

Quality of Life and Functionality after Non-Cemented Total Hiparthroplasty

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Abstract

Objectives: To evaluate the functional outcome of non-cemented total hip arthroplasty in terms of pain

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relief, functional capacity, range of motion and absence of deformity using Harris hip score.

Study Design: Descriptive study.

Place and Duration of Study: From January 2012 to December 2012, at Nawaz Sharif Social Security Teaching Hospital, Lahore (University College Medicine and Dentistry).

Subject and Methods: Thirty patients meeting the inclusion criteria were admitted through orthopedics outpatient department of Nawaz Sharif social security hospital Lahore. Pre operative Harris scoring was done and was compared with the post operative score to find the improvement.

Results: Mean age of patients was 52.53 ± 18.21 years, and 17 were males and 13 females. Average pre operative Harris Hip score was 23.77 ± 9.50 and post-operative score 87.90 ± 10.42 .

Conclusion: It was concluded that THR is a safe surgical procedure with promising results in relieving pain, improving movements and upgrading the quality of life.

Key Words: Total Hip Replacement, Harris Hip Score, Osteoarthritis, Ankylosing.

Introduction

Osteoarthritis is a chronic, progressive articular disorder characterized by pain.¹ Osteoarthritis is by far the most common disease of the hip and has continuous increase in prevalence with increasing age.^{2,3}

More than 10% of people older than 60 years of age are affected by osteoarthritis of the hip.⁴

The major milestones in the treatment of hip arthritis have been the development of acetylsalicylic acid in the mid 1800s with subsequent derivation of potent non-steroidal anti inflammatory drugs and Sir Charnley's total hip arthroplasty in the early 1960s, a procedure now widely held to be the most successful operation of the last 25 years.

Arthroplasty is the surgical refashioning of a joint, aims to relieve pain and to retain or restore movement and function. Total hip arthroplasty involves replacing both the acetabulum and the head and neck of femur.⁵ Total hip arthroplasty is the most rewarding procedure in Orthopedics in patient suffering from advanced degenerative disease of hip.⁶

The primary indication for total hip arthroplasty was the alleviation of incapacitating pain in patients with osteoarthritis in whom conservative measures have failed, of secondary importance was the improved function of the hip.⁷

Different systems of pre and postoperative assessment of hip are used but the commonly used system is the Harris scoring system.⁸ Total hip replacement is frequently performed in our setup and is still in stage of infancy in our country because of lack of optimal theatre facilities, properly trained paramedics and high risk of infection. Despite all these hurdles, early results of primary total hip arthroplasty are encouraging and comparable to those mentioned in the literature. But the results of revision hip surgery i.e. conversion to total hip replacement are poor. Ghani I, Sohail MT has reported infection rate of 28% and dislocation rate of 7% in cases in which Total hip arthroplasty was done due to failure of previous fixation devices (i.e. Dynamic hip screw, Austin Moore prosthesis, but not total hip arthroplasty).⁹ The aim of study was to assess the functional improvement after total hip arthroplasty, in addition to pain relief, by using pre and post op Harris hip rating and compare the results with the studies carried out locally as well as abroad.

Material and Methods

Inclusion Criteria

1. twenty five years old and above male and female patients.
2. Patients of Primary Osteoarthritis hip and secondary arthritis of hip including avascular necrosis, rheumatoid arthritis, ankylosing spondylitis.

Exclusion Criteria

Failed total hip arthroplasty, Septic arthritis, Neuro-pathic joints, paralyzed abductors of hip, congenital defects.

Data Collection Procedure

Thirty patients meeting the inclusion criteria were admitted through orthopedics out patients department of Nawaz Sharif social security Hospital Lahore. Risks and benefits were discussed. They were asked to sign an informed consent form for surgery and using their data in research. A detailed history (pain at hip, decreased movement at hip, shortening of limb and limp.), physical examination (flexion contracture, limb length discrepancy and range of motion, deformity and gait analysis) and pre operative Harris scoring was done. This score was compared with the post operative score to find the improvement after arthroplasty.

