

Original Article

Treatment Evaluation of Acetabulum Fractures in Imam Khomeini Hospital in Sari, 2006-2016

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Abstract

Background and aim: The acetabulum fracture is caused by severe and energetic shock and, despite proper treatment, may lead to impaired joint function and disability. The reduction of the acetabulum fracture and the maintenance and stability of the hip joint are the most important therapeutic factors that contribute to the results of the next, joint function and ability of the patient. In this study, the long-term results of the acetabulum fractures treated surgically and non-surgically, At Imam Khomeini Hospital, Sari, in the ten years from 2006 to 2016.

Methods: In a 10-year review, retrospective study of patients with acetabulum fractures referring to Imam Khomeini Hospital in Sari from 2006 to 2016 was evaluated. Patients undergoing surgical or non-surgical treatment were included in the study. After the visit, Harris scores were recorded and evaluated by statistical methods.

Results: 65 patients were enrolled in this study. In this study, 43 patients were treated with non-operative conditions and 22 patients undergoing surgery. 53 patients (81.5%) were men and 12 (18.5%) were women. The average Harris score for patients with chorea surgery was 79.7 ± 18.8 and in the non-surgical group Harris score was 18.48 ± 81.9 .

Conclusion: Patients referring to Imam Khomeini Hospital in Sari revealed that patients with displaced fracture need surgery and ORIF, and if the disease does not have surgical procedures due to the conditions, the results of the treatment for patients will be poor.

Key words: Acetabulum fracture, surgical treatment, Non-surgical treatment, Harris score

Introduction

The fracture of acetabulum is caused by severe and energetic shock and, despite proper treatment, may lead to impaired joint function and disability. The development of osteoarthritis occurs after accelerated and early wound trauma at the joint surface of the acetabulum. The acetabulum fracture usually occurs when

the force is transferred from the femur to the pelvis and the head of the femur. Different types of acetabulum fractures are of varying degrees of complexity (1). Treatment of acetabulum fracture is not satisfactory because it cannot be prevented from delaying osteoarthritis due to the roughness of the articular surface of the acetabulum; treatment is

limited, and it is possible to return the upper extremities of the fragmented femoral shaft to the state of the anatomy, or Possesses more invasive policy and return the open surgery with more precision to anatomical status. The most common preexisting complications following the surgical treatment of osteoblastic fractures include infection, cystic nerve palsy, thromboembolism, and abnormal bone around the hip joint. Late complications include late infections of femoral necrosis, false arthritis (bloating), cartilage necrosis, Osteoarthritis after trauma and Heterotopic ossification (2, 3) Unlike most common articular fractures, which usually include indications for surgical treatment, acetabulum fractures are generally known as injuries requiring surgery. In surgery, standard care is required in the services of the acetabulum and pelvic services, and This can be done by surgeons, but it should also be kept in mind that the best surgeon's efforts in this type of fracture will not bring the patient to the level before the damage. Latourneh et al., Who have treated the largest number of patients with acetabulum fracture, believe that the outcome of surgery and prognosis of these patients is affected by the type of fracture, surgeon's skills and surgical facilities. Finally, the obtained result is that the purpose of the surgery is to obtain anatomical reduction, rehabilitation of the acetabulum, adequate cover of the femoral head and hip stability. Factors that lead to poor prognosis include dislocation, bone collapse under the cartilage of the acetabulum or femoral head. Considering the high incidence of complications and disabilities caused by acetabulum fractures and secondary costs for the process of diagnosis and treatment of

complications (4), and so far no study has been done in Mazandaran province, this study aimed to evaluate the long-term effects of acetabulum fractures in patients admitted to Imam Khomeini Hospital in Sari during the years 2006 to 2016.

Methods

This was a retrospective study on patients with acetabulum fractures referring to Imam Khomeini Hospital in Sari from 2006 to 2016. All patients undergoing surgical or non-surgical treatment were included in the study. Patients with a history of cancer, diabetes, immune deficiency and metabolic disorders and the patient who are taking chemotherapy or corticosteroids and Patients with history of previous fracture of acetabulum and absence of referral to patients for follow up, death, and patients who their age were less than 18 years and over 61 years were excluded from the study.

