- 3 Nadel NS, Gitter MH, Hahn LC, Vernon AR. Preoperative diagnosis of testicular torsion. *Urology* 1973;1:478.
- 4 Melloul M, Paz A, Lask D, Manes A, Mukamel M. The value of radionuclide scrotal imaging in the diagnosis of acute testicular torsion. *Br J Urol* 1995;76:628-31.
- 5 Fenner MN, Roszhart DA, Texter JH. Testicular scanning: evaluating the acute scrotum in the clinical setting. *Urology* 1991;38:237-41.

Author's reply

EDITOR,—The clinical evaluation of the acute scrotum in children is difficult, but I have yet to see a study correctly evaluating the value of radionuclide isotope imaging solely in this population. All of the studies quoted by C J Luscombe and colleagues have been performed predominantly in adults. Children are uncooperative, and their testes are smaller, which must increase the diagnostic error. For instance, in a large series of children with an acute scrotum Lewis *et al* reported a sensitivity of 95.4% and a specificity of 85.7% for radionuclide imaging,¹ which is not as clear cut as Luscombe and colleagues imply. Fenner *et al*, whom Luscombe and colleagues cite, stated, "We believe its [radionuclide imaging's] routine use in clinical practise is limited" and "would result in needless delays and unjustifiable expense."² This is from advocates of the technique.

There is no doubt that delay in surgery results in ischaemia, infarction, and testicular loss. Any diagnostic strategy has to be designed with this as the bottom line. If a nuclear medicine department can perform and report such an investigation within an hour of a request being made by the accident and emergency department, presumably at any time of the day or night, then the investigation may have a role. If the department cannot do this then rapid exploration is the option that is safest (to the testicle). The economic argument is spurious: one false negative scan leading to legal action will wipe out any pecuniary advantage.

MARK DAVENPORT
Consultant paediatric surgeon

Department of Paediatric Surgery,
King's Healthcare NHS Trust,
King's College Hospital,
London SE5 9RS

- 1 Lewis AG, Bukowski TP, Jarvis PD, Wacksman J, Sheldon CA. Evaluation of the acute scrotum in the emergency department. *J Pediatr Surg* 1995;20:277-82.
- 2 Fenner MN, Roszhart DA, Texter JH. Testicular scanning: evaluating the acute scrotum in the clinical setting. *Urology* 1991;38:237-41.

Don't count on urinary white cells to diagnose childhood urinary tract infection

EDITOR,—Because pyuria is common in febrile children,¹ screening for urinary tract infection in children by detecting increased urinary white cells (with leucocyte esterase strips or standard microscopy) will produce false positive results. Because urinary white cells may disappear rapidly,² such screening will also produce false negative results. We report on a child with a devastating urinary tract infection who had very few urinary white cells for another reason.

An extremely ill 8 month old boy presented after 36 hours of diarrhoea, vomiting, and fever. He was drowsy and dehydrated but did not have any localising signs. On the ward, phase contrast microscopy of a suprapubic urine specimen showed $>10^{11}$ rods/l but $<20 \times 10^6$ white cells/l; 12 hours later the presence of *Escherichia coli* was confirmed in urine and blood. A culture of cerebrospinal fluid was sterile. Creatinine and electrolyte concentrations indicated established oliguric acute renal failure, with a fractional excretion of sodium of 2.0%. Ultrasonography showed a solitary, non-obstructed, right hydronephrosis and hydroureter. His haemoglobin concentration

(109 g/l) and platelet count (175×10^9 /l) were in the low normal range, but his neutrophil count was very low at 0.9×10^9 /l, and most cells seemed immature. At 13 hours he had a cardiorespiratory arrest (despite a normal potassium concentration of 4.8 mmol/l) and could not be resuscitated. Postmortem examination showed haemorrhagic adrenal glands and severe acute pyelonephritis but no urothelial inflammation.

The fact that this boy had few urinary white cells was probably related to the low number of circulating blood neutrophils, a pattern of blood film that is well recognised with overwhelming infections.³ To avoid the diagnostic pitfalls of counting white cells when screening for childhood urinary tract infection we now use phase contrast microscopy of fresh, unspun urine to identify bacteria.² This is done routinely in our wards and clinics by permanent nursing and medical staff and is taught to all new junior doctors. Its most obvious advantage is that the result is instantly available, allowing antibiotics to be given immediately when the result is positive (as in this case). Contamination is also identified immediately, allowing a repeat sample to be collected without delay. Samples yielding negative results (the majority) can be discarded, which saves laboratory costs. A minor advantage is that, when a maintained instrument is available, studying a urine specimen by microscopy is quicker than filling in a laboratory form.

R K KUMAR
Paediatric renal registrar
G M TURNER
Consultant paediatrician
M G COULTHARD
Consultant paediatric nephrologist

Royal Victoria Infirmary,
Newcastle upon Tyne NE1 4LP

- 1 Turner GM, Coulthard MG. Fever can cause pyuria in children. *BMJ* 1995;311:924.
- 2 Vickers D, Ahmad T, Coulthard MG. Diagnosis of urinary tract infection in children: fresh urine microscopy or culture? *Lancet* 1991;338:767-70.
- 3 Murphy PA. Septicaemia. In: Weatherall DJ, Ledingham JGG, Warrell DA, eds. *Oxford textbook of medicine*. 3rd ed. Vol 1. Oxford: Oxford Medical, 1996:1020-7.