Diagnosis was confirmed with X-ray hip antero-posterior and lateral views. Baseline investigations including complete blood count, ESR, CRP, BUN, serum Creatinine, PT, APTT, blood sugar, anti-HCV And HBsAg were done. All the patients were operated on elective list. Preoperative antibiotic of 2nd generation cephalosporin were given at the time of induction. Harding's (lateral) approach was used.

Post-operatively, Limb was held in abduction by placing a pillow in between both thighs. For pain relief, analgesics and NSAIDs were given. Injectable antibiotic was continued 8 hourly. Low molecular weight Heparin (Clexane) 20 mg subcutaneously was injected once a day, for prophylaxis against D.V.T. Physiotherapy was started on the first post operative day. Drain was taken out, once drainage was less than 50ml in 24 hours. Dressing was changed after 48 hours. Patient was discharged on 7th to 10th postoperative day, after stopping antibiotics and making sure that wound was healthy. Patient was sent home with the advice of avoiding low sitting.

Follow-up

Patients were evaluated post operatively according to Harris hip score along with x-rays of the operated area at 04 weeks, 08 weeks, 12 weeks.

All the information regarding Harris hip score (annex 1) was collected through a specially designed proforma.

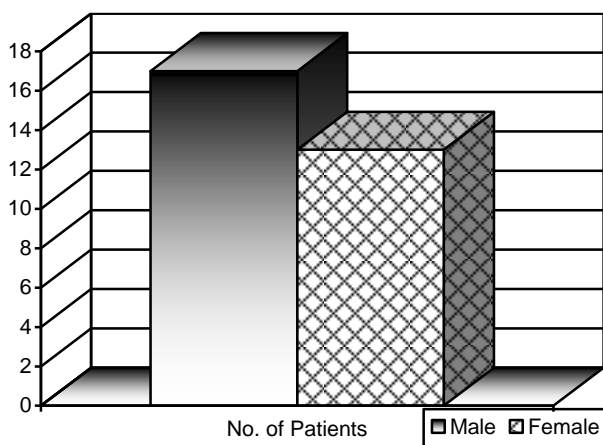
Statistical Analysis

All the data collected was analyzed using computer software SPSS 15 to find out frequencies and percentages of study variables. Descriptive statistics were applied to calculate mean and standard deviation of age and Harris hip score.

Results

A total of 30 patients were included in the study. Out of 30 patients 17 (56.67%) were males and 13 (43.33%) were females (Graph 1).

There was bilateral involvement of hips in 9 patients and 21 had unilateral involvement (Table 1).



Graph 1: Sex Distribution.

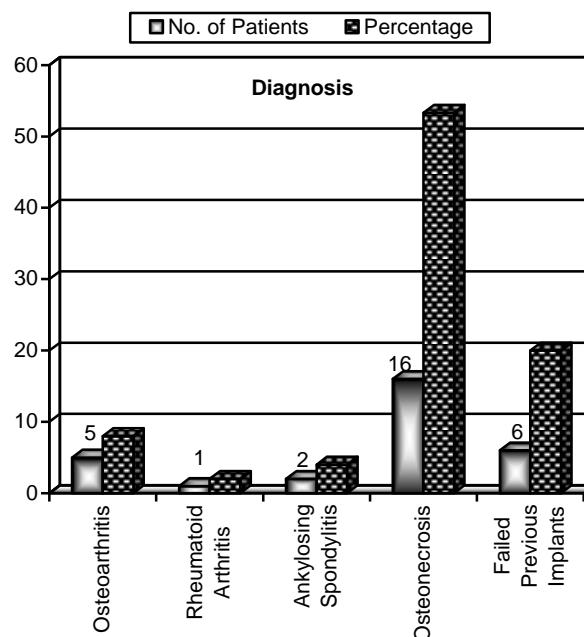
Table 1: Unilateral or bilateral involvement (n = 30).

	Number of Cases	Percentage
Unilateral	21	70.00
Bilateral	09	30.00
Total	30	100

Table 2: Function score (n = 30).

Function Score	Minimum	Maximum	Mean	Standard Deviation
Pre-operative	0.00	20.00	8.27	5.50
Post-operative	9.00	47.00	36.30	9.42
Improvement	4.00	43.00	28.03	9.25

The age ranged from 25 to 105 years. Mean age of patients was 52.53 ± 18.21 years. AVN (osteonecrosis) was observed to be the major cause 16 (53.3%) of secondary osteoarthritis in this series (Graph 2).