After all, the HARRIS HIP SCORE questionnaire was completed for all patients. This questionnaire is used to evaluate various disorders in patients, the domains covered by this questionnaire are pain, function, non-deformity and range of motion. The scope of the function includes daily activities. This template contains 10 items. The maximum score is 100, which includes pain (1 item, 0-44 points), performance (7 items, 0-47 points), and absence of anomalies (1 item, 4 points) and range of motion (2 items, 5 points). In describing the data, conventional methods in descriptive statistics including frequency distribution tables and charts and also, statistical indices were used and chi-square test was used to analyze the data with nominal scale. And in some cases if more than 20% of the frequency of the tables were less than 5%. Fischer's exact test was

used. In this study, SPSS version 18 was used and the significance level of the tests was $0.05 < p$.

Results

In this retrospective study in Imam Khomeini Hospital in Sari, all records of patients who were documented with acetabulum fracture code were studied. 120 patients with acetabulum fracture were evaluated and 65 patients were included in the study by examining patients' files.

In this study, 43 patients were treated as non-operative according to the patient's condition and 22 patients underwent surgical treatment. In the study of patients in the non-surgical group, 13 patients were diagnosed with fracture with displacement due to long-term admission in ICU, open fractures, associated illnesses, and patients' unwillingness to undergo surgery were treated by non-surgical method. Patients' information was analyzed according to the type of treatment.

Of the 65 patients in the study, 53 (81.5%) patients were men and 12 (18.5%) women. Two patients (3.8%) were operated on surgically and 43 patients (66.2%) were treated non-surgically. The mean age of the patients in the study was 39.08 ± 16.08 years. The demographic characteristics of these patients are presented in the following table. In this study, the duration of hospitalization was higher in the non-surgical group and a significant difference was observed ($p = 0.02$)

Department of Surgery

Twenty-two patients with surgical treatment of acetabulum fracture were evaluated. The Harris score of the patients was evaluated in these patients. In this questionnaire, the Harris score was less

than 70 very poor, 70-80 poor, 80-90 good and more than 90 were well-defined. The average score of Harris patients was 79.7 ± 18.8 , which was not statistically significant in the two groups ($p > 0.05$).

Non-surgical group

Of the 43 patients, 66.2% of patients were treated by non-surgical procedure during this period. In 13 cases of fracture with displacement due to: underlying disease, open fracture, prolonged admission to ICU and no surgical procedure Non-surgical treatment was performed in 30 patients treated with non-displacement fractures. These patients were registered at the Harris score. In the Harris study, the patients present in this group were 18.48 ± 81.9 If we remove 13 patients with displacement fracture from this statistical survey, the Harris score in this group is 14.55 ± 9.03 . In the study of 13 patients who underwent a non-surgical treatment despite shifting fracture, Harris score was 10.4 ± 62.53 . Out of these 13 patients, 11 patients had 84.6% very poor results and Harris score was less than 70%.

Discussion

Today, due to injuries caused by high energy accidents, hip fracture disorder is increasing, on the other hand, the hip joint due to the nature of bearing its weight and the undeniable role in human function and life, determining the distinct lines of treatment types and the results of it It is worth mentioning that studies and studies have shown that the results and functioning of patients with anatomical accuracy of anesthesia have a direct relationship with the progress made in the treatment of acetabulum, in many centers in developing countries, conservative treatment Followed by (5).

In this study, 120 patients with acetabulum fracture were evaluated in 10 years. At the end of this study, 65 patients were enrolled, of which 53 (81.5%) were men and 12 (18.5%) women. The mean age of patients in the study was 16.08 ± 39.18 years. Faizan Iqbal and colleagues evaluated the acetabulum fracture in Pakistan in 2012 (6). In this study, the highest number of subjects in the study was men with 68% of cases. The average age in the study was 44.2 years, which is close to the current study. In the study of Mesbahi and his colleagues at Shiraz University of Medical Sciences (7), the mean age of patients was 36.94 ± 12.92 years. 65 (82.3%) of men and 14 (26.5%) women were among the patients. The cause of lower average age in the study was the inclusion of all patients with the lowest registered age of 16 years.

But in this study, people over 18 years of age were included in the study, but the prevalence in men and women is quite similar to the present study. The prevalence is higher in men due to the mechanism of this fracture in high-energy trauma and the use of motorcycles.

22 patients were surgically treated due to fracture of the acetabulum. The patients after the visit and the Harris score of patients were 79.7 ± 18.8 .

