portion of the lung. The risks of operation are almost negligible. In later stages when complications set in, the treatment becomes more tedious and prolonged.

It is better to prevent the entry of oily materials into the lungs both in children and adults. Proper care and precautions should be taken in feeding the children and prescribing laxatives for patients with chronic constipation. Use of oily nasal drops should be discouraged. Patients with disorders of swallowing or other oesophageal diseases should be warned of the danger of spilling of food into the larynx. In the case described, spraying of nasal cavities with some oily material seems to be responsible for the production of the lesion. Generally, it takes a long time for the development of chronic granulomatous lesions but in this

patient, for such a big lesion the time between the use of oil and the production of the lesion was rather short.

Summary

A case of oil granuloma (Paraffinoma) is presented. It is suggested that the use of oily materials in ways which carry risk of its entry into the trachea and lungs should be avoided. When an opacity is noticed in the lungs of a patient, the diagnosis must be established. If the lesion proves to be an oil granuloma it should be removed.

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ESCH. COLI SEPTICAEMIA TREATED WITH AMPICILLIN

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ATTENTION has been drawn to lack of reports of antibiotic-treated gram-negative septicaemia in this country (Gibson and Barrie, 1961). A case report of a post-partum infection treated with antibiotics, including 'Penbritin' (ampicillin), is therefore of some interest.

Case Report

A primigravida, aged 26, was admitted with pre-eclamptic toxæmia on February 25, 1962. Following surgical induction she was delivered of a healthy live female infant on February 27, 1962. She had a post-partum hæmorrhage of 22 oz. but did not require transfusion. On the morning of March 2, 1962, she produced heavily bloodstained urine, this being associated with increased frequency of micturition, stranguary, dysuria, and severe pain in the right loin. The pain required repeated doses of morphine for its control. That afternoon her temperature rose to 104.8°F. and a rigor ensued. Blood culture taken at this time grew

abundant coliform bacilli with the following sensitivities: nitrofurantoin ++, streptomycin +, chloramphenicol +, tetracycline +, ampicillin +, resistant to erythromycin and sulphonamides. Coliforms were also isolated on the same day from the urine and a high vaginal swab.

Treatment was started with nitrofurantoin ('Furadantin') and streptomycin (see chart). She appeared clinically improved until the evening of March 4, 1962, when she had a further rigor and recurrence of hæmaturia. By the following day her condition had deteriorated with return of severe right loin pain, persistent vomiting and fever. On examination she was acutely tender in both loins, worse on the right. In view of the clinical deterioration it was obvious that the above therapy was failing to control the infection and it was decided to give a course of 'Penbritin'. After ensuring that there was no previous history of penicillin sensitivity an initial dose of 2 g. was followed by 1 g. six-hourly. At this time nitrofurantoin was stopped but streptomycin was continued. Because of troublesome vomiting, cyclizine lactate ('Valoid') 50 mg. was given

intramuscularly to ensure retention of the full dosage of 'Penbritin'.

Clinical response was dramatic; within 24 hours she was almost free of pain and the tenderness was much less. At 48 hours she was afebrile and remained so. However, two days after starting 'Penbritin' she developed diarrhoea which persisted despite treatment until the drug was stopped three weeks later; no pathogens were isolated from the stools. Some relief was obtained with a preparation of *Lactobacillus acidophilus* ('Enpac') given by mouth. Streptomycin was stopped after six days' treatment (total course, 6 g.). On the fifth day of 'Penbritin' therapy the dose was reduced to 500 mg. six-hourly. At this stage the urine contained numerous white cells and a few R.B.C., but was sterile on culture then and subsequently.

The patient was discharged home 14 days after the onset of her illness, taking 'Penbritin' 250 mg. q.d.s. for a further two weeks. In the search for a predisposing cause for this acute episode an intravenous pyelogram revealed a right-sided hydronephrosis which is being further investigated.

Discussion

The interest of this case of gram-negative septicæmia resulting from a renal infection lies in its response to 'Penbritin'. The infection had failed to be controlled by 1,200 mg. of nitrofurantoin and 3.5 g. of streptomycin given over three days. 'Penbritin' has been shown to be bactericidal (Rolinson and Stevens, 1961) and non-toxic in large doses (Brown and Acred, 1961). It has been suggested (Knudsen, Rolinson and Stevens, 1961) that 750 mg. or more of the antibiotic six-hourly may be required for infections due to gram-negative

organisms with a minimum inhibitory concentration range of 0.5 to 5 µg./ml. Brumfitt, Percival and Carter (1962), in their clinical trial, found that only 51% of 41 *Esch. coli* isolated from patients were sensitive to a minimum inhibitory concentration of 'Penbritin' of 5 µg./ml. These workers used only 500 mg. six-hourly in their patients, producing average serum levels of 3.6 µg./ml., this being the maximum, at two hours after administration. The relatively low serum levels of the drug produced by this dosage may account for their finding that for *Esch. coli* infections there was little difference in the response of two groups of patients treated with 'Penbritin' and nitrofurantoin respectively. Thus doses considerably in excess of 750 mg. six-hourly may, in fact, be necessary. In the case described above the dosage employed of 2 g. statim followed by 1 g. six-hourly appeared adequate to produce satisfactory and rapid resolution of the infection.

It is significant that diarrhoea became a troublesome complication within 48 hours of starting 'Penbritin' and cleared completely only after cessation of the drug. It has been shown (Stewart, Coles, Nixon and Holt, 1961) that the drug produces pronounced suppression of the normal flora of the faeces. Should diarrhoea be a frequent complication of optimum therapy with 'Penbritin', replacement of normal bacterial flora with a resistant strain of *Lactobacillus acidophilus* at the start of treatment may be of value. A proprietary preparation ('Enpac') which is resistant to 'Penbritin' (A. J. Martin, 1962) would be suitable for this.

The authors suggest that 'Penbritin' in full dosage

is the treatment of choice in *Esch. coli* septicæmia and renal infection, and that other antibiotics (e.g. streptomycin) should be given concurrently until the sensitivities of the organism concerned are known in view of the possibility of penicillinase producing strains.

Summary

A case of *Esch. coli* septicæmia treated with 'Penbritin' is reported. Rapid resolution was

obtained with this drug. It is suggested that 'Penbritin' (ampicillin) in full dosage is the treatment of choice in septicæmia and renal infections due to *Esch. coli*, and that other antibiotics, e.g. streptomycin, should be given concurrently until the sensitivities are known.

The complication of diarrhœa is mentioned.

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