Graph 2: Frequency of different diseases

The average pre-operative function score was 8.27 ± 5.50 . At the last follow up the average post-operative function score was 36.30 ± 9.42 . So the average improvement in function score was 28.03 ± 9.25 (Table 2).

The average pre-operative pain score was 10.00 ± 5.25 . At the last follow up, the average post-operative pain score was 42.87 ± 2.86 . So the average improvement in pain score was 32.87 ± 5.75 (Table 3).

The average pre-operative range of motion score was 2.90 ± 1.09 (range 0 to 5). At the last follow up, the average post-operative range of motion score was 4.73 ± 0.45 (range 4 to 5). The average pre-operative

Table 3: Pain score (n = 30).

Pain Score	Minimum	Maximum	Mean	Standard Deviation
Pre-operative	0.00	20.00	10.00	5.25
Post-operative	30.00	44.00	42.87	2.86
Improvement	20.00	44.00	32.87	5.75

Table 4: Harris hip score (n = 30).

Harris Hip Score	Minimum	Maximum	Mean	Standard Deviation
Pre-operative	3.00	38.00	23.77	9.50
Post-operative	62.00	100.00	87.90	10.42
Improvement	44.00	93.00	63.60	11.81

Table 5: Mean pre-operative Harris hip score in different diseases (n = 30).

Serial #	Diagnosis	Mean	Standard Deviation
1.	OA	26.20	13.88
2.	AVN	24.44	8.23
3.	Failed Implant	19.33	10.09
4.	A.S	23.50	12.02
5.	RA	28.00	.000
Total		23.77	9.50

AVN = Avascular Necrosis, A.S= Ankylosing Spondylitis, R.A = Rheumatoid Arthritis, OA = Osteoarthritis

deformity score was 2.53 ± 1.96 (range 0 to 4). At the last follow-up, the average post-operative deformity score was 4.00 ± 0 . The average preoperative Harris hip score was 23.77 ± 9.50 points and at the time of the last follow-up, the average Harris hip score was 87.90 ± 10.42 points, so the average improvement in Harris Hip score was 63.60 ± 11.81 points (Table 4).

Mean pre-operative Harris Hip Score in Osteoarthritis was 26.20 ± 13.88 , in avascular necrosis 24.44 ± 8.23 , in failed implant 19.33 ± 10.09 , in Ankylosing spondylitis 23.50 ± 12.02 , in Rheumatoid arthritis 28.00 ± 0.00 (Table 5).

Mean post-operative Harris Hip Score in Osteoarthritis was 94.00 ± 4.53 , in avascular necrosis 86.94 ± 11.28 , in failed implant 89.33 ± 2.50 , in Ankylosing Harris Hip score was 63.60 ± 11.81 points (Table 4).

Table 6: Mean post-operative Harris hip score in different diseases (n = 30).

Serial #	Diagnosis	Mean Post-Operative Score	Standard Deviation
1.	OA	94.00	4.53
2.	AVN	86.94	11.28
3.	Failed Implant	89.33	2.50
4.	A.S	70.00	11.31
5.	RA	100.00	0.00.
Total		87.90	10.42

AVN = Avascular Necrosis, A.S= Ankylosing Spondylitis, R.A = Rheumatoid Arthritis, OA = Osteoarthritis

Mean pre-operative Harris Hip Score in Osteoarthritis was 26.20 ± 13.88 , in avascular necrosis 24.44 ± 8.23 , in failed implant 19.33 ± 10.09 , in Ankylosing spondylitis 23.50 ± 12.02 , in Rheumatoid arthritis 28.00 ± 0.00 (Table 5).

