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Case report

Implanted piece of allogeneic femoral bone and late sciatic nerve compression

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1. Introduction

We report a case of a 39 year old male who sustained a right thigh wound in 1983 in a motorcycle accident. The wound was caused by collision with another motorcyclist who sustained an open segmental femoral fracture. The protruding femur of the other motorcyclist impacted with our patient's right thigh causing extensive soft tissue damage and destruction of quadriceps, particularly vastus lateralis. A piece of cortical bone from the femur of the other motorcyclist was implanted into his thigh.

The original injuries were treated at another hospital from our own. He received debridement of the wound and soft tissues which healed satisfactorily although with loss of quadriceps mass. The implanted bone was left in-situ. He went on to make an excellent functional recovery.

He was referred to our care 14 years after the original injury owing to increasing discomfort in his posterior right thigh. He had become aware of the implanted bone when sitting and had permanent discomfort and paraesthesiae radiating into the dorsum of his right calf. He did not have other sensory or motor symptoms. Clinical examination revealed a palpable bony lump deep to his hamstrings in the right thigh. Neurological examination revealed no abnormality other than demonstration of the area in which the paraesthesiae were distributed. X-rays showed a 8 $\times$ 4 cm piece of cortical bone in his right thigh (Figs. 1 and 2).

He was subsequently admitted for exploration of his right thigh and extraction of foreign bone. His right posterior thigh was approached through a dorsal longitudinal incision and the implanted bone was identified within the long head of biceps femoris in the mid-thigh, overlying the sciatic nerve. The bone fragment was carefully dissected free and sent for histological analysis.

His symptoms of pain and sciatica had resolved by out-patient review at 2 weeks. Histological analysis of the bone showed revealed a piece of dead cortical bone which had proved extremely resistant to demineralisation. There was no evidence of any inflammatory response in or around the bone.

2. Discussion

The case describes a highly unusual method of implantation of a piece of allogeneic bone. The cellular activity within the bone had been lost as no revascularisation as seen in successful cortical bone grafts had occurred [1,2]. This prevented any remodelling or resorption and hence its persistence as mineralised dead cortical bone for 14 years. This persistent piece of bone caused delayed symptoms of sciatica as it started to impinge on the sciatic nerve in the thigh. Sciatica is commonly caused by herniation of a lumbar disc and also by other vertebral and intrapelvic pathology [3,4]. There are also many extra-pelvic causes of sciatica described. These are rare in isolation and include pyriformis syndrome [5], compression by methyl methacrylate cement post total hip replacement [6], sciatic hernia [7] and avulsion fracture of the ischial tuberosity [8]. This case demonstrates a pre-

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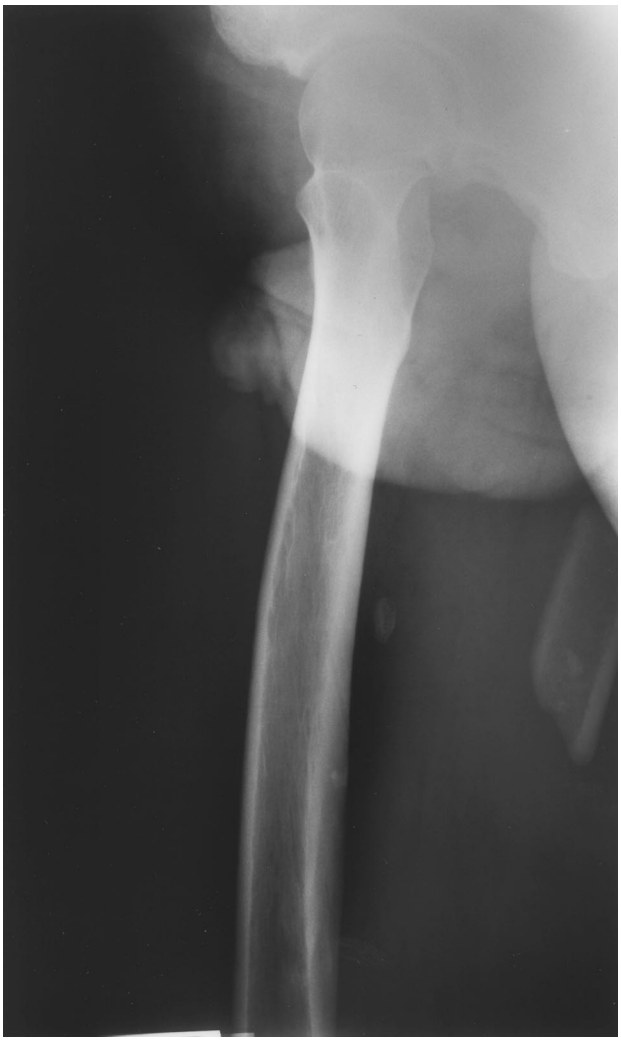

Fig. 1. Lateral view of right femur displaying implanted bone in postero-medial compartment.

viously undescribed method of late extrapelvic sciatic nerve compression caused by the accidental implantation of a piece of foreign bone.

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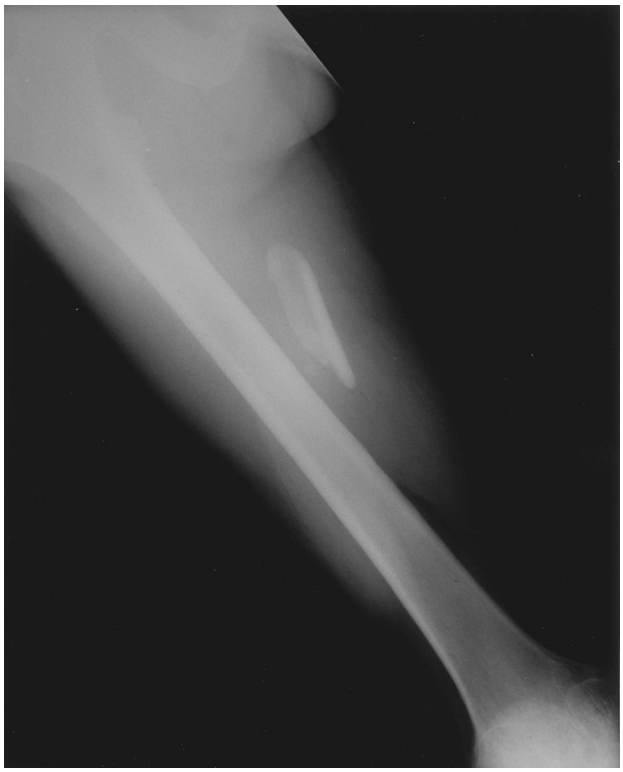

Fig. 2. Antero-posterior view displaying implanted bone at level of midshaft of right femur.

References

[1] Buchardt H. The biology of bone graft repair. Clinical Orthopaedics and Related Research 1983;174:28–39.
[2] Stevenson S, Emery SE, Goldberg VM. Factors affecting bone graft incorporation. Clinical Orthopaedics and Related Research 1996;323:66–74.
[3] Chen WS. Sciatica due to piriformis pyomyositis. Journal of Bone and Joint Surgery 1992;74A:1546–8.
[4] Dudeney S, O'Farrell D, Bouchier-Hayes D, Byrne J. Extraspinal causes of sciatia. A case report. Spine 1998;23:494–6.
[5] Hughes SS, Goldstein MN, Hicks DG, Pellegrini VD. Extrapelvic compression of the sciatic nerve. Journal of Bone and Joint Surgery 1992;74A:1553–9.
[6] Olesak M, Edge AJ. Compression of the sciatic nerve by methylmethacrylate cement after total hip replacement. Journal of Bone and Joint Surgery 1992;74B:729–30.
[7] Servant CT. An unusual cause of sciatica. A case report. Spine 1998;23:2134–6.
[8] Spinner RJ, Atkinson JL, Wenger DE, Stuart MJ. Tardy sciatic nerve palsy following apophyseal avulsion fracture of the ischial tuberosity. Case report. Journal of neurosurgery 1998;89:819–21.