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Correspondence to Dr D K Stevenson, Department of Pediatrics, S-222, Stanford Medical Center, Stanford, California 94305, USA.

Received 3 March 1987

Successful suprapubic aspiration of urine

C O'CALLAGHAN* AND P N McDOUGALL

*Department of Neonatology, The Royal Children's Hospital, Melbourne, Australia, and the *Department of Child Health, University Hospital, Nottingham*

SUMMARY When the bladder of neonates requiring suprapubic aspiration of urine was shown to contain urine on ultrasound scanning, suprapubic aspiration was successful on the first attempt in all cases. Without prior scanning only 36% of first attempts at aspiration were successful.

Accurate diagnosis of urinary tract infection in neonates is important¹; collection of urine is preferably by suprapubic aspiration, as bag collections are often contaminated.² Unfortunately, suprapubic bladder aspiration, even by experienced medical staff, often requires repeated attempts. This is painful for the infant and may lead to complications such as infection and bowel perforation. This study was performed to assess ultrasound scanning of the bladder as an aid to successful aspiration of urine.

Patients and methods

The infants studied were from the neonatal intensive and special care units at the Royal Children's Hospital, Melbourne. Forty three consecutive infants requiring suprapubic aspiration of urine as part of their infection screen were studied. Suprapubic aspiration of urine was performed as described by Nelson and Peters.³

For 15 of those infants, an ultrasound ATL 300 machine was available and their bladders were scanned for the presence of urine. Aspiration was only attempted if urine was seen on ultrasound scan. If urine was not seen the infant was rescanned at 10-15 minute intervals until it was seen, and only then was aspiration attempted. The other 28 infants required suprapubic aspiration when the ultrasound

machine was not available. A record of the number of attempts needed to obtain a sample was made. If after three attempts no urine was obtained, a bag collection was performed.

A further 40 infants not requiring suprapubic aspiration were scanned for the presence of urine in their bladder. If no urine was detected they were rescanned at 10-15 minute intervals until urine was detected.

Results

Of the 15 neonates scanned by ultrasound prior to aspiration, urine was shown to be present in the bladder within 30 minutes in all cases. Aspiration attempted when urine was seen was successful on all 15 occasions. Of the 28 neonates not scanned, only 10 (36%) had successful aspiration of urine on the first attempt. No urine was obtained despite three attempts at suprapubic aspiration in seven of these infants and bag collection was done instead. Of the 40 neonates scanned at random, 13 (33%) had urine detected within the bladder. Urine was detected in the bladders of all but one of the 27 remaining neonates within 45 minutes.

Discussion

If the bladder was seen to contain urine on ultrasound scan suprapubic aspiration was successful on the first attempt in all cases. In all but one case urine could be detected within 45 minutes by ultrasound scanning. The infant not showing bladder filling after this period was found to have renal agenesis.

Without scanning, only 36% of first attempts at suprapubic aspiration were successful. This corre-

lated well with the random bladder scans performed on other infants, where only 33% had urine detected in their bladder at the time of initial scanning. The technique of bladder scanning for urine content can be taught to resident medical staff in less than 10 minutes.

With the increasing availability of ultrasound machines on neonatal wards, paediatric wards, and even in the community, bladder aspiration will present less of a problem to medical staff and result in less pain to babies.

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Correspondence to Dr C O'Callaghan, Department of Child Health, University Hospital, Nottingham, England.

Received 23 April 1987

Early congenital syphilis and severe haematological disturbance

M C G STEVENS,* P J DARBYSHIRE,* AND S M BROWN†

*Departments of Oncology and Haematology, Children's Hospital, Birmingham, and †Department of Paediatrics, Walsgrave Hospital, Coventry

SUMMARY The early clinical signs and symptoms of congenital syphilis are diverse but, if undiagnosed, signs of the disease may subside until the late stigmata appear. We report a case that illustrates that the haematological signs and symptoms may be so severe as to mimic a diagnosis of leukaemia or disseminated malignant disease.

Early congenital syphilis is rarely diagnosed in the United Kingdom; an average of 12 cases a year were reported between 1973 and 1982.¹ Clinical signs are usually absent at birth and during the first few weeks of life. The earliest findings may be non-specific and subsequent symptoms and signs are diverse; if untreated they may subside until the stigmata of late congenital syphilis appear. The chief pitfall in the diagnosis of early infection is paediatricians' failure to include it among the differential diagnoses of a large number of illnesses in infancy. We report a child with early congenital syphilis who presented with such profound haematological disturbance that leukaemia or disseminated malignant disease were considered to be the most likely diagnoses.

Case report

An 8 week old baby girl presented with a one week history of rash, irritability, and increasing pallor. She had been born at 36 weeks' gestation, weighing 2400 g, after a pregnancy complicated only by uncertain dates. Serological screening at about 22 weeks' gestation showed a negative reaction for

syphilis using the Venereal Diseases Research Laboratory (VDRL) and *Treponema pallidum* haemagglutination (TPHA) tests. She had mild jaundice which was treated with phototherapy for 24 hours and subsequently resolved. On examination she was feverish with extreme pallor and a wide-spread rash characterised by circular, erythematous (almost papular) lesions, and some superficial scaling. There were a few bruises over the trunk and the liver edge was palpable 8 cm, and the spleen tip 6 cm, below the costal margins. Examination of the fundi, mucosal surfaces, perianal region, and genitalia yielded normal results.

Initial haematological investigations showed a haemoglobin concentration of 2.9 g/dl, a platelet count of $<10 \times 10^9/l$, a white cell count of $22.4 \times 10^9/l$ (neutrophils 11%, lymphocytes 61%, monocytes 4%, metamyelocytes 3%, myelocytes 1%, blast cells 20%), and the ratio of nucleated red cells to white cells was 2:100. Examination of the peripheral blood smear confirmed the presence of immature 'blast-like' cells. Coagulation screen yielded normal and direct antiglobulin test negative results. Despite the severity of the thrombocytopenia and poor initial response to transfusion of platelets there was no obvious evidence of bleeding. Liver function tests were abnormal with aspartate aminotransferase activity of 66 IU/l (normal <50); alanine aminotransferase activity of 60 IU/l (normal <40); alkaline phosphatase activity of 1147 IU/l (normal for age); bilirubin concentration of 44 $\mu\text{mol/l}$ (normal <17); direct bilirubin concentration of <5 (normal); total protein concentration of 49 g/l (normal 55-75); and albumin concentration of 15 g/l (normal 30-50).