Short reports

Two cases of perinatal listeriosis

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SUMMARY Two cases of neonatal listeriosis are described. The incidence in the UK is given and the treatment of the pregnant woman is briefly discussed.

Perinatal listeriosis is believed to be rare in Britain but it may be under reported. It carries a high mortality for the child but the mother suffers only a mild illness. Two cases are described in which the infants survived. One of these is thought to be the first description of a case treated during pregnancy in this country.

Case reports

Case 1. A 35-year-old Englishwoman, married to a Greek and living in Germany attended our antenatal clinic at approximately the 35th week of her 2nd pregnancy. A previous pregnancy 6 years previously had been normal.

Admitted in early labour 8 days later her temperature was 36°C and the pulse rate 84/min. She had a spontaneous delivery of a baby girl who had difficulty in breathing. The placenta was retained and removed manually, and a postpartum haemorrhage required blood transfusion during which her temperature rose to 38°C.

Although a transfusion reaction could not be excluded clinically a course of gentamicin 80 mg intramuscularly 8-hourly was begun lest infection were present. A transfusion reaction was subsequently excluded. Unfortunately a blood culture was not taken until the next day; it showed no growth. A high vaginal swab and urine sample, also taken next day, yielded no significant organisms. Her pyrexia persisted throughout the day rising to 38.1°C with rigors. Urinary output was satisfactory and her general condition good. At this stage the patient's history was re-examined and it was found that on the day before admission she had had a temperature of 38°C with cold sweats and rigors, and she had had several 'flu-like episodes' during her pregnancy in

Germany before arrival here. Her illness had been vague and there had been no diagnosis; she had been given several drugs which we could not identify. Pyrexia lasted until 2 days after delivery reaching a maximum of 39°C and then settled. There was no evidence to suggest genital tract infection and her subsequent progress was uneventful.

The baby weighed 2980 g and was assessed as 36 weeks' mature. She had Apgar scores of 1, 5, and 8 at one, five, and ten minutes respectively and had to be intubated. Her respiratory difficulties continued and blood-gas and bicarbonate studies suggested a perfusion-diffusion defect. After 16 hours she became jaundiced. As the father was Greek glucose-6-phosphate dehydrogenase deficiency was looked for and excluded. At 36 hours she developed a purpuric rash. A full infection screen was carried out including antibody screen for rubella, cytomegalovirus, measles, herpes simplex, and toxoplasma. None of these was positive and the platelet count was normal. Two separate blood cultures and swabs from the eyes, nose, throat, skin, and umbilicus all grew *Listeria monocytogenes* type 4. The CSF was sterile but contained 0.014×10^9 /l white cells, 75% polymorphs. The urine was sterile.

Once the diagnosis had been made in the baby the mother's blood was again cultured, but still with negative results. Urethral, cervical, and vaginal swabs were again negative. Serological tests carried out on the day of delivery and 15 days later each gave an agglutination titre of 2048 against *Listeria*. The placenta was not available for examination but it looked healthy and complete and weighed 700 g.

A course of flucloxacillin and ampicillin equally (Magnapen) 125 mg 6-hourly had been prescribed for the baby at 12 hours, and gentamicin 7.5 mg IM 12-hourly was added at 36 hours, and the Magnapen changed to ampicillin alone. This gave a gentamicin blood level of 5.6 mg/l one hour after injection. Gentamicin was continued for a total of 14 days and ampicillin for 28 days.

The baby's condition slowly improved and she

weighed 3375 g on discharge when 36 days old. She was feeding and behaving normally for a preterm neonate. The parents who were returning to Germany were strongly advised to seek developmental follow-up by a paediatrician.

Case 2. A 31-year-old Englishwoman living in an Essex village was admitted with slight vaginal bleeding. She had not recently travelled abroad. She was 29 weeks' pregnant by dates but the uterus was 36 weeks by size. Her temperature was 37.8°C, pulse 88/min, and blood pressure 130/80 mmHg. The fetal heart rate was 156/min. She was slightly flushed but had no pain. A slight brownish vaginal discharge had been present 2 weeks before. She was mildly sedated and was kept under observation.

Next day her temperature was 38°C. The fetal heart rate varied between 148 and 140/min. At midnight she had a slight bright red blood loss and a further rise in temperature to 38.8°C. Blood, urine, and a high vaginal swab were taken for culture. That night she passed a small blood clot and in the morning her temperature was 39°C and WBC $9.3 \times 10^9/l$ (85% polymorphs). Ultrasound scan excluded placenta praevia. Vaginal examination with a speculum showed an acutely inflamed, very vascular, and friable cervical polyp; a diagnosis of possible carcinoma of the pregnant cervix was made. Cytology showed only inflammatory cells. It was decided that the polyp should be removed for histology and, preparatory to this, ampicillin 500 mg 6-hourly IM for one day, followed by 500 mg 6-hourly orally with 1 g per day of probenecid was prescribed. Next day she was afebrile but the blood culture showed *L. monocytogenes* type 1/2, so gentamicin 80 mg 8-hourly IM was added and the probenecid stopped. No growth of *Listeria* or other significant organism was obtained from the high vaginal swab or urine but these cultures were only held for 24 hours. A serum gentamicin level of 2.9 mg/l one hour after injection was obtained.

