Fractures of the Distal Femur in Adults

Pages with reference to book, From 188 To 190

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Abstract

Nineteen adults sustaining 20 distal femoral fractures were followed for 18 months. Majority (70%) of the patients were males between the ages of 17 to 70 years and 68% sustained other injuries too. Fractures were classified by AO classification; most of them were intrarticular CI type. Open reduction and internal fixation was carried out in 60% cases. Assessment of results taking into consideration the parameters of pain, deformity and range of movement were compared with the conservatively treated group (JPMA 44:188,1994).

Introduction

Fracture of the distal femur has always been considered a difficult injury to trea[1,2]. Orthopaedic surgeons have been dismayed by the eventrual unsatisfactory outcome and treatment. Many forms of treatment have been advised1. In the past conservative treatment was reported to have good results. Charles Neer et al[3]. considered that these fractures were not suitable for open reduction and internal fixation and Mooney[4], advocated the use of functional bracing for fractures at this level. These observations were attributed to the non-availability of satisfactory implants during that time[1-3]. Lately there has been an increased trend towards operative treatment of these injuries[1,5,6,7]. This was mostly due to the introduction of better implants and operative techniques. Good results are now being reported with open reduction and internal fixation. This study reports the results of 20 distal femoral fractures in 19 adults treated at Asir Central Hospital, Abha.

Patients and Methods

From 1988 to 1991, 19 adults with 20 fractures of the distal femur were admitted to Asir Central Hospital at Abha. These patients had either been directly brought to the emergency room or referred from peripheral hospitals. Fractures were classified according to AO classification[8]. Fourn treatment methods were used , i.e., condylar plates, Buttress plate, plaster cylinder and skeletal traction. All patients were operated under general anaesthesia and tourniquet control. A standard extended lateral approach[6] was used to expose the fracture. Cancellous bone-graft was used in one case. Peroperative X-rays were taken, during fixation of condy lar element, to ensure proper placement of implant. Postoperatively, patients were nursed with their legs elevated on a Braun Bohler frame. Active knee movements were encouraged as soon as pain allowed. Mobilization, nonweight bearing with crutches, was started after a week under the supervision of a physiotherapist Partial weight bearing was allowed at not less than 6 weeks progressing to full weight bearing. Patients were followed up for an avenge of 18 months, (range 12 months to 3 years). The results of treatment were assessed by considering the parameters of range of movement, pain and clinical deformity (valgus orvarus) at the knee joint. Outcome of various treatment modalities regarding flexion is shown in Table II. Patients who were treated conservatively suffered prolonged pain, restricted movement and deformity as compared to the ones treated by open reduction and internal fixation.

Results

There were 14 males and 5 females whose ages ranged from 17-70 years (mean 40 years). Most (8 cases) of the patients were in the age group 28-38 years. Road traffic accidents were the most common cause (13 casds) of injury followed by fall (6 cases), over two thirds of the patients had other injuries (Table I).

Table I. Associated Injuries.

Associated Injury	Number
Other limb injury	9
Head injury	4
Abdominal injury	2
Pelvic fracture	2
Maxillofacial injury	2
Chest injury	1
Spinal injury	1

Only one fracture was compound in nature (type 1). Fractures were classified according to A.O. classification[8], the most common type being CI; there were no B2 or B3 fractures (Table II).

Table II. Type of fracture and its treatment.

Type of fracture	Number of fractures	Number of patients	Treatment	Knee flexion
A1	2			
A2	2		Condylar	
A3	1	12	plate	110-130
C1	5			
C2	2	1	Condylar plate	
C3	2	1	Buttress plate	90-110
B1	2	2	Plaster cylinder	60-90
A1	1			
C1	2	3	Skeletal traction	Less than 90
C2	1			

Follow-up ranged from 12 months to three years (mean 18 months). Four methods of treatments were used to treat these patients (Table II). Majority of the patients had been treated by condylar plate and one by a Butress plate (Figures 1 and 2).

