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Case report

The first description in the literature, of a complication during the extraction of a retrograde expandable intra-medullary nail in three patients

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ABSTRACT

Ankle fractures in elderly people are low-energy fractures characterised by fragility. In the majority, they are unstable and challenging to manage. Retrograde expandable intra-medullary nails (Fixion®, Biomet Merck Limited) inserted through the calcaneum across the sub-talar and ankle joints into the tibia have been successfully used in the treatment of fragility fractures and non-unions of the distal tibia and ankle, where the use of an antegrade locked nail would not provide adequate fracture stability for union.

Primary fracture management involves removing the nail at least 3–4 months after radiological check. In cases of treatment of non-unions a longer treatment period is often required before removal of nail is considered.

We present three patients where breakage of the Fixion® nail during surgery caused problems in nail extraction.

Introduction

After the wrist and hip, the third most common fracture in elderly people is at the ankle [1]. These, low-energy, fractures are characterised by fragility and occur mostly in elderly osteoporotic women [2–4]. In the majority, they are unstable and challenging to manage [5].

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Retrograde expandable intra-medullary nails (Fixion®, Biomet Merck Limited) inserted through the calcaneum across the sub-talar and ankle joints into the tibia have been successfully used in the treatment of fragility fractures and non-unions of the distal tibia and ankle, where the use of an antegrade locked nail would not provide adequate fracture stability for union [6]. The advantage of this system is the immediate mobilisation of the patient and the decreased risk of bone or wound problems [7].

Primary fracture management and our unit's policy too, involve removing the nail at least 3–4 months following clinical and radiological confirmation of fracture union [6]. In cases of treatment of non-unions a longer treatment period is often required before removal of nail is considered.

We present three patients where breakage of the Fixion® nail during surgery caused problems in nail extraction. Technical difficulties in removal of the Fixion® expandable intra-medullary nail have not been reported to date and it presents a difficult situation to manage as the extraction kit does not include appropriate instrumentation to remove a broken nail.

Case one

A 35 year-old male was referred to our unit with a right distal tibial non-union, which had progressively deviated into varus deformity. He had initially sustained a high-energy, multifragmentary compound (Gustilo–Anderson Type 3A) fracture in a road traffic accident 4 months earlier. After successful treatment of the soft tissue injuries he had been managed in a below-knee, weight-bearing Sarmiento cast. His non-union (Figs. 1 & 2) was stabilised with a retrograde 10 mm × 340 mm expandable nail. Regular clinical and radiological follow-up revealed that the non-union had solidly united within 6 months of the operation (Fig. 3). The patient was able to walk comfortably and return to work as a carpet fitter.

Fig. 1. Right distal tibial non-union fracture (deviated into varus deformity).