

2. Inability to achieve or maintain stable reduction (13 cases).

All patients were followed radiologically and clinically until fracture healing at a median follow-up of 20 months.

Results: Of the 20 cases, the radius was nailed in 17 cases while the ulna was nailed in 3 cases. Average time interval between the injury and nailing procedure was 4.2 days. Median operating time was 35 min. Median hospital stay was 2 days. All fractures were radiologically united at a median of 6.7 weeks (6–9 weeks). Patients were followed up for an average of 20 months (range 6–30 months). No complications were found in this series.

At follow-up, full range of movement of elbow and wrist were found in all cases. No rotational deformity was found in any case.

Conclusion: In our experience single bone fixation with flexible intramedullary nails seems to be safe and effective in the management both bone forearm fractures in children between 6 and 14 years.

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Ender's nail fixation of tibial pilon fractures—A safe, minimally invasive approach for high risk patients in a small district general hospital

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Purpose: To assess the results of treatment of complex tibial pilon fractures using percutaneous Ender's nails at a district general hospital in a high risk patient group.

Introduction: Closed fractures of the distal tibia (pilon/plafond) represent a notoriously difficult fracture subset to treat in order to gain satisfactory radiological and clinical outcomes. Open fractures present added potential complications. Treatment plans must encompass injury severity, patient's medical status and expectations, and surgical experience.

Method: Five consecutive patients (4F:1M), average age 67 years, with AO 43 fractures (see table) were treated using a minimally invasive approach, primarily using Ender's nails to stabilise the fracture.

Open fractures were debrided/lavaged and stabilised according to BOA/BAPS guidelines within 6 h of presentation. Two tibial and one fibula Ender's nails were used in all cases. The fibula wire was left proud of the skin in all but one case and subsequently removed. Soft tissue defects underwent delayed split skin grafting. All were placed in a below knee POP and mobilised non-weight bearing until fracture consolidation.

Results: Average fracture union was 15.4 weeks (range 10–20). Full weight bearing took an average of 10.75 weeks (10–15). Average follow-up is 39.4 weeks (16–105) and X-ray appearances at latest follow-up show satisfactory joint surface reduction in all patients. Clinically, average ankle dorsiflexion is 7 degrees (0–10) and plantarflexion 21 degrees (15–30). Complications include fibula pin-site infection in two cases which resolved with wire removal and oral antibiotics

Conclusion: Given the satisfactory radiological and clinical outcome in this small case series we feel that a minimally invasive approach using percutaneous Ender's nails is a safe and effective treatment modality for a complex injury in a complex patient group.

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Minimally invasive locking plate osteosynthesis of distal tibia fractures: Our early experiences with 20 patients

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Aims: We report our early experiences with minimally invasive locking plate osteosynthesis, for distal tibia fracture fixation, with consideration to fracture union, infection and soft tissue healing.

Patients and methods: Twenty patients were treated with minimally invasive locking plate osteosynthesis for open and closed distal tibia fractures; they were treated between March 2003 and December 2004. Case notes, radiographs and clinic notes were reviewed for all patients. Fractures were classified according to the AO system and open fractures via the Gustilo and Anderson classification.

Patient	AO # classification	Open/closed/other	Fixation type
1	43 C1.2	Open (grade II)	Enders nails + screws
2	43 A2.1	Closed (large ulcer)	Enders nails
3	43 C2.2	Closed	Enders nails + screws
4	43 C3.2	Open (grade IIIB)	Enders nails
5	43 C2.2	Open (grade IIIB)	Enders nails

Results: There were 16 males and 4 females of mean age 44.7 years (range 19–69 years). Thirteen patients had temporary external fixation, prior to definitive fracture fixation. Eight had open fractures, all associated with high energy trauma (e.g. falls from height, road traffic accidents, gunshot wounds). Minimum follow-up was 6 months and mean time to full weight-bearing was 16.7 weeks (range 8–44 weeks, $n = 17$). Fracture healing was determined radiologically and clinically and mean time to union was 25.9 weeks (range 12–68 weeks, $n = 15$). Three patients required additional procedures to aid bone healing, which included bone grafting. Two patients experienced distal wound breakdowns, with metal work exposure. In both cases the implants were removed and there were no further problems. One patient suffered from a wound infection, treated successfully with oral antibiotics. There were no deep infections, failures in maintaining fracture reduction, or implant failures.

Conclusion: We report encouraging early results for this technique. Our findings support the use of minimally invasive locking plate osteosynthesis for treating open and closed distal tibia fractures. Whether it has any advantage over dynamic compression plating should be determined by biomechanical studies and a randomised prospective study.

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Percutaneous plating of distal tibial fractures: Preliminary results

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Introduction: Treatment of distal tibial fractures using minimally invasive plate osteosynthesis (MIPO) techniques may minimise damage to soft tissues and the vascular integrity of bony fragments. The use of locking plates is a rigid fixation and proper anatomical reduction is essential in order to avoid non-union.

Objective: To assess the outcome of patients treated with locking plates for distal tibial fractures.

Methods and results: We present a multicentre retrospective review of 18 patients (13 males and 5 females) treated with MIPO for distal tibial fractures. Their mean age was 42 years (range 14–69). According to AO fracture classification, there were 15 patients from 43A fractures; 1 from 43B and 2 from 42A. Commonest cause of injury was high-energy trauma. Seventeen patients had closed injury and 16 patients had closed reduction. All

patients were fully weight bearing within an average period of 9 weeks (range 0–20) Average time to union was 5 months (range 4–9) and a follow-up period of 12 months. There were two non-unions; one of them a chronic heavy smoker. The other patient underwent autologous bone grafting but did not unite. Postoperative radiographs of both patients showed a significant gap at the fracture site. There was one superficial infection and no failures of fixation.

Conclusion: MIPO is an effective method of treatment for distal tibial fractures. The use of indirect reduction techniques and small incisions is technically demanding but decreases surgical trauma to soft tissues. It is a rigid fixation and therefore, proper anatomical reduction is vital.

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Secondary prevention of fragility fractures: Are we following the guidelines?

Abbreviated mental score—A useful clinical tool

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Aim and introduction: Orthopaedic surgeons are often the first and only physicians to see fragility fracture patients hence they have an important role in the secondary prevention of such fractures. Our study aim was to find out whether the orthopaedic surgeons follow the BOA guidelines for secondary prevention of fragility fractures.

Methods and results: A retrospective AUDIT on neck of femur fractures treated in our hospital between October and November 2003 was carried out. There were 27 patients. Only nine patients (30%) had treatment for osteoporosis (calcium and Vitamin D). Only one patient was referred for DEXA scan.

Steps were taken in the form of creating better awareness among the junior doctors and nurse practitioners of the BOA guidelines. In patients above 80 years of age it was decided to use abbreviated mental score above 7 as a clinical criteria for DEXA referral. A hospital protocol based on BOA guidelines was made.

A RE-AUDIT of the same was conducted during the period August–October 2004. There were 37 patients. Twenty-four patients (65%) received treatment in the form of calcium + Vitamin D (20) and bisphosphonate (4). DEXA scan referral was not indicated in 14 patients as 4 of them were already