Ureteric obstruction: an unusual complication of total hip replacement

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Introduction

Methacrylate cement is used during orthopaedic procedures [1,2], including total hip replacement. There have been reports of local inflammatory sequelae attributed to its use. We present a case of ureteric obstruction secondary to methacrylate cement in a patient with complicated total hip replacement.

Case report

The patient presented at the age of 7 with osteomyelitis associated with avascular necrosis of the left femoral head. He was treated with subtrochanteric osteotomy to correct limb shortening. Fifty years later, a left total hip replacement was required. This was complicated by persistent low grade infection, resulting in three revisions of the arthroplasty over the subsequent 3-year period. Thirteen years after the original arthroplasty, he underwent a 'redo' left total hip replacement, with removal of the original infected prosthesis. Surgery was complicated by penetration of the acetabulum and damage to the internal iliac vein, resulting in haemorrhage. The defect in the acetabulum was closed with methacrylate cement. At this time, he was normotensive with a serum creatinine of 104 μmol/l. He was discharged from follow-up 2 years later.

He re-presented at the age of 73 (17 years after his initial arthroplasty) with hypertension and renal dysfunction (serum creatinine 338 μmol/l). Haematoproteinuria was also present (3 g protein/24 h). Ultrasonography revealed bilateral small echogenic kidneys, with gross hydronephrosis and ureteric dilatation on the left. A pelvic radiograph demonstrated a large radio-opaque mass, consistent with orthopaedic cement, protruding medially from the left acetabulum and into the pelvis (Figure 1). A left percutaneous nephrostomy was inserted. Nephrostogram revealed a tortuous dilated left ureter, tapering to complete obstruction within the pelvis, in close proximity to the arthroplasty cement (Figure 2). There was no passage of contrast into the lower bladder or ureter. An antegrade ureteric stent was passed with difficulty. Renal function continued to deteriorate and the patient was established on haemodialysis.

Discussion

Direct ureteric injury is not uncommon in pelvic surgery, although presentation of ureteric injury as a late

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Fig. 2. Percutaneous nephrostogram. The ureter is dilated and tapers at the site of obstruction in close proximity to the intra-pelvic cement.

sequelae is less common. Ureteric obstruction secondary to orthopaedic cement following total hip replacement [1–3] and spinal fusion [4] has been reported infrequently. Clearly in the current case, the patient had bilateral renal disease leading to advanced renal failure, representing either two separate disease processes, for example unilateral obstruction and contralateral renal vascular disease, or bilateral parenchymal renal disease with incidental unilateral obstruction. Invasive investigations were not performed because the renal size as measured by ultra-sound examination implied that restoration of independent renal function was not feasible.

The mechanism of ureteric obstruction is probably related to a peri-cement inflammatory reaction, rather than direct involvement of the ureter in cement. The risk of such a reaction must be remembered following acetabular perforation. Long term follow up of such patients is required as this report emphasizes that obstructive renal disease may develop many years after the initial surgery.

References


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