ORIGINAL ARTICLE

Surgical Management of Fracture of Acetabulum

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ABSTRACT

Objective: Early mobilize the patient with displaced acetabular fractures with operative management.
Patients and methods: This prospective study was carried out from April 1998 to December, 2000 in the Department of Orthopaedics, Jinnah Postgraduate Medical Centre, Karachi. Eighteen patients having results of operative treatment of displaced acetabular fractures were selected. Adult patients with displacement of fracture >2mm and intra-articular fragment interfering with joint movement were included in the study. Patients with severe osteoporotic bone, infection and gunshot injury involving acetabulum were excluded from the study. Indications for operation and for conservative treatment were multifold. Diagnosis was based on plain anterioposterior roentgenographs of pelvis and special "Judet Oblique" images. In few cases CT scan was also done to classify the acetabular fracture.
Results: There were 16 males and 2 females between 30-40 years of age.
Conclusion: The operative treatment of displaced acetabular fractures gives universally satisfactory results. Open reduction and internal fixation markedly reduced hospital stay.
Key words: Acetabulum, fracture fixation, postoperative complications

INTRODUCTION

Fractures of the acetabulum occur as a result of the force exerted through the head of the femur to the acetabulum. The femoral head acts like a hammer and is the last link in the chain of forces transmitted from the greater trochanter, knee, or foot to the acetabulum. It is extremely important due to frequent sequelae and complications that may occasionally be fatal[1]. Fractures of the acetabulum were treated nonoperatively until the middle of the 20th century. The Judet brothers and, subsequently, Emile Letournel studied acetabular fractures extensively and were responsible for popularizing the surgical management of this challenging injuries[2-4]. Pioneering work, such as the development of the ilioinguinal approach by Letournel, led to acetabular surgery becoming the accepted standard of care for virtually all displaced fractures of the acetabulum[3].

Giordano et al[5] have shown that the radiographic roof-arc angle is a useful technique for evaluating transverse acetabular fracture reduction. It is generally accepted that intra-operative roof-arc angles of 45° or more represents a satisfactory restitution of the weight-bearing portion of the acetabulum cavity. Among various treatment options, operative treatment of acetabular fracture is a safe and acceptable method of managing displaced acetabular fractures, the accurate anatomical reduction and stable fixation to minimize the incidence of complications[6,7]. Open reduction and internal fixation have been recognised as the gold standard for the treatment of complicated acetabular fractures[8,9]. With the overall increase in high-energy injuries, the number of complex acetabular fractures has increased in Third World countries. In order to obtain better results, it is recommended that trauma centres should designate a group of surgeons who will consistently treat these fractures[10]. Hence if closed reduction fails to achieve proper alignment then open reduction and stable internal fixation is essential to allow early mobility and reduce the chances of degenerative changes in hip joint.

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PATIENTS AND METHODS

This prospective and non-randomized study was carried out from April 1998 to December, 2000 in the Department of Orthopaedics, Jinnah Postgraduate Medical Centre, Karachi. Eighteen patients having results of operative treatment of displaced acetabular fractures were selected. Adult patients with displacement of fracture >2mm, intra-articular fragment interfering with joint movement were included. Patients with severe osteoporotic bone, local infection and gunshot injury involving acetabulum were excluded from the study. Clinical assessment plus operative findings as well as postoperative complications were recorded. Indications for operation and for conservative treatment were multifold. Diagnosis was based on plain anterioposterior roentgenographs of pelvis and special "Judet Oblique" images. In few cases CT

scan was also done to classify the acetabular fracture. Preop and postop X-rays were done in all patients under going acetabular surgery with follow up for 24 months.

RESULTS

There were 16(88.8%) males and 2(11.2%) females with male to female ratio 8:1. Age of the patients ranged between 20-60 years with mean±SD age of the patients was 32.21±6.12 years. Majority of cases, 14(77.6%) were between 20-40 years. Union was achieved in anatomical position in 14 patients (77.6%) and in malposition in 4 patients (22.4%). In patients whom anatomical union was achieved an excellent results. The results were obtained excellent 4(22.4%), good 10(55.5%), fair results in 3(16.6%) and poor 1(5.5%) [Tables 1-2].

Table 1: Results of operation on the basis of type of reduction achieved

Operation	No.	%
Anatomic reduction	8	44.5
Mild incongruency <4mm	7	38.8
Moderate incongruency 4-10mm	2	11.2
Severe incongruency >10mm	1	5.5

Table 2: Results of operative treatment on the basis of acetabular fracture score system

Result	No.	%
Excellent	4	22.4
Good	10	55.5
Fair	3	16.6

DISCUSSION

The treatment of acetabular fracture has become a major focus in recent years. Fractures of the acetabulum remain an enigma for the orthopaedic surgeon[11]. It is an accepted fact that the functional results of the displaced acetabular fractures correlate well with the quality of reduction and that open reduction is the best method to achieve congruity[12-14] Eighteen patients were included in the present study and majority of the patients were males. This is due to the fact that most of these fractures resulted from high velocity trauma and males are more prone to this kind of trauma in our society.

The surgical management of acetabular fractures, in the cases presenting late after the accident, is difficult but, nevertheless, possible. The total joint replacement, if needed subsequently, in such cases is much simpler[15]. We found that complications like sciatic nerve palsy and heterotopic ossification, as well as infection, were more commonly observed in the patients who were operated upon after a delay of more than 2 weeks. Brueton[16] reported that the results were inferior if the patients were treated with an average delay of 17 days after the injury and recommended a rapid referral to a regional centre with necessary facilities.

CONCLUSION

Patients with complex acetabular fractures in our country should be referred to relatively better centre where the surgeons are most aware of complexity of these fractures and experience appear to be much important factor in achieving good results. Open reduction & internal fixation markedly reduced hospital stay and was consistent with better clinical results.

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