly. One is to try to provide little else than a permanent residence for as many as possible and the other is to consider each admission to be temporary unless or until continuous care is proved to be unavoidable. The former system will give permanent care only to the few who are admitted. These will be well looked after while a vast and increasing majority will continue in distress. The latter system, on the other hand, makes the hospital service available to a larger number of people because beds will become vacant by frequent discharges. It will be possible to give early treatment and care to those who need it when they need it and enable them to return to the community, which is surely a hospital's purpose."—Report to December 31, 1957, of Hospital Personal Aid Service for the Elderly (King Edward's Hospital Fund).

Medical Memoranda

Sensitivity to Penicillin in British Poliomyelitis Vaccine

This poliomyelitis vaccine contains a small amount of penicillin. In a recent reply to a question regarding the safety of giving it to a penicillin-sensitive person, it was stated, "To our knowledge no report has been made of any case of sensitization to the antibiotics" (*Brit. med. J.*, 1958, 1, 1555). In view of this reply, and the increasing use of the vaccine, the following report of a case may be of general interest.

CASE REPORT

An apparently healthy boy aged 12 was given an injection of 1 ml. of the British vaccine into the left upper arm. He had a history of sinus trouble, and was known to be sensitive to penicillin, having developed a generalized erythematous rash during treatment with the drug following a toe injury. There was no history of any other specific allergic disorder, and he had never had an attack of bronchospasm. In his family, two maternal aunts have skin disorders. One develops eczematous reactions when in contact with the metal of jewellery and suspenders. The other has urticarial reactions with no apparent specific cause.

The day after the injection I was called to see the boy. He complained of a severe frontal headache, and was lethargic, anorexic, and generally unwell. A few hours after the injection a sparse itchy rash had appeared on the trunk and limbs, with the rapid development of vesicles, especially on the right buttock and leg. He was afebrile, the chest was clear, and there were no abnormal signs referable to the central nervous system. Treatment with an antihistamine was begun with good results.

Three days after the injection, however, he complained of breathlessness and of a tight feeling across the chest. Bronchospasm was present, but was quickly abolished with an antispasmodic. Treatment with this and the antihistamine was continued. Six days after the injection a dose of the antihistamine was missed. He felt worse generally, and the bronchospasm returned, but settled when treatment was resumed.

Though the acute chest and skin symptoms and signs settled, the headache persisted, being severe at times and difficult to relieve. The general malaise also remained. He was therefore examined by Dr. J. P. Bound, consultant paediatrician, Victoria Hospital, Blackpool, who agreed, however, that there were no abnormal signs referable to the central nervous system.

After 10 days the persistent symptoms began to improve, and on the thirteenth day treatment was stopped, with no recurrence of them. He had been afebrile throughout. Eleven days after treatment ended (twenty-four days after the injection) the signs and symptoms of mumps appeared.

COMMENT

In view of the known sensitivity to penicillin in this case, and the absence of other precipitating factors, I think that the skin reaction must be considered as part of a sensitivity reaction to the small amount of penicillin in the vaccine. The bronchospasm may have been related. The precise origin of the severe headache must be conjectural.

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Treatment of Cardiac Arrest

Several articles on cardiac arrest have appeared in the medical press (*Brit. med. J.*, 1956; Briggs *et al.*, 1956; Milstein, 1956; O'Reilly and Ohlke, 1956; Wylie, 1956). These have stimulated us to consider afresh how our efficiency in dealing with this emergency can be improved. As Milstein (1956) has said, cardiac arrest is an emergency which may suddenly face any surgeon, anaesthetist, radiologist, or physician, and it is well that even the most junior member