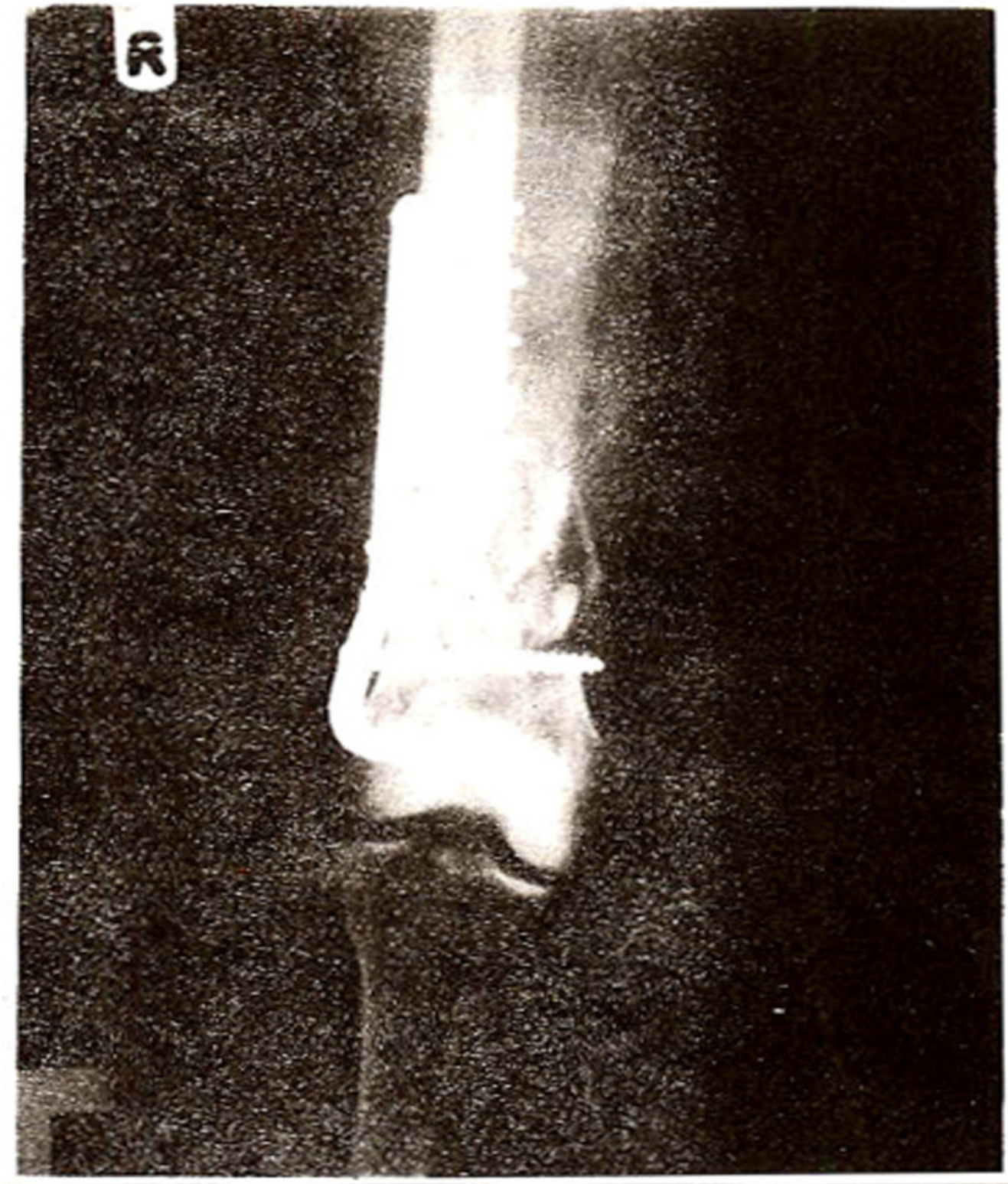

Figure 1 (a). An A3 fracture fixed with a condylar plate.

