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Urinary frequency caused by a misplaced acetabular reinforcement ring—a case report

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In 1986, a 26-year-old man, who had had Perthes' disease, underwent a Charnley arthroplasty. Multiple dislocations were reduced by closed reduction and treated by a hip brace. Finally an open reduction and revision were attempted but the dislocations continued. In 1993, the hip was revised using a Müller cup with a reinforcement ring and a Wagner femoral prosthesis (transfemoral approach). The postoperative radiograph showed malposition of the reinforcement ring's hook, which protruded medially into the pelvis. The patient began to complain of discomfort in the lower left quadrant of his abdomen and urinary frequency up to every two hours. He also continued to have dislocations. A Girdlestone procedure was considered in order to solve the problem of his recurrent dislocations. However, the patient preferred to continue using a hip brace.

During 1994, he underwent an evaluation of the gastrointestinal tract and the urinary system. Barium enema and abdominal ultrasound were normal. As part of the urinary tract evaluation, he underwent a urodynamic study that showed no evidence of stress incontinence or detrusor muscle instability of the bladder. The compliance was normal and there was no residual volume in the bladder. The urinary cultures were negative. An intravenous pylogram examination showed external pressure on the left bladder wall, without extravasation.

Therefore it was considered that mechanical pressure on the bladder wall was causing bladder irritation, resulting in urinary frequency. Intraoperative cystoscopy revealed an inward bulging of the left bladder wall without perforation, caused by the protruding part of the hook of the reinforcement ring. This was cut short, using metal shears via a suprapubic approach. No improvement ensued.

Cystography (Figure 1) showed the same finding, i.e., indentation of the left bladder wall. In another attempt (1996) to treat the urinary frequen-

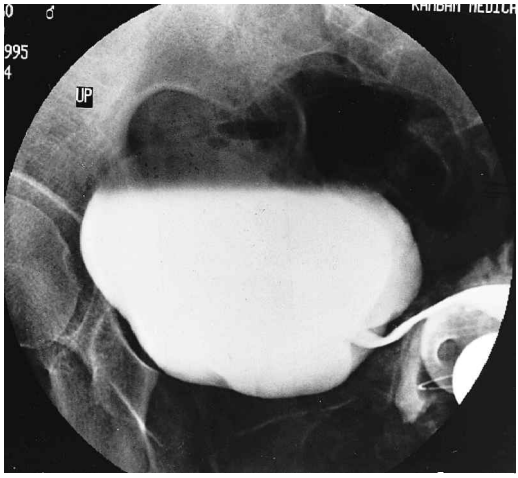

Figure 1. Cystogram showing bladder wall indentation by the malpositioned hook.

Figure 2. The hook of the reinforcement ring piercing the medial acetabular wall.

cy, under fluoroscopy, an intrapelvic injection of anesthetic and anti-inflammatory drugs were given, with only temporary relief. In 1997, the Müller cup with the reinforcement ring was removed and a Healey cup (Biomet) was implanted. using morsellized allograft bone to build up the bone loss in the acetabular floor and roof.

After this procedure, the urinary frequency disappeared and the dislocations stopped until 1999 when he again dislocated his hip, after making a sudden unusual movement.

Discussion

Reviewing the literature, we found that genitourinary tract complications following total hip arthroplasty are caused by: 1. Extruded cement in the pelvis (Ray et al. 1979, Pitfild and Saxton 1981, Wheeler et al. 1983, Videbaek and Sommer 1985, Tuggey and Jones 1998). 2. A displaced hip prosthesis compressing the bladder, ureter or blood vessels (Wheeler et al. 1983, Brentlinger and Hunter 1987, Bamelis et al. 1998). 3. Vesiculoacetabular and vesiculocutaneous fistula (Roberts and Loudon 1987, Solomon and MacGregor 1987, Schneider and Muft 1993, Schafer et al. 1994, Tripp et al. 1995, Memon et al. 1997, Schnoider and Knahr 1997).

In none of these reports did a urinary complication present with urinary frequency. The cause in our patient was malpositioning of the reinforcement ring hook (Figure 2) which should have been located around the lower edge of the acetabulum. Instead, the hook pierced the medial wall of the acetabulum, creating pressure on the left bladder wall. The long time taken to relieve the patient of his symptoms was due to our inability to believe that mild external pressure on the bladder wall could induce discomfort and frequency, without causing any reduction in bladder volume or obstruction.

Following the exclusion of other possible reasons, the removal of the malpositioned reinforcement ring relieved the patient's complaints.

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Avulsion of the ischial tuberosity simulating neoplasm—a report of 2 cases

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Case 1

A 15-year-old boy was referred to us with a radiographic diagnosis of possible bone-forming sarcoma of the right ischium. The radiograms he brought with him showed an irregular bone-forming lesion in the right ischial tuberosity. It was painful and tender to palpation. At first, the patient denied any significant injury. However, careful queries disclosed that he had experienced a popping sensation and sharp pain in the right buttock while he was playing football 4 weeks before. On physical examination, a deep-seated, immobile, 4 cm, painful mass was palpated in the right ischial region. New radiograms of the right ischium showed an irregular bone-forming lesion with areas of destruction in the tuberosity. It seemed to be attached to the ischium and was therefore diagnosed as a possible aggressive neoplasm (Figure 1). However, a CT scan showed a cuff-like ossification in the anterolateral and posteromedial aspects of the ischial apophysis, indicating a healing avulsion (Figure 2). The cortex and trabeculae in this region were preserved. We diagnosed an ischial avulsion. A radiogram taken 6 months later showed the lesion to be solidly united to the ischium (Figure 3). The patient could resume physical activities, including sports, without pain or mass 2 years after the first visit.

Case 2

An 11-year-old boy had a 4-month history of persistent left buttock pain. On physical examination, he had hamstring tightness with positive straight-leg-raising at about 70°. Radiograms showed a honeycomb-like bone lesion at the hamstring origin in the left ischium (Figure 4). The first physician recommended a biopsy for possible neoplastic disease, but he sought a second opinion at our hospital. On the basis of radiographic findings and a history of strenuous running, we clinically diagnosed strain of the musculotendinous unit of common hamstring origin. 3 months later, he was still symptomatic. Radiograms taken at this time showed the development of a honeycomb-like bone lesion now in the right ischium in exactly the same location as in the left ischium. Physical examination showed tight hamstrings and straight-leg-raising at 45° on the right and 55° on the left. On flexion, the fingertips could reach 30 cm from the floor. Family history disclosed that his father and one sister also had tight hamstrings. The tight hamstrings could be stretched by physical therapy and home exercises. At the 16-month follow-up, radiographs still showed bubbly changes in the bone with ectopic ossification (Figure 5). Clinically, however, he was free of symptoms and could bend forward enough to have his fingertips touch the floor with his knees straight. He did con-