Cerebral oedema after ingestion of MDMA ("ecstasy") and unrestricted intake of water

EDITOR,—3, 4-Methylenedioxymethamphetamine (MDMA or "ecstasy") is a synthetic derivative of amphetamine and a popular recreational drug among young people. It is known to cause severe hyperpyrexia, dehydration, and rhabdomyolysis.¹ Unrestricted ingestion of water is commonly believed to be important in combating some of the side effects of ingestion of the drug. We report on two patients who developed clinical effects due to the syndrome of inappropriate secretion of antidiuretic hormone after ingestion of MDMA. These adolescents had been "left to sleep it off" and presented late.

Case 1—A 15 year old girl presented semiconscious and having fits 18 hours after ingesting an unknown quantity of alcohol and MDMA. She had been left to sleep by friends after a party. On examination she had a score on the Glasgow coma scale of 5/15, was hypertonic with dystonic movements, and was apyrexial but sweating. The initial serum sodium concentration was 119 mmol/l and plasma osmolality 156 mmol/kg. The urine osmolality was 655 mmol/kg and urine sodium concentration 6 mmol/l when plasma values were 270 mmol/kg and 129 mmol/l, respectively. The creatine kinase level was 3249 U/l (normal 24-195). Severe fluid restriction improved the serum osmolality and corrected the hyponatraemia over 24 hours. Computed tomography showed moderate cerebral oedema. Toxicological examination of urine

confirmed ingestion of MDMA. She recovered fully with no neurological sequelae.

Case 2—A 16 year old girl presented 21 hours after a party at which MDMA, alcohol, and amphetamines had been available. Fifteen hours after being left to sleep she had been found semiconscious with dystonic movements and agitation. Her score on the Glasgow coma scale was 11/15. She was apyrexial. The initial serum sodium concentration was 112 mmol/l and plasma osmolality 142 mmol/kg. Urine osmolality was 184 mmol/l and urine sodium concentration 99 mmol/l. Computed tomography showed mild cerebral oedema. MDMA and methyldeoxyamphetamine were detected in urine and gastric aspirate. The creatine kinase value was 1157 U/l. With fluid restriction her electrolyte concentrations returned to normal over 24 hours. She recovered fully but had some anterograde and retrograde memory loss.

Three recent case reports have linked use of MDMA with the syndrome of inappropriate secretion of antidiuretic hormone.²⁻⁴ Our patients developed cerebral oedema secondary to this syndrome. We suggest that the current practice of encouraging unrestricted intake of water needs to be reviewed. Rhabdomyolysis did not occur in our patients, but creatine kinase values were initially high. It is potentially dangerous to assume that an adolescent with altered consciousness after a party is intoxicated with alcohol and can be "left to sleep it off."

S M MATTHAI
Paediatric senior registrar
J A SILLS
Consultant paediatrician
D C DAVIDSON
Consultant paediatrician
D ALEXANDROU
Paediatric registrar

Alder Hey Children's Hospital,
Liverpool L12 2AP

- 1 Henry JA, Jeffreys KJ, Dawling S. Toxicity and deaths from 3,4-methylenedioxymethamphetamine ("ecstasy"). *Lancet* 1992;340:384-7.
- 2 Satchell SC, Connaughton M. Inappropriate antidiuretic hormone secretion and extreme rises in serum creatinine kinase following MDMA ingestion. *Br J Hosp Med* 1994;51:9.
- 3 Maxwell DL, Polkey MJ, Henry JA. Hyponatraemia and catatonic stupor after taking "ecstasy". *BMJ* 1993;307:1399.
- 4 Kessel B. Hyponatraemia after ingestion of "ecstasy." *BMJ* 1994;308:414.

Managing patients with an absent or dysfunctional spleen

Guidelines should highlight risk of salmonella infection in sickle cell disease

EDITOR,—The guidelines for the prevention and treatment of infection in patients with an absent or dysfunctional spleen recognise sickle cell disease as being an important cause of a dysfunctional spleen.¹ We are surprised, however, that they do not mention the infection that occurs most frequently in patients with this disease.

In districts such as ours, which serves a large population with sickle cell disease (about 620 patients are registered), *Salmonella* spp are the micro-organisms most commonly isolated from blood cultures. In a review of 4884 bacteraemias at our hospital during 1976-91 *Salmonella* spp accounted for 11 of 21 bacteraemias in patients with sickle cell disease, while *Streptococcus pneumoniae* and *Haemophilus influenzae* type b were responsible for only three and one respectively. In addition, if Gram negative bacilli were seen on microscopy of blood samples from patients with sickle cell disease in whom culture yielded positive results, *Salmonella* spp were cultured in nearly 70% of cases.² This high incidence of salmonella bacteraemia may not be universally appreciated by all clinicians. Despite aggressive treatment, salmonella osteomyelitis developed in about a third of cases. The emergence of resistance to antibiotics in *Salmonella* spp presents further problems in the management of osteomyelitis in sickle cell disease.³