Penetrating cervical hip fracture screws

Report of 4 cases

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Screw fixation and immediate weight bearing is a standard procedure for cervical hip fracture. Most commonly, the screws slide outwards during weight bearing and union of the fracture. Exceptionally, migration and penetration into the acetabulum are seen (Molander 1978, Posman and Morawa 1985, Kolstad 1986, Johnson et al 1990). We report 4 identical cases of migration and penetration of Olmed screws into the pelvis, in 1 case with a lethal vascular perforation. During this period of 2 years, about 160 cervical hip fractures had Olmed screw fixation at our hospital.

Case 1

A 76-year-old woman was operated on for a left-sided non-displaced cervical hip fracture with 2 Olmed screws. A good reduction and screw position were achieved. At discharge, 12 days postoperatively, she was able to walk with 2 crutches and had slight pain. 1 month later she was readmitted because of increased pain and inability to walk. New radiographs showed nonunion and migration of the distal screw through the acetabular wall and into the pelvis. A total hip replacement (THR) was performed. The screw was extracted through the acetabular perforation.

Case 2

A 57-year-old male alcoholic was operated on with 2 Olmed screws for a left-sided displaced cervical hip fracture. Both the reduction and screw position were poor. At the 4-month routine follow-up the patient was painfree and only occasionally used a walking aid. Radiographs showed nonunion of the fracture and migration and penetration of the distal screw through the acetabulum into the pelvis. A THR was performed without any complications.

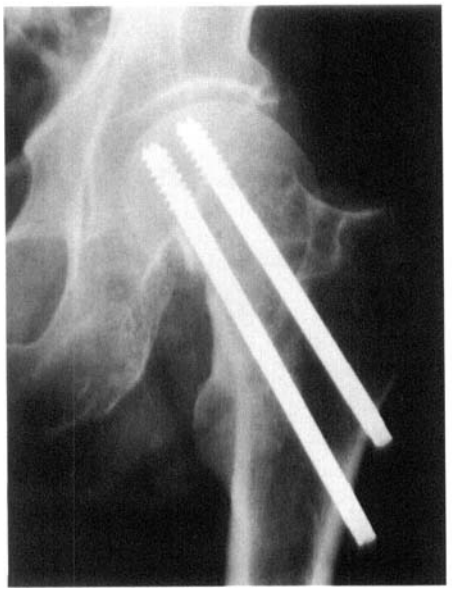
Case 3

A 79-year-old woman was operated on with 2 Olmed screws for a left-sided displaced cervical hip fracture. Both the reduction and screw position were good. At 4 months she walked with help and had slight pain. Radiographs showed that the fracture had not healed. The patient returned at 10 months because of pain. There was nonunion with penetration of the distal Olmed screw through the acetabular wall into the pelvis. A Girdlestone procedure was performed due to senility. The screws were easily extracted through the hip incision.

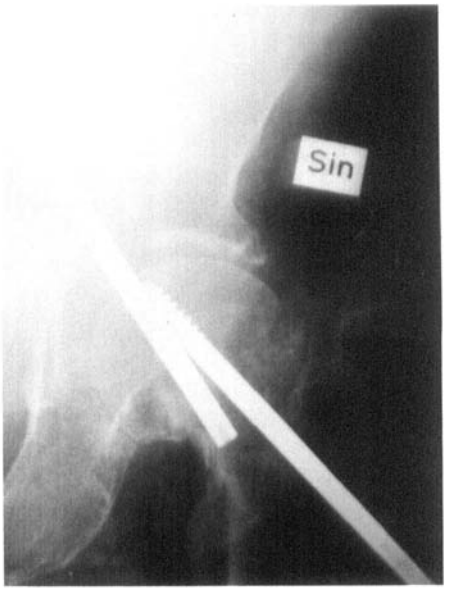
Case 4

A 78-year-old man was operated on in a standard manner with 2 Olmed screws for a left-sided displaced cervical hip fracture. A good reduction and screw position were achieved (Figure 1). 2 months after discharge he complained of pain and radiographic examination revealed migration of the distal screw by about 2 cm. Weight bearing was forbidden and a new visit was planned. However, 1 week later the patient was readmitted because of increasing pain. New radiographs showed further migration and penetration of the distal screw into the pelvis (Figure 1). A few hours after admission, the patient was found to be pale, with low blood pressure. A mass was palpable in the lower left abdomen. Acute lower midline laparotomy was performed by a vascular surgeon. The penetrating screw had perforated the left iliac artery. The screw was extracted and the artery was ligated. The patient stayed in the intensive care unit and died after 12 days, due to left ventricular failure.

Figure 1. *Penetration of a hip fracture screw into the pelvis.*
Case 4. A 78-.year-old man had a displaced cervical fracture of the left hip.



Postoperative position of the 2 Olmed screws.



After 2 months the distal screw has migrated and perforated the left iliac artery.

Discussion

Inward migration of threaded pins and screws used in cervical hip fractures is rarely reported (Molander 1978, Kolstad 1986). In some cases vascular complications have occurred (Posman and Morawa 1985, Johnson et al. 1990). Perforation of the femoral head with the guide, drill or screw may lead to later penetration of a screw. We have interviewed the operating surgeon and checked the postoperative radiographs without detecting such a perforation in our cases.

We believe that a twisting movement can occur postoperatively, especially in nonunion of cervical hip fractures, which makes the calcar screw migrate. Therefore, cervical hip fracture patients with hip screws and sudden pain, early or late, should be examined radiographically. In cases of established nonunion after cervical hip fractures without clinical symptoms, further operations may not be indicated. In these cases there is a remaining risk of silent migration of the calcar screw. These screws are potentially dangerous to the pelvic organs (Cohen et al. 1977, Seitz et al. 1982).

To prevent penetration, some sort of cap, slightly larger than the drill hole, could be attached to the non-threaded end of the screw, after placing it in the femoral head. Such a device is not, to our knowledge, available.

References

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