Golf is a low intensity sport with little danger of body collision.

Issues requiring further study include:

- Identifying causes of sudden death during physical exercise
- The appropriateness, cost, and practicality of cardiovascular screening of presumably healthy children and adolescents before they participate in sport and of other people before they continue or return to sport
- Counselling patients with known cardiac abnormalities about their levels of activity and about the risk and safety of specific sporting events
- Establishing guidelines for disqualification from competition

Mitral valve prolapse

The approach to mitral valve prolapse should be pragmatic. In the absence of symptoms and signs or associated lesions and with a negative family history, full sporting participation should be allowed. In the presence of palpitations, dizziness, or near syncope, both Holter monitoring and stress testing are invaluable for estimation of the mechanism of the symptoms. Associated problems that might exclude sporting activity include an associated prolonged QT syndrome or a family history of sudden death associated with a mitral valve prolapse.

Valve replacement

In patients who have had valvuloplasty or annuloplasty, contact sports should be avoided. Athletes with a prosthetic valve and normal cardiac function may engage in low intensity sports.

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The pictures of the skier, marathon runner, gymnast, and golfer are reproduced with permission from Spectrum Colour Library, Allsport, Vandystadt, and Colorsport.

The ABC of Sports Medicine has been edited by Greg McLatchie, visiting professor of sports medicine and surgical sciences at the University of Sunderland, consultant surgeon at Hartlepool General Hospital, and director of the National Sports Medicine Institute, London. This paper has been edited in conjunction with Mark Harries, consultant physician at Northwick Park Hospital, Harrow, and director of clinical services at the British Olympic Medical Centre, Harrow.

Lesson of the Week

Male ritual circumcision resulting in acute renal failure

Julian D Eason, Maria McDonnell, Godfrey Clark

Tight bandaging after male ritual circumcision may cause urinary obstruction and acute renal failure. Improved community education reduces the risks

See also articles on pp 677 and 679

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Male ritual circumcision is commonplace in the British community, especially among those of Jewish and Muslim faiths and certain immigrant populations such as West Africans. We report three cases of circumcision performed in the community in which the parents were not warned about complications and which resulted in prolonged urinary retention and acute renal failure.

Case reports

CASE 1

A 15 day old baby was admitted with a four day history of increasing vomiting and abdominal distension. After a normal pregnancy and birth he had been admitted to this hospital's special care baby unit for one day because of tachypnoea, grunting, and poor feeding. He had been circumcised by a local community rabbi at 11 days of age. Increasing vomiting and abdominal distension were subsequently noted, but he continued to feed well. His mother thought that he was passing urine normally.

On physical examination he had a pulse rate of 140 beats/min, warm hands and feet, a blood pressure of 77/52 mm Hg, and a respiratory rate of 28 per minute. The bladder was palpable above the umbilicus, but the abdomen wall was soft with normal bowel sounds. His penis was tightly bandaged, and the circumcision wound was inflamed and purulent. Table I shows the results of his initial renal function tests.

After removal of the penile dressing the bladder was catheterised through the urethra and chloramphenicol ointment applied to the wound. A wound swab contained mixed Gram negative organisms on culture. Intravenous cefotaxime was also prescribed. Urine output was replaced hourly with 0.9% intravenous saline as his initial diuresis after relief of the urinary obstruction was large (1129 ml).

The following day he became irritable with repetitive myoclonic jerking in his arms and legs. Anticonvulsants were given for three days, but no cause for the abnormal movements was found. Plasma electrolyte concentrations had returned to normal by that time (table II), but he was still polyuric (10 ml/kg/h). The jerking did not recur. The catheter was removed two days later, after which he voided a good urinary stream. At review one month later the wound had healed and he was thriving.