In assessing the Harris scores, 9 patients in the very good group, 4 patients in the good group and 9. The patient was in a weak and very weak group. In the study, Mesbahi et al., 51% of the patients were in a very good group, out of a total of 41% of the study, and 33% of the patients were in the weak and very weak group. The rate in our study was 41%. In the study of Zehtab et al., Which was observed in patients with Sina hospital with acetabulum fracture.

In the study, the Harris scores were more than 90 in 44% of patients. The average score of Harris patients in other studies showed that the average scores in Faizan Iqbal and colleagues were 82.36 ± 8.55 and the study results of Shrestha et al. is consistent with the present study (9). In this study, 13 patients were treated with Harris score of 62.53 ± 10.4 in spite of displacement fracture due to: underlying disease, open fracture, prolonged admission in ICU and non-surgical operation. Out of these 13 patients, 11 patients had 84.6% very poor results, and Harris score was less than 70. Narender Kumar Magu et al., Who had 26 displaced fractures, reported poor results in 10 patients. The present study is less (10). Of course, the Merle d'Aubigne and Postel criteria have been used in this study, which is different from the present study. Also, Magala M et al. (11) found that there is no surgical treatment in patients suffering from illness. Of course, this study cites the reasons for choosing this therapeutic approach is the possibility of death or more damages to patients in surgery.

Conclusion

The study of Patients referring to Imam Khomeini Hospital in Sari revealed that patients with displaced fracture require surgery and ORIF, and if the disease does not have surgical procedures due to the side conditions, the results of the treatment will be weak. Conservative treatment in patients with fracture of the acetabulum is a suitable and acceptable therapeutic approach.

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Figures and Tables:

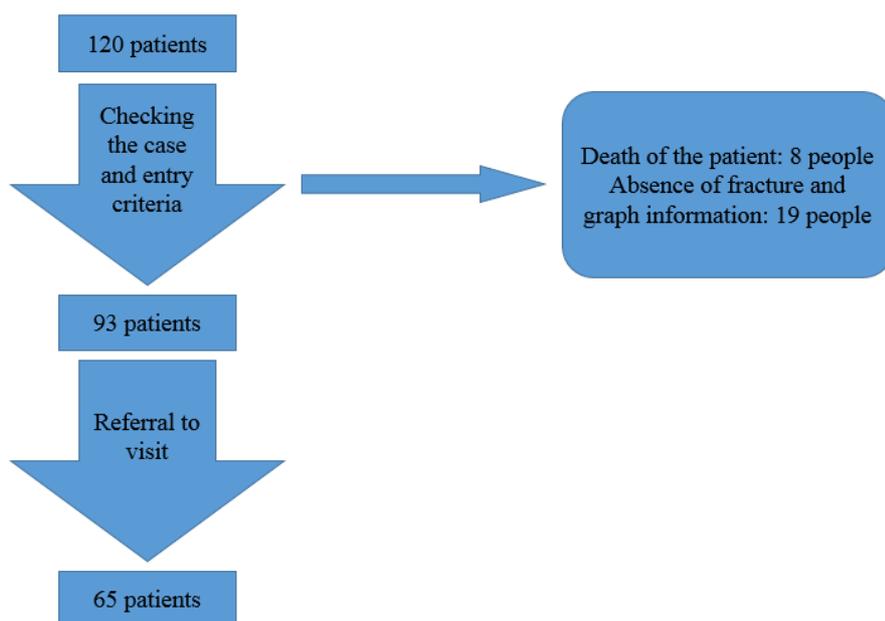


Diagram 1- Review of patients present in the study

Table 1. Demographic characteristics of patients in the study

	Department of Surgery		Non-surgical group		p-value
Age (mean ± SD)	36.63±10.37		40.48±18.3		0.2
Duration of hospitalization	8.04±2.9		11.32±8.56		0.02
Gender	Male	Female	Male	Female	0.6
	(81.8)18	(18.2)4	(81)35	(19)8	

Table 2. Evaluation of Harris score in patients undergoing surgery

	Very good	good	weak	Very weak
Harris score	(40.9)9	(18.2)4	(18.2)4	(22.7)5

Table 3: Evaluation of Harris score in patients without placement of non-surgical treatment

	Very good	good	weak	Very weak
Harris score	(73.3)22	(16.7)5	(3.3)1	(6.7)2