

Assessment of Outcome of Patients with Avascular Necrosis of Femoral Head Treated with THR at a Tertiary Care Centre

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Abstract

Background: Avascular necrosis (AVN) is defined as a cellular death of bone components due to interruption of blood supply. The present study conducted to assess outcome of patients with avascular necrosis of femoral head treated with Total Hip Replacement. **Materials and methods:** The study conducted to assess outcome of patients with avascular necrosis of femoral head treated with Total Hip Replacement. Sixty cases of advanced AVN of femoral heads treated surgically by total hip arthroplasty were the subject of this study. The Harris hip scoring system was used to evaluate each hip post-operatively. Rating of 90 to 100 points was considered excellent; 80 to 89 good; 70 to 79 fair and less than 70 poor. **Results:** In the present study sixty patients were included in which majority of patients were between 31-40 years (40%). Out of 60 patients, 36 were males and 24 were females. The patients with avascular necrosis of femoral head treated with Total Hip Replacement shows excellent results in 51 cases, good results in 4 cases, fair results in 3 cases and poor results in 2 cases. Of the 60 patients, 5% patients had limb length discrepancy, 5% patients had posterior dislocation and 3.33% patients had delayed wound healing. **Conclusion:** The present study concluded that the patients with avascular necrosis of femoral head treated with Total Hip Replacement shows excellent results in 51 cases, good results in 4 cases, fair results in 3 cases and poor results in 2 cases. Of the 60 patients, 5% patients had limb length discrepancy, 5% patients had posterior dislocation and 3.33% patients had delayed wound healing.

Keywords: Avascular Necrosis, Femoral Head, Total Hip Replacement.

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Introduction

Avascular necrosis (AVN) is defined as a cellular death of bone components due to interruption of blood supply. The bone structures then collapse, resulting in bone destruction, pain, and loss of joint function [1]. Avascular necrosis of femoral head (ONFH) is associated with many etiological factors and usually one or more risk factors are present but approximately two-thirds of this is related to alcohol abuse and corticosteroid intake. Rest are mainly idiopathic [2]. Once the diagnosis of AVN is confirmed, management varies depending upon the age of the patient, stage of the AVN, occupation & previous treatment received etc. Core decompression, bone grafting and valgus osteotomy can be considered in early stages and total hip arthroplasty in later stages of AVN of femoral head [3]. It is estimated that 20,000 to 30,000 new patients are diagnosed with osteonecrosis annually accounting for approximately 10% of the 250,000 Total Hip Arthroplasties (THA) done annually in the United States [4]. The vascular impairment leads to the death of marrow and osteocytes and, in the late stages, to the bony structure alteration and the collapse of the necrotic segment with consequent degenerative joint alteration. It may go clinically unrecognized and can lead to progressive hip pain until total loss of function. Spontaneous regression is rare, with the vast majority of untreated patients progressing to THA and a collapse rate of 67% in asymptomatic patients and 85% of symptomatic hips [5]. The present study conducted to assess outcome of patients with avascular necrosis of femoral head treated with Total Hip Replacement.

Materials and methods

The study conducted to assess outcome of patients with avascular necrosis of femoral head treated with Total Hip Replacement. Sixty

cases of advanced AVN of femoral heads (Ficat and Arlet stage III and IV) treated surgically by total hip arthroplasty were the subject of this study. Before advocating total hip arthroplasty conservative measures like reduction of weight, anti-inflammatory medication, reasonable restriction of activity and the use of cane while walking were advised. The inclusion criteria for this study were stage III and IV (Ficat and Arlet) AVN of femoral head with degenerative arthritis due to various etiological association of idiopathic type. Proper pre-operative assessment was done. In all cases, posterolateral approach was taken. Postoperatively limb was kept in abduction 30° over a pillow and drain removed after 48 hours. Patients were monitored clinically for any complications. Patients were ambulated on 6th postoperative day with walker and later with two and then one axillary crutch. The sutures were removed on 14th day and range of motion exercises were started. Patients were discharged after full rehabilitation at 6 weeks and by this time; they were able to walk with one stick in opposite hand. The Harris hip scoring system [6] was used to evaluate each hip pre-operatively and post-operatively. Pain and functional capacity were the two main variables considered for making a decision about surgery. Rating of 90 to 100 points was considered excellent; 80 to 89 good; 70 to 79 fair and less than 70 poor.

Results

In the present study sixty patients were included in which majority of patients were between 31-40 years (40%). Out of 60 patients, 36 were males and 24 were females. The patients with avascular necrosis of femoral head treated with Total Hip Replacement shows excellent results in 51 cases, good results in 4 cases, fair results in 3 cases and poor results in 2 cases. Of the 60 patients, 5% patients had limb length discrepancy, 5% patients had posterior dislocation and 3.33% patients had delayed wound healing.

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Table 1: Demographic factors

Variables	N(%)
Age group	
21-30	13(21.66%)
31-40	24(40%)
41-50	13(21.66%)
Above 50	10(16.66%)
Gender	
Male	36(60%)
Female	24(40%)

Table 2: Harris hip scoring system for evaluation of hip post-operatively

Harris hip scoring system	Post-operatively
Excellent	51
Good	4
Fair	3
Poor	2

Table 3: Complications

Complications	N(%)
limb length discrepancy	3(5%)
posterior dislocation	3(5%)
delayed wound healing.	2(3.33%)
Total	8(13.33%)

Discussion

Studies have shown that approximately 85% of patients have clinical symptoms, and 67% of patients without clinical symptoms experience a subsequent collapse of the femoral head; ultimately, these patients need to undergo artificial joint replacement [7]. To delay and reduce the probability of hip replacement in patients with ANFH, a series of interventions can be performed in patients with early femoral head necrosis, including biophysical therapy, drug intervention, bone flap transplantation with vascular pedicles, and core decompression of the femoral head [8].

In the present study sixty patients were included in which majority of patients were between 31-40 years (40%). Out of 60 patients, 36 were males and 24 were females. The patients with avascular necrosis of femoral head treated with Total Hip Replacement shows excellent results in 51 cases, good results in 4 cases, fair results in 3 cases and poor results in 2 cases. Of the 60 patients, 5% patients had limb length discrepancy, 5% patients had posterior dislocation and 3.33% patients had delayed wound healing.

In the study of Babhulkar et al where 81.25% were males [9]. According to J.P.Garino and M.E.Steinberg, using modern cement techniques and components, total hip arthroplasty can give excellent results in young patients with AVN and may be the treatment of choice when reconstructive surgery is required. Although wear of the bearing surface continues to limit the long-term success rate, cementless total hip arthroplasty remains a reasonable treatment option for advanced osteonecrosis of the femoral head [10].

Total hip replacement is indicated once the femoral head has collapsed, and the hip joint is degenerated. In that cases, younger patients need a long-lasting implant that can be revised easily. Surgeon has to think further than the first implant. In literature there is no evidence of superiority of: specific implant design, use of particular bearing surface combination or cementation rather than cementless implant [11-13].

Conclusion

The present study concluded that the patients with avascular necrosis of femoral head treated with Total Hip Replacement shows excellent results in 51 cases, good results in 4 cases, fair results in 3 cases and poor results in 2 cases. Of the 60 patients, 5% patients had limb length discrepancy, 5% patients had posterior dislocation and 3.33% patients had delayed wound healing.

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