FALSE ANEURYSM AFTER INTRAMEDULLARY NAILING OF THE FEMUR

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False aneurysm is a rare cause of non-union of a fracture. Reports have recently been published by Bassett and Houck (1964), Dameron (1964) and Meyer and Slager (1964), in which injury to the arteria profunda femoris or its branches complicated the insertion of screws across the femoral shaft and resulted in the development of false aneurysm. The case reported here complicated intramedullary nailing of the femoral shaft.

CASE REPORT

A sixty-four-year-old man sustained an open fracture of the right tibia and fibula, about two inches proximal to the ankle, and a closed fracture at the middle of the shaft of the right femur. After wound toilet a Steinmann pin was inserted through the tibial tubercle and incorporated in a below-knee plaster. Two weeks later the femoral shaft was exposed through a lateral incision, an intramedullary nail was inserted and the fracture was surrounded by iliac cancellous grafts. The method of nailing was to ream the proximal fragment, insert the nail in a retrograde manner, allowing it to protrude through an incision in the buttock, and then to reduce the fracture and drive the nail into the distal fragment.

The appearance of the femur eight months after the fracture showing non-union and absorption of the Phemister grafts, caused by a false aneurysm.

The limb remained on a Thomas's splint for five weeks, the Steinmann pin being retained to control rotation. Eight weeks after operation knee flexion to 90 degrees had been regained.

Fifteen weeks after the accident delayed union of the fracture above the ankle was evident, and it was bone grafted. Union was sound eleven weeks later.

Eight months after injury union of the femoral fracture was still incomplete, and most of the cancellous grafts had disappeared (Fig. 1). The intramedullary nail had started to move proximally and to extrude into the buttock, causing pain. Five months later a bursa over the end of the nail was drained and the nail was removed. The bursa contained old blood.
Because it was not possible to operate on the femur until the gluteal wound was soundly healed and there was no danger of infection, a well moulded lower limb plaster was applied from groin to toes; the patient would not tolerate a hip spica. Sixteen and a half months after intramedullary nailing and grafting the femoral fracture was again exposed through a lateral approach. On incision of the vastus lateralis sudden severe arterial haemorrhage occurred, controllable by digital pressure, which was found to come from a false aneurysm (Fig. 2) derived from the second or third perforating branch of the profunda femoris artery. The false aneurysm measured about two by one and a half by a half inch (five by four by one centimetre) and traversed the fracture. The branch was ligated and the aneurysmal sac removed; the pseudoarthrosis was excised and, after intramedullary nailing, cancellous grafts were placed round the fracture. Ten months later union was secure.

**DISCUSSION**

Damage to the deep femoral arterial system may have occurred at the time of injury, but is much more likely to have happened during the first nailing operation, even though no noteworthy bleeding was observed. The essential damage was partial division of an artery, with formation of a haematoma, which later became encapsulated and hollowed out.

That some unusual process was going on could have been deduced from the radiographic appearance shown in Figure 1 (eight months after the injury) though the full significance was not then realised. The second operation on the femur would still have been difficult though one would have been forewarned.

The advice "to get down to bone and stay there" needs to be applied with care in places where bone and vessel are closely related, as has been emphasised by Linton (1964).

**REFERENCES**


