Total Hip Replacement After Acetabular Fracture

A systematic review of literature

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Presented by

Magdy Gamil Mazeed Mandlon
M.B., B.Ch

Supervised by

Prof. Dr. Osama Mohamed Elsayed
Assistant Professor of Orthopedic Surgery Department
Faculty of Medicine, Ain Shams University

Dr. Ahmed Mohamed Mohassab
Lecturer of orthopedic surgery department Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
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Magdy Gamil Mazeed

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List of Abbreviations

THR	: Total hip replacement
HHS	: Harris Hip Score
HO	: Heterotropic ossification
Rev	: Revision
TE	: Thrombo-embolic
AVN	: Avascular necrosis

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ABSTRACT

Bachground: Total hip replacement (THR) after acetabular fracture is a complex procedure and presents the surgeon with unique challenges. THR maybe indicated in two distinct clinical scenarios; firstly, if an acute acetabular fracture would result in a predictably poor outcome if treated with open reduction and internal fixation (ORIF), and secondly (and most commonly) after a patient develops post-traumatic arthritis after either non-operative or operative treatment of an acetabular fracture.

Purpose: Purpose of this article wad to assess the outcome of total hip replacement in the management of selected acetabular fractures among adult with traumatic hip arthritis.

Methods: Prospective and retrospective studies of 494 patients who underwent primary total hip arthroplasty for acute Acetabular fractures. The study was done in different places. Collected during the period from 1990 to Jan 2015. **Results:** in our series of primary total hip replacement for acute acetabular fractures

we had excellent/good results. Mean Harris Hip Score = 82.5.

Conclusion: primary total hip replacement is a reasonable method of treatment of selected acetabular fractures and good method for treatment neglected acetabular fracture. Outcomes may not be as good as total hip replacement done for other conditions.

Keywords

Acetabular fracture, Post traumatic arthritis, Harris hip score, total hip replacement after acetabular fracture.

Introduction

The hip is a weight bearing joint and is involved approximately in all movements of the body.

In the past, acetabular surgery and its fixation was not as common as today. Many patients were treated with long time skeletal traction (about 3 months), this type of treatment has some complications as malunion, nonunion in some region of acetabulum, bed sores, muscle atrophy and weakness around hip and knee joint, kidney stones, GIT malfunction and the most serious complication from long standing bed set is deep venous thrombosis[(1)].

With Open reduction and internal fixation of acetabular fracture, patient can mobilize earlier, that's why fixation of acetabular fracture is getting popularity in recent years.

Associated complications of these surgeries could be infection, sciatic nerve injury, avascular necrosis, Some of these complications have no definitive treatment like sciatic nerve injury.

Other complications as degenerative joint disease and avascular necrosis can be managed by total hip replacement[(2)].

Total hip replacement after pervious operations for internal fixation of fractured acetabulum is not a simple and straight forward operation[(3)].

Many authors have reported highly diverse clinical and radiographic outcomes after a total hip arthroplasty was performed to manage an acetabular fracture. The diversity of the results is not surprising in the view of the heterogeneity of the fracture patterns and the diverse methods of primary fracture management. In most studies the primary problem was the premature loosening of cups[(4)].

A lot of complications could be found also after total hip arthroplasty as infection, recurrent dislocation, sciatic nerve palsy and Heterotopic ossification[(5)].

Sciatic nerve palsy can occur iatrogenically from total hip arthroplasty, regardless of the operative approach used. reported one sciatic nerve palsy in a study involving 21 acetabular fractures treated with a delayed cementless total hip arthroplasty using a modified anterior approach. However, the authors did not specify whether this nerve palsy was present pre- or postoperatively[(6)].

That's why good planning for total hip replacement is needed and that depends on patient, implant, approach and muscle status[(7)].

Aim of the work

The aim of this review is to collect and analyze the existing evidence related to results of total hip arthroplasty after acetabular fracture surgery and its prerequirments and possible complications published in literature in English from 1990 to 2015, and to recommend treatment algorithms that could be valuable in everyday clinical practice.

Materials and methods

This is a systematic review article on total hip replacement after acetabular fractures.

Pubmed search will be done in the last 16 years (1990 – 2015) on the following titles :

Results of total hip arthroplasty after acetabular fracture.

Inclusion criteria:

1- English language literature .
2- Human studies .
3- Article types : clinical trial, comparative study, systematic reviews, meta analysis and case series study .
4- Age from 18 – 60 years .
5- Traumatic fractures .

Exclusion criteria :

1. Fracture in people aged below 18 years or above 60 years.
2. Pathological fractures.

Anatomy of the acetabulum

The column concept of the acetabulum

One must be adapt at three-dimensional vision to master the complex anatomy of the acetabulum. From its lateral aspect, it is better to regard the acetabulum as being contained within the open arms of an inverted Y (Fig. 1)[8].

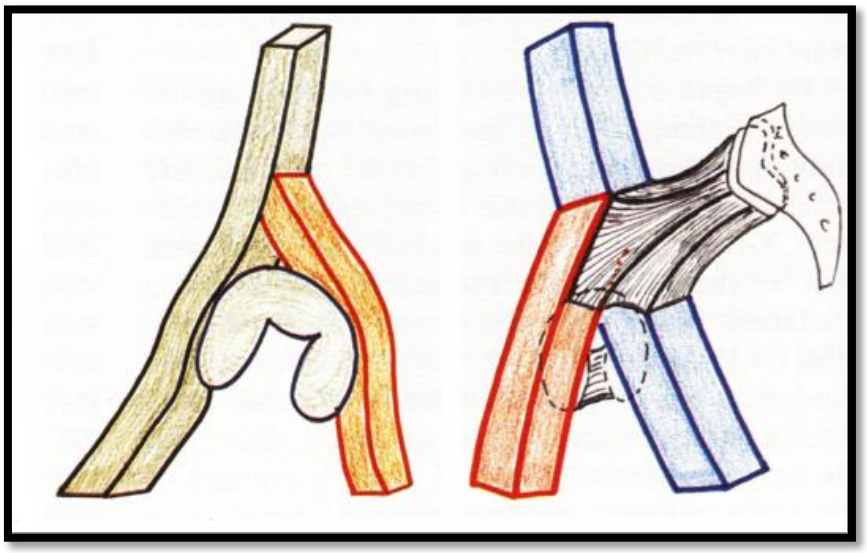

Fig. 1: The inverted Y containing the acetabulum[8].

It is formed by a posterior column { the ilio-ischial component } and an anterior column { the ilio-pubic component } which is much longer and extends from the anterior end of the iliac crest to the pubic symphysis. The upper end of the posterior column is attached to the posterior aspect of the anterior column, a little above its mid-level (Fig. 2)[9].