After one week's treatment, during which the patient remained afebrile and fetal movements were vigorous, the polyp was removed. Histologically there was no evidence of malignancy but mild inflammation was present. Gram tissue stain showed no organisms, and no growth was obtained either from the polyp or from vaginal swabs taken at operation.

The next day gentamicin was stopped but ampicillin, again with probenecid, continued. Four days later the patient spontaneously delivered a healthy child. Ampicillin was discontinued next day having been given for a period of 14 days.

Serological tests showed an agglutination titre of 32 against *L. monocytogenes* on the day of delivery and again 15 days later.

The baby girl weighed 2155 g and was assessed as 37 weeks. No difficulty was experienced during delivery and she had an Apgar score of 8 to 9 at one minute and 10 at five minutes after delivery. She had no respiratory difficulty and no problems apart from low birthweight. She fed well and gained weight normally.

Listeria was not isolated from her nose, eyes, throat, or umbilicus on delivery nor was it isolated from the liquor amnii or placenta. Blood and CSF cultures were sterile. She was not given systemic antibiotics but was carefully watched for development of any respiratory or neurological signs.

Discharged at 23 days paediatric follow-up has shown normal development at the 3-month stage and should continue.

The placenta weighed 450 g and the histology showed moderate intervillous fibrin deposition and focal calcification. One area of pyogenic abscess formation in an ischaemic infarct was seen and may well reflect bacterial colonisation of an infarct. No organisms were seen.

Discussion

Only 14 cases of neonatal listeriosis have been described in the UK (Edmunds *et al.*, 1957; Barrow and Pugh, 1958; Moore and Whitmore, 1960; Harding and Brunton, 1962; Barber and Okubadejo, 1965; Coleman, 1965; Jellard and Churcher, 1965; Beck *et al.*, 1966; Scott and Henderson, 1968; Kite, 1975), and one other case is known from personal communication (D. Robson and R. N. Peel, 1976). Between 1967 and 1972, 47 cases of listerial infection in children under one year were reported to the Public Health Laboratory Service of which 14 were fatal, but the data do not say how many were neonates. Between 1972 and 1975, 24 neonatal cases were reported of whom 9 recovered and the outcome was not recorded for 6. In 1977 at least 4 out of 11 neonates died. A mortality rate of 91% for babies has been recorded in Canada (Sepp and Roy, 1963). Occasionally the child is several months old when meningitis supervenes (Wright and Macgregor, 1939; Edmunds *et al.*, 1957; Turner *et al.*, 1958).

There have been several small outbreaks in Germany (Seeliger *et al.*, 1969) and one in New Zealand (Becroft *et al.*, 1971). Infection of the mother is usually thought to occur by ingestion of contaminated food or possibly by sexual intercourse leading to either transplacental or transmembranous infection of the fetus (Robertson, 1977) from the mother's blood stream or faeces. Case 1 gives a typical antenatal history, and the bleeding polyp in Case 2 was a possible portal of entry for the organism from the vagina to the mother's blood. Hospital

crossinfection of babies was a possibility in Sweden (Larsson *et al.*, 1978), but this could not be so in these two cases as the illnesses were caused by different serotypes, although the interval between them was only a few weeks.

We have found 10 cases reported in which the pregnant woman was treated (Hood, 1961; Sepp and Roy, 1963; LeGouguec *et al.*, 1971) and the diagnosis was proved by blood culture. A wide variety of antibiotics was used—such as penicillin, tetracycline, spiramycin, sulphonamide, chloramphenicol, and streptomycin, alone or in various combinations. These 10 cases resulted in 7 healthy babies, 2 infected babies, and one abortion. Our Case 2 appears to be the first to be described in Britain. Kanamycin and ampicillin in combination proved very effective in the New Zealand outbreak (Becroft *et al.*, 1971) and gentamicin and ampicillin in combination were successful in our patients.

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Water intoxication by the oral route in an infant

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SUMMARY Symptomatic water intoxication is common when hypo-osmolar fluids are given therapeutically, usually intravenously, but it is rare after drinking voluntarily (Wynn and Rob, 1954). We report a case of water intoxication caused by voluntary drinking in an infant.

Case report

A 10-month-old girl was admitted to hospital because of generalised convulsions which had begun an hour earlier. The child was born to a healthy mother after an uneventful pregnancy and normal delivery. Her birthweight was 3200 g and development until