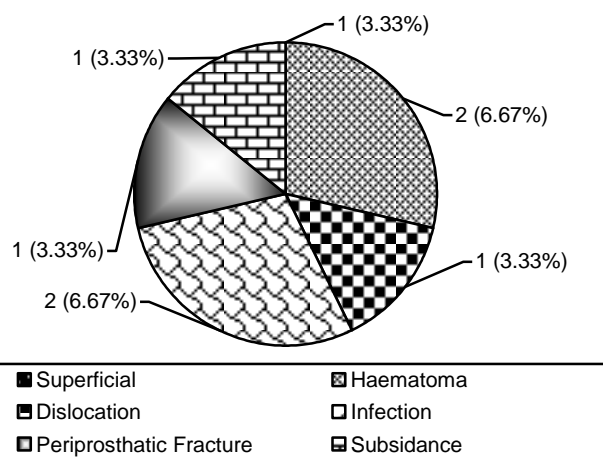
Mean improvement in Harris Hip Score in OA was 67.80 ± 16.60 , in AVN 61.50 ± 9.67 , in failed implant 70.00 ± 9.78 , in A.S 46.50 ± 0.71 , in RA 72.00 ± 0.00 (Table 7).

Complications included two periprosthetic fractures (6.67%); one (3.33%) failed femoral component evidenced by progressive subsidence and two (6.67%) dislocation. One patient had subcutaneous hematoma (3.33%) which was drained by stitch removal and one (3.33%) hadinfection (Graph 3).

Table 7: Mean improvement in Harris hip score in different diseases (n = 30).

Serial #	Diagnosis	Mean	Standard Deviation
1.	OA	67.80	16.60
2.	AVN	61.50	9.67
3.	Failed Implant	70.00	9.78
4.	A.S	46.50	0.71
5.	RA	72.00	.
Total		63.60	11.81

AVN = Avascular Necrosis, A.S= Ankylosing Spondylitis, R.A = Rheumatoid Arthritis,OA = Osteoarthritis



Graph 3: Complications (n = 30).

The result was rated as:

Excellent = 90 – 100 Good = 80 – 89
 Fair = 70 – 79 Poor = below 70

The result was excellent for 18 (60.00%) of the hips, good for 7 (23.33%), fair for 2 (6.67%), and poor for 3(10.00%).

Discussion

Total hip replacement (THR) is an effective treatment which improves function and relieves pain in the hip secondary to severe osteoarthritis or other diseases which affect the joint.¹⁰ Currently, the most common methods of total hip arthroplasty offers drastic improvement in pain, stiffness, and quality of life for the

older individual.

The present study was undertaken to evaluate the functional outcome of total hip arthroplasty, in patients crippled with primary and secondary osteoarthritis, using Harris hip score. There were total 30 patients of primary and secondary osteoarthritis. There was bilateral involvement of hip in 9 patients (7 underwent bilateral THR and 2 unilateral THR till last follow up), among them six had AVN (avascular necrosis), two cases of Ankylosing Spondylitis (AS) and one with Rheumatoid arthritis (RA). Twenty one had unilateral involvement (Table 1). In our study the average age of the patients at the time of the operation was 52.53 ± 18.21 years (range 25 to 105 years). In a study by Shahabud-din et al. the average age of the patients at the time of the operation was 34 years (range 19 – 49 years).⁶ In a study by Berli BJ et al. the mean age of the patients at surgery was 67.6 years (36 to 89) for the 76 women and 67.3 years (49 to 86) for the 45 men.¹¹ Study by Ragab et al. reported average age of the patients 62.6 years (range 39 – 84 years).¹² In a study by Todkar M et al. the average age of patients at the time of arthroplasty was 65 years (range 50 to 80 years).⁷ In a study by Iqbal P et al. mean age was 48 years (ranged from 21 to 75 years).¹³ In a study by Ghani I et al. the average age of the patients at the time of the operation was 57 years (range 25 – 87 years).⁹ Osteoarthritis of knee and hip represent at an early age group in this part of the world (South Asia) which is most likely due to our sitting, praying, eating and working habits, which need squatting. The use of indoor / outdoor toilets also put excessive stress and strain on knee and hip joints. So patients in our study underwent arthroplasty (mean age 52.53 ± 18.21 years) almost one decade earlier than the average age of the patients who underwent arthroplasty in western countries.^{11,12}