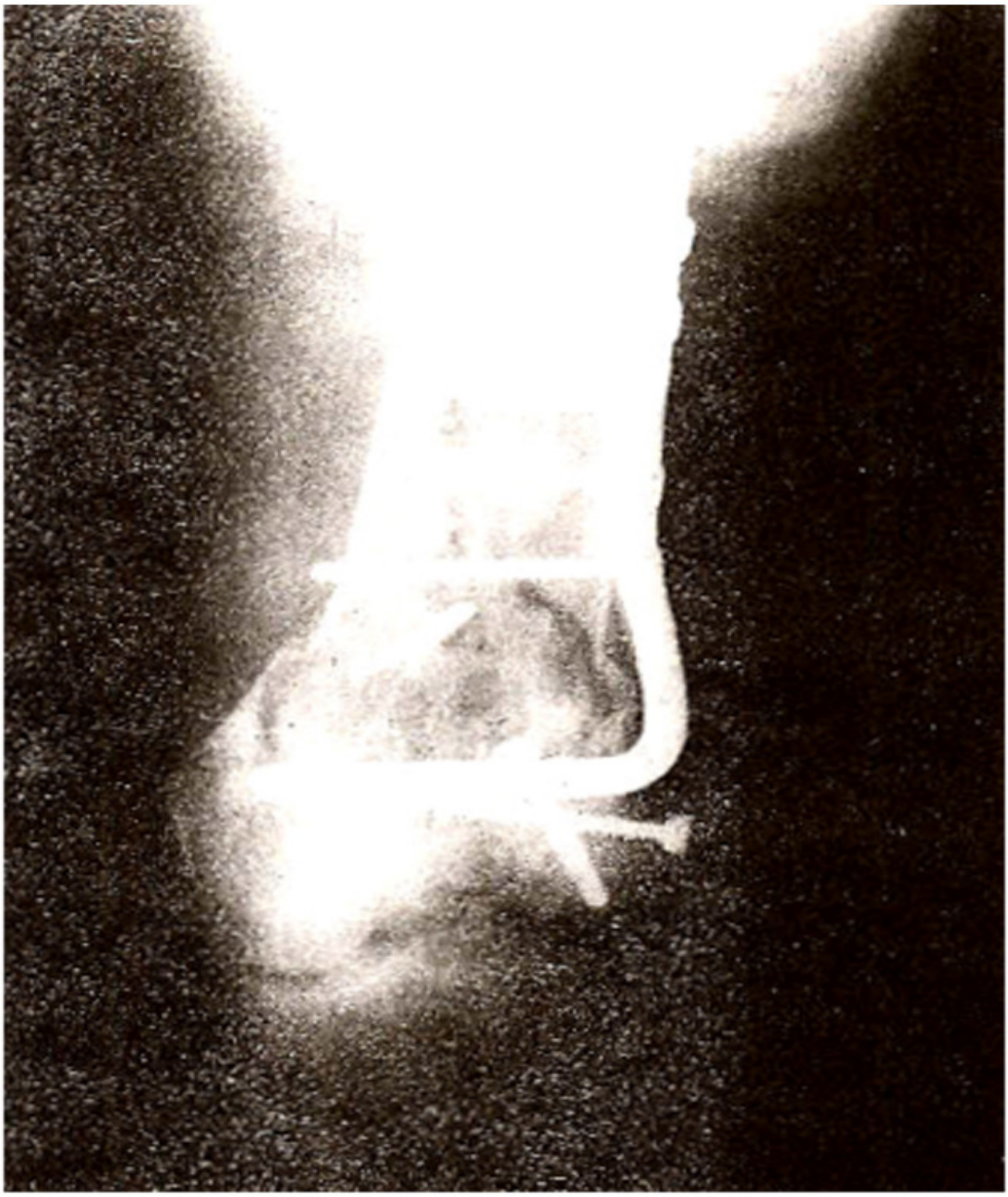

Figure 1 (b). A C2 fracture fixed with a condylar plate..

Figure 2. A C3 fracture fixed with a Buttress plate.

One elderly lady had to be treated in a plaster cylinder due to her associated serious medical condition. All fractures united. The average period of union was 12.1 weeks (range 8-18 weeks). Full extension was achieved in 16 (84%) patients. There was limitation of less then 10 degrees in 2 patients and more than 10 degrees in 1. These three patients had been treated conservatively, later being the elderly lady

who had been treated in plaster. The average flexion was 110.5 degrees. Maximum flexion was achieved in patients treated by A.O. eondylar plate. Three patients could not flex more than 60 degrees. All had been treatedconservatively. None of the patients developed a valgus or varus defermity. A 28 years old Yemeni lady developed a 2 ems shortening. She had initially been treated on skeletal traction and had beenreferred to us with gross over-riding and a painful stiff knee; bone had to be trimmed to obtain properalignment. She required a shoe raise but had no residual limitation of movement of the knee joint.

Discussion

Fractures of the distal femur present various management problems due to inherent instability of the condylar fragment and frequent intra-articular involvement. This results in deformity, subsequent stiffness and osteoarthritis of the knee joint. Unlike some reported western series[5,7] supracondylar fractures of the femur in our series involved younger patients following road traffic accidents and were usually associated with other musculoskeletal trauma. Restoration of joint anatomy and early mobilization, therefore demand operative fixation. Previous reports of satisfactory outcome from conservative treatment[3] were mainly ma relatively older age group of patients sustaining low velocity trauma. The available implants were not good enough for internal fixation in these patients. In addition, this could also be due to the lesser demand placed on their knees. The results of such studies are therefore not necessarily applicable inayounger age group. In our study most of the patients belonged to ayounger age group (mean age 40 years) who had a satisfactory result in an operatively fixed cohort. Moreover, most (68%) of our patients had associated musculoskeletal injuries. This is at variance with the recently reported series[5,7] where them were either no associated injuries or the number of associated injuries was small. The overriding importance of early mobilization of a polytraumatized patient was another indication for stabilization of supracondylar fractures to reduce associated morbidity. Although the follow-up period is relatively short to exclude the possibility of future osteoarthritis, early outcome is promising in relation to function. Absence of non or malunion in the operative group allowed early regain of function and is expected to reduce joint stiffness leading to degeneration. This is in concordance with the recently published reports[5,7]. However, even in a clearly defined situation the indication of primary bone grafting and choice of implant is dictated by the magnitude of trauma and type of fracture. Newer design of implants, e.g., Dynamic condylar screw, may add to the stability of fixation, but in the absence of these condylar or Buttress plate supplemented by leg screw fixation could also ensure satisfactory results.

References

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