

Case report

Obturator neuropathy due to intrapelvic extrusion of cement during total hip replacement—report of 2 patients

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Case 1

A 64-year-old man was referred to our department in August 1997 because of persistent pain after THA. He had sustained a femoral neck fracture in May 1992, which was operated on with closed reduction and internal fixation with 3 screws. In February 1993 the patient received a Charnley/Hastings hemiarthroplasty due to non-union. In June 1994, he was revised with a Charnley femoral stem and an OGEE-cup because of aseptic loosening. On evaluation in August 1997, he complained about increasing pain after the last operation. The pain was sharp, worse with activity, located in the groin and it radiated down the medial aspect of the thigh. No changes had occurred on the plain radiographs since the postoperative ones. A large amount of cement was seen medial to the acetabulum (Figure 1). Entrapment of the obturator nerve was suspected, and a CT scan showed medial dis-

placement of the nerve (EMG/ENG was not performed). In February 1998, surgery was performed through an ilioinguinal approach and the nerve was found to be displaced medially by the cement (Figure 2). The cement was removed and 6 months postoperatively, the patient had no pain in the groin and medial aspect of the thigh.

Case 2

In March 1999, another patient with similar symptoms was referred to our department. He was 72 years old and had had an operation 8 years earlier for a disc hernia, with a good result. In January 1989, he sustained a femoral neck fracture and was operated on with a sliding hip-screw; 7 months later, the implant was removed because of pain. In April 1992, he was given a Charnley femoral stem and an OGEE-cup due to pain and degenerative arthrosis. Postoperatively, the patient had trochan-

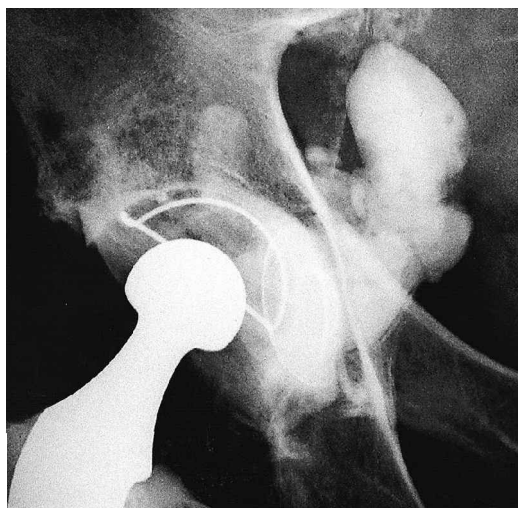


Figure 1. Case 1. Intrapelvic extrusion of cement.



Figure 2. Case 1. Peroperative picture showing the nerve displaced medially.

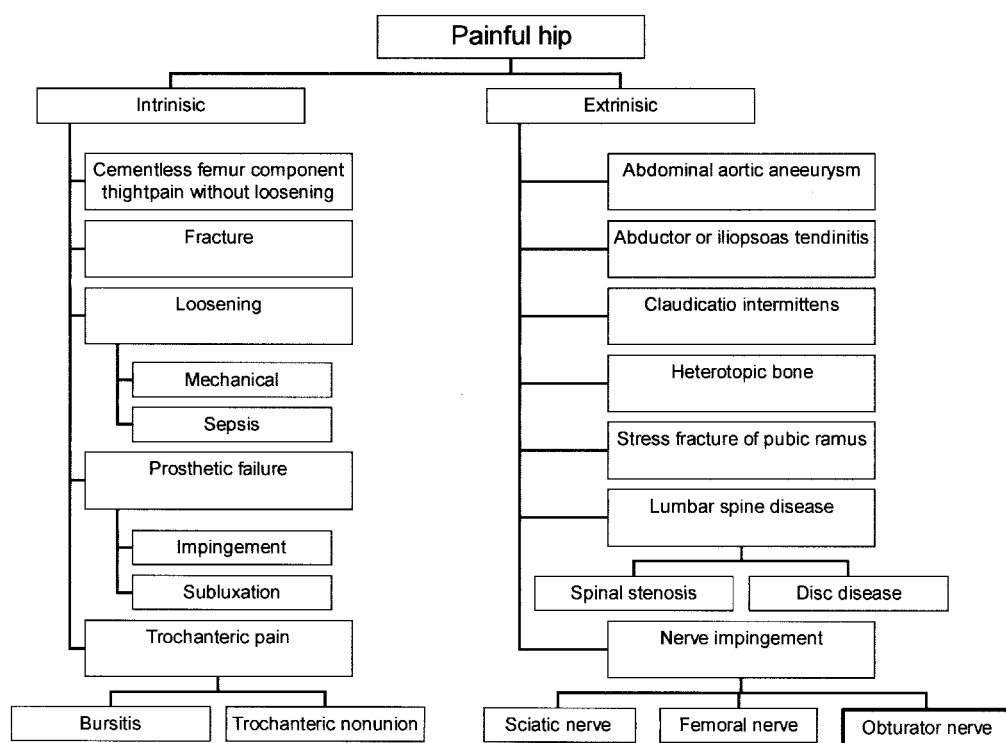


Figure 3. Possible causes of a painful THA.

teric pain leading to extraction of cerclage wires in August 1994. However, he still had increasing pain and had developed painful snapping in the hip, which was ascribed to possible subluxation. In November 1995, a revision was done and subluxation was confirmed at surgery and both components were revised to a cemented Charnley prosthesis. After the last operation, he complained of pain which became worse with activity. On examination, we found that he had severe pain in the groin and adductor weakness. Radiographs showed excessive amounts of intrapelvic cement. With the first patient in mind, we suspected obturator neuropathy and a CT scan was done (EMG/ENG was not performed). The CT showed cement in the region where the obturator nerve is normally located. In November 1999, he was operated on via a midline incision and through a preperitoneal approach. Cement surrounding parts of the nerve was removed. Postoperatively his severe pain in the groin and thigh had disappeared, but his adductor weakness persisted.

Discussion

Pain following total hip arthroplasty (THA) is commoner than usually thought. Kavanagh et al. reported pain after THA in 25% of patients after 1 year and although seldom severe, it requires evaluation (Kavanagh et al. 1989). Peripheral neuropathy is an uncommon cause of pain after THA, its incidence ranging from 0.7–2.24% in primary THA (up to 7.6% in revisions) (Eftekhar and Stinchfield 1973, Evarts et al. 1973, Weber et al. 1976, Solheim and Hagen 1980, Amstutz et al. 1982, Johanson et al. 1983, Edwards et al. 1987, Schmalzried et al. 1991, Navarro et al. 1995, Oldenburg and Muller 1997). Among patients with neuropathies, obturator neuropathy is very uncommon and only a few cases have been reported (Eftekhar and Stinchfield 1973, Weber et al. 1976, Melamed and Satya-Murti 1983, Siliski and Scott 1985, Fricker et al. 1997).

The obturator nerve arises from the anterior division of the 2nd, 3rd and 4th lumbar ventral rami in the dorsal portion of the psoas muscle. It emerges medially at the sacral ala and travels along the ilio-

pectineal line into the lesser pelvis, with a close relation to the anterior medial wall of the acetabulum. It leaves the pelvis through the anterolateral portion of the obturator foramen and provides motor function to adductor muscles of the thigh and gives sensory innervation to an area on the medial surface of the lower thigh (Heimer 1995).

Several case reports mention morbidity caused by intrapelvic extrusion of cement, including bowel, bladder and vascular injuries (Siliski and Scott 1985). Nerve injuries caused by cement mainly affect the sciatic and femoral nerves outside the pelvis (Weber et al. 1976, Edwards et al. 1981, Siliski and Scott 1985, Pess et al. 1987).

We found only a few articles dealing with obturator neuropathy and pain after THA (Eftekhar et al. 1976, Weber et al. 1976, Melamed and Satya-Murti 1983, Siliski and Scott 1985, Fricker et al. 1997). The symptoms described in these articles closely resemble the findings in our cases. To our knowledge, there are only 5 cases in which intrapelvic cement was the cause (Melamed and Satya-Murti 1983, Siliski and Scott 1985). Other causes mentioned are injuries by retractors, drilling for fixation screws or anchor holes penetrating the anterior quadrant of the acetabulum (Eftekhar et al. 1976, Fricker et al. 1997). The symptoms that should arouse suspicion of obturator neuropathy are: 1) persistent pain in the region of the groin and medial aspect of the thigh (sometimes increasing with activity), 2) adductor weakness, 3) intrapelvic cement visible on plain roentgenograms, penetrating screws, or suspected of penetration during drilling.

In case of suspected obturator neuropathy, electromyography (Weber et al. 1976, Melamed and Satya-Murti 1983, Siliski and Scott 1985, Fricker et al. 1997) and a CT may be helpful (Siliski and Scott 1985).

Differential diagnoses in painful THA include causes that are intrinsic and extrinsic to the arthroplasty. Figure 3 shows possible causes of a painful THA (Mallory and Halley 1973, Epps 1978, Bohl and Steffee 1979, Oh and Hardacre 1980, Ritter et al. 1981, Johanson et al. 1983, Morrey et al. 1984, Siliski and Scott 1985, Evans and Cuckler 1992, Harris and Barrack 1993). Obturator neuropathy is one uncommon extrinsic cause, but should be thought of when mentioned the above-symptoms are present.

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