In our study seventeen (56.67%) patients were male and thirteen female (43.33% Graph 1). Patients with AS were male as it is a disease predominantly affecting the male gender and also patients with AVN were predominantly males. Three were males and three female with failed implants. Three were female and two males in OA group. In a study by Berli BJ et al. 76 women and 45 men.¹¹ In a study by Shahabud-din et al. Nine (47%) were females and 10 (53%) males.⁶ In a study by Todkar M. et al, there were forty men and ten women in this series.⁷ In a study by Ragab et al. Fifty – one patients were men (57.95%) and thirty – seven were women (42.05%).¹² In a study by Iqbal P. et al. thirty eight (59.38%) were males and twenty six(40.63%) were females.¹³ Male to female

ratio was almost comparable other studies. Osteonecrosis of head of femur (16 cases, 53.3%) was the major indication in our series followed by failed implant (6

cases, 20.0%), primary osteoarthritis (5 cases, 16.7%), Ankylosing spondylitis (2 cases, 6.7%) and rheumatoid arthritis (1 case, 3.3%) as shown in graph 2.

ANNEX 1

Harris Hip Score

- Flexion Contracture ----- (Degrees)
- Leg Length Discrepancy----- (cm)
- ABSENCE OF DEFORMITY (All yes = 4; Less Than 4 = 0)
 - Less than 30° fixed flexion contracture: Yes () No ()
 - Less than 10° fixed adduction: Yes () No ()
 - Less than 10° fixed internal rotation in extension: Yes () No ()
 - Length discrepancy less than 3.2 cm: Yes () No ()
- RANGE OF MOTION (*Normal)
 - Total degree measurements, then check range to obtain score
 - Flexion (*140°): ----- External rotation (*40°): ----- Abduction (*40°) -----
 - Rotation (*40°) ----- Adduction (*40°)
- RANGE OF MOTION SCALE
 - 211° – 300° (5), 161° – 210° (4), 101° – 160° (3), 61° – 100° (2), 31° – 60° (1), 0° – 30° (0)
 - Range of Motion Score: -----

I. PAIN 44 POSSIBLE	No.
A. None or ignores it	44
B. Slight, occasional, no compromise in activities	40
C. Mild pain, no effect on average activities, rarely moderate pain with unusual activity	30
D. Moderate pain, tolerable but with limitations in ordinary work or life	20
E. Marked pain, serious limitation of activities	10
F. Totally disabled, olpped, pain in bed	0
II. FUNCTION (47 POSSIBLE)	No.
A. Gait (33 possible)	
1. Limp	
a. None	11
b. Slight	8
c. Moderate	5
d. Severe	0
2. Support	
a. None	11
b. Cane for long walks	7
c. Cane most of the time	3

d. One crutch	3
e. Two canes	2
f. Two crutches	0
g. Not able to walk	0
3. Walking distance	
a. > 1 km	11
b. 0.5 – 1 km	8
c. 100 – 500 m	5
d. Only inside the house	2
e. Confined to chair or bed	0
B. Activities (14 possible)	
1. Stairs	
a. Normally without using a railing	4
b. Normally using a railing	2
c. In any manner	1
d. Not able to do stairs	0
2. Shoes and Socks	
a. With ease	4
b. With difficulty	2

c. Unable	0
3. Sitting	
a. Comfortably in ordinary chair for 1 hour	5
b. On a high chair for one – half hour	3
c. Unable to sit comfortably in any chair	0
4. Uses public transport	
Total	241

Total Function Score

TOTAL HARRIS HIP SCORE:

Excellent = 90 – 100 Good = 80 – 89
 Fair = 70 – 79 Poor = below 70

Todkar M et al. reported diagnosis of osteonecrosis of head of femur in 39 (78%) cases, rheumatoid arthritis in 5 (10%) cases, Ankylosing spondylitis in 4 (8%) cases, post-traumatic arthritis of hip in one (2%) case and osteoarthritis in one (2%) case.⁷ Ghani and colleagues¹⁴ in a study of 20 patients had rheumatoid arthritis 35%, osteoarthritis 10%, failed hemiarthroplasty 25%, fracture neck of femur 20% and failed implant for fracture neck of femur in 10%.⁹ Shahabud-Din and colleagues in a study of 20 total hip replacement AVN 70%, A.S 10%, Fracture acetabulum 10% and unknown 10%.⁶ Pospischill M et al. reported osteoarthritis in 86 patients (58.1%), avascular necrosis of the femoral head in 26 (17.6%), developmental dysplasia of the hip in 23 (15.5%), post-traumatic osteoarthritis