CASE 2

A male baby of Nigerian parents was born at this hospital at term after a normal pregnancy. At the age of 1 month he was circumcised by a non-medical community practitioner at home. Two days later he began screaming and stopped feeding, he came jittery, and his parents noticed that his abdomen was distended; when seen in the accident and emergency department he had not passed urine for at least 16 hours. On physical examination his pulse rate was 180 beats/min,

TABLE I—Result of biochemical tests and tests of renal function on admission in three baby boys with complications of ritual circumcision

Case No	Sodium (mmol/l)	Potassium (mmol/l)	Urea (mmol/l)	Creatinine (mmol/l)	Calcium (mmol/l)	Magnesium (mmol/l)	Glucose (mmol/l)
1	115	6.8	16.5	319	2.44	0.56	2.4
2	127	4.0	18.8	127	2.27	—	7
3	108	6.1	6.6	114	2.24	—	4

TABLE II—Plasma electrolyte concentrations and renal function in the three baby boys 24 hours after admission

Case No	Sodium (mmol/l)	Potassium (mmol/l)	Urea (mmol/l)	Creatinine (mmol/l)
1	135	3.1	3.0	31
2	139	5.5	5.5	39
3	143	3.9	<0.7	12

with a respiratory rate of 60–80 per minute; his abdomen was distended by the bladder, which was palpable above the umbilicus. His penis was swollen, and the tight penile dressing was covered with faeces. Initial investigations showed mild hyponatraemia and renal failure (table I); his urine was infected with *Escherichia coli* and *Streptococcus faecalis*. He was prescribed cefotaxime and flucloxacillin intravenously. He received an extra 3 mmol/kg/day sodium chloride in his maintenance fluids (0.18% saline, 4% glucose). His plasma biochemistry and renal function tests improved rapidly (table II), and renal ultrasonography, micturating cystography, and renal scanning with radiolabelled dimercaptosuccinic acid subsequently gave normal results.

CASE 3

A Nigerian baby, who was a second twin, was born at 32 weeks' gestation by ventouse extraction after premature rupture of the membranes. He was cared for in the special care baby unit for 19 days. A urinary tract infection caused by *S faecalis* was diagnosed when he was 5 days old and was successfully treated; his renal function was normal.

At 6 weeks of age (corrected gestational age 39 weeks) he was circumcised by a community practitioner. Forty eight hours later he was admitted to this paediatric department with a history of post-operative irritability. His breathing had become distressed, he had had two episodes of apnoea with cyanosis and limpness. Some jerking of his left leg had occurred during the second episode. On physical examination his pulse rate was 130 beats/min, respiratory rate 70–80 per minute, and blood pressure 80/50 mm Hg. He had cold fingers and toes with bilateral leg oedema. His abdomen was grossly distended by the bladder which was palpable up to the umbilicus. The penile dressing was tight and the penile meatus blocked by paraffin gauze dressing placed over the glans, which looked infected. Table I shows his plasma electrolyte concentrations and renal function

test results. He also had a moderate metabolic acidosis.

The dressing was removed and the bladder catheterised through the urethra. Intravenous cefotaxime and flucloxacillin were started. A urine specimen grew streptococci. His urine was replaced hourly with 0.9% saline. His general condition, plasma electrolyte concentrations, metabolic acidosis, and renal function improved within 24 hours (table II). Two weeks later his wound had healed and renal scanning with radiolabelled dimercaptosuccinic acid showed no scarring.

Discussion

These three babies were admitted to Guy's Hospital over a period of two years with symptoms of dyspnoea, vomiting, and abdominal distension following circumcision. All were local children; in all cases the anuria had gone unnoticed (the parents of the baby in case 2 realised that their son had not passed urine only after direct questioning).

Male ritual circumcision is widely practised in the community and is generally regarded as safe. Indeed, it is the most widely practised surgical procedure in the world.¹ One sixth of the male population has had a ritual circumcision, usually in infancy (among Jews) and in early childhood (among Muslims). Circumcision otherwise is uncommon in Europe and Scandinavia. Its merits have been periodically debated in the United Kingdom and the United States.^{1,2}

Medical indications for circumcision are recurrent balanitis, phimosis, paraphimosis, and a redundant prepuce. Common problems encountered with the procedure are bleeding, removal of too much skin, removal of too much or too little mucosa, untidy tags, previous circumcision in boys with hypospadias, fistula of the urethra, meatal stenosis, accidental amputation, and urinary retention.^{1,5} An excellent review of these and other less common postoperative complications has recently been published.³

Little is ever mentioned about prolonged urinary obstruction due to overzealous bandaging or penile oedema. Our experience clearly shows that unless parents are given appropriate information about possible complications, such as anuria associated with urinary retention, the consequences could be fatal. Our patients developed considerable hyperkalaemia, hyponatraemia, and acute renal failure. Appropriate education of parents and community practitioners is clearly needed and would greatly reduce the risks.

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