

the response takes the form of child abuse but could as easily be other antisocial acts both within and outside the family.

While it may be difficult to alter the fundamental make-up of such people at this stage in their lives, early recognition of the features described would allow specific supportive therapy to be applied to the family at risk. Involvement of the social services and health visitors, improving housing conditions, obtaining a day nursery placement for the child, and possibly psychiatric help may be needed.

Ideally, early preventive measures should be undertaken. Screening of the parents in the antenatal and postnatal periods with regard to their attitudes and feelings possibly coupled with the medical staff's assessment of their approach to the child would be of value in defining the 'at risk' group. Where the child is in a special care unit every effort should be made to encourage the mother at least to handle and feed her child whenever possible. It should be remembered that those families coping with a child who is in any way abnormal, be it a congenital or acquired defect, may be especially at risk.

### Summary

The obstetric histories and early lives of 28 subsequently abused children are reviewed. The youngest child, more often male, was shown to be most 'at risk' especially if the mother was pregnant. Reduced antenatal care, separation of mother and child during the neonatal period, illness, poor environment, and parental problems were common features.

It is felt that these and other difficulties may be regarded as 'environmental pressures' leading to child abuse by susceptible individuals. Early recognition of such situations could lead to preventive and supportive measures.

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## Complication of suprapubic bladder aspiration

Suprapubic bladder puncture has become a well-recognized method of obtaining uncontaminated urine specimens. It is particularly accepted in paediatric practice, where the collection of a satisfactory 'clean' urine specimen can be very difficult. There are obviously several theoretical complications, for instance bowel puncture, puncture of a large vessel, and leakage of urine into the tissues, but in practice very few complications are observed. We report 2 cases of anterior abdominal wall abscess occurring after suprapubic bladder puncture. In both cases the technique used was identical. The hands were thoroughly washed, but not scrubbed. The skin was cleaned with 0.5% chlorhexidine in 70% spirit. A 10 ml syringe was used with a 21G needle. The needle was inserted in the midline approximately 1 cm above the suprapubic skin crease and perpendicular to the anterior abdominal wall. It was advanced 2.5 cm and the syringe plunger withdrawn. If no urine was obtained, the tension was maintained on the plunger and the needle withdrawn slowly. The procedure was performed once only, and no probing was done.

### Case reports

**Case 1.** A 9-day old Irish boy was admitted with a 6-day history of loose stools. On examination he was dehydrated and investigations revealed a serum sodium of 172 mEq/l, potassium 4.0 mEq/l, urea 154 mg/100 ml, and bicarbonate 8.0 mEq/l. Haemoglobin was 24 g/dl, total white blood count 21 000/mm<sup>3</sup>, 34% neutrophils and 64% lymphocytes. Nose, throat, umbilical, and rectal swabs revealed no abnormality. Attempted suprapubic bladder puncture produced intestinal contents. He was treated with intravenous fluids and kanamycin and cloxacillin. 2 days after admission he developed an abscess at the site of the suprapubic puncture which discharged sterile pus 3 days later. He made a good recovery from his illness and was discharged home 9 days after admission.

**Case 2.** A 3-week-old Indian girl was admitted with a history of vomiting and irritability. On examination she had lost 500 g since birth and was grossly dehydrated with acidotic respiration and bradycardia. Investigations revealed a serum sodium of 134 mEq/l, potassium 5.3 mEq/l, bicarbonate 1.0 mEq/l, and urea 150 mg/100 ml. Nose, throat, umbilical, and rectal swabs, blood culture, and CSF examination revealed no abnormality. Haemoglobin was 15.8 g/dl, total white blood count 20 250/mm<sup>3</sup>. Suprapubic bladder puncture was unsuccessful, intestinal contents being aspirated. The baby was treated with intravenous fluids, including sodium bicarbonate, and intravenous kanamycin and cloxacillin. In the course of rehydration she had a convulsion which was controlled with paraldehyde and phenobarbitone. In view of her extremely serious condition hydrocortisone was also given for 24 hours. 3 days later the right ear started discharging pus which grew *Pseudomonas aeruginosa* sensitive to gentamicin, and she was therefore given a course of this. The re-introduction of full-strength milk feeds precipitated an episode of bile-stained vomiting, absent bowel sounds, and abdominal distension, which settled with gastric aspiration and intravenous fluids. 8 days after admission to hospital the antibiotic was changed to co-trimoxazole. The baby's condition at this time was moderate; she was tolerating clear fluids orally, was reasonably active, and still had a discharging right ear. Repeated attempts to reintroduce milk feeds failed, though no abnormal sugars were found in urine or stool. In view of this she was given Velactin, which she tolerated well.

Twenty days after admission a swelling was noted in the suprapubic region, slightly to the right of the midline. This became fluctuant and red, and over the next 3 weeks the surface skin peeled off. The conclusion was reached that this was an abscess. No attempt was made to incise or aspirate it and after about 3 weeks it disappeared spontaneously. Sweat test and nitroblue tetrazolium test were normal and immunoglobulins were normal for age.

### Discussion

There can be little doubt that in Case 1 the development of a suprapubic abscess was directly related to the attempted aspiration of urine via the suprapubic route. In Case 2 the time interval between aspiration and swelling, and the failure to establish a definite diagnosis of abscess formation, make interpretation more difficult. This baby had a chronic otitis media, which eventually developed into mastoiditis, and it was felt that there may have been a qualitative defect in her immunological response, though none was identified. Whatever the mechanism, it was felt that the most likely explanation for the suprapubic swelling was infection in the needle track after the attempted suprapubic bladder puncture.

It is worthy of comment that both these babies

were grossly dehydrated when the attempts were made at bladder puncture, and their bladders were not palpable. In both cases intestinal contents were aspirated, and both children were treated with antibiotics.

In over 2 000 cases of suprapubic bladder puncture reported by Eykyn and Newman (1969) bowel was entered on only one occasion and this without adverse effect. Nelson and Peters (1965) reported 2 cases of suprapubic haematoma without infection. Though the complication rate for this procedure is obviously very low, it is important to remember that problems can occur which may be potentially serious. The grossly dehydrated baby may be particularly at risk, but this baby also presents the more urgent diagnostic and therapeutic problem.

### Summary

Suprapubic abscess formation was seen in 2 babies after attempted suprapubic bladder puncture. In both cases the baby was grossly dehydrated and gut contents were aspirated. Though this complication is rare, it should be remembered, as with all investigations, that a definite indication should be present before suprapubic aspiration is undertaken.

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## Anterior fontanelle size in the neonate

Assessment of the tension and size of the anterior fontanelle is important in the routine examination of newborn infants when considering, respectively, possible disturbances of intracranial pressure and disorders of skeletal development. The diagnosis of an abnormally large or small anterior fontanelle at birth must assume a knowledge of normal variations in its size, but surprisingly there are no satisfactory references in published reports either to methods of measurement or to possible variations in size of the anterior fontanelle in relation to gestational age and intrauterine growth.