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Refracture of the hip rare after removal of fixation device

We studied 99 patients who had had the fixation device removed from a healed hip fracture. During a total of 630 patient years 17 second hip fractures were observed, but only two of these were in the previously fractured hip. We conclude that the fixation device may be safely removed from a healed hip fracture.

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A second hip fracture is unlikely to be located in the previously fractured hip (Stewart 1957, Allfram 1964, Finsen & Benum 1986). Possible reasons for this are increased strength of the bone due to callus formation or protection by the osteosynthesis material. If the latter were true, removal of the fixation device would be inadvisable. As patients often attribute pain and discomfort to the implant, it is important to clarify this point.

We have studied the fracture incidence in 99 patients following removal of the device used for fixation of hip fractures.

Patients and methods

During the period 1972–1978, 108 patients over the age of 50 who had been operated on for a hip fracture had their fixation device removed as an isolated procedure. The case notes of 4 patients could not be found, and in 5 the fracture had not healed at the time of removal, leaving 74 women and 25 men for study.

Twenty-three patients had been treated for trochanteric and 76 for cervical fractures. Eighty-eight McLaughlin nail plates were removed, whereas the remainder of the devices were of various types. In 13 patients the implant was removed because of infection and in 86 because of pain, which was usually in the trochanteric area. In 23 patients, examination of the radiographs gave some indication of arthrosis, collapse at the fracture site with penetration of the nail into the acetabulum, or slight segmental collapse of the femoral head. The mean time between fracture and removal of the implant was 3 years. The outcome was studied for a total of 630 patient years with death, change of residence, or new operations on either hip as end points.

Binomial distribution was used for statistical evaluation.

Results

There were 17 second hip fractures. Only 2 of these were on the previously fractured side ($P < 0.002$). One patient had a subtrochanteric femoral shaft fracture through a screw hole and another patient had a hairline fracture in the trochanteric area, which was treated without an operation.

The remaining 15 fractures all occurred on the previously unaffected side. There were 11 cervical and one trochanteric fracture among patients who had previously sustained cervical fractures on the contralateral side. Three patients who initially had had trochanteric fractures later sustained cervical fractures. The median time between the removal of osteosynthesis material and the second fracture was 2 (1–18) years.

Discussion

In an earlier study, we found (Finsen & Benum 1986) that only one in five of second hip fractures occurred on the previously fractured side, and we concluded that this hip was in some way protected against refracture. Because the fixation device is usually left in place after hip fractures, it may protect the hip later in life. However, the inserted material might also

weaken the bone where the nail passes through the cortex, thereby increasing the risk of trochanteric fractures. Another explanation of our findings may be that the healing process strengthens the bone.

One of the ipsilateral fractures was subtrochanteric, commencing at a screw hole – a complication of implant removal rather than a new hip fracture. The 15 fractures on the contralateral side were all typical cervical and trochanteric fractures.

The low rate of refracture of the same hip appears to be unrelated to the remaining osteosynthesis material, and it is probably due to increased strength induced by the healing process. It therefore seems safe to remove osteosynthesis material once the hip fracture has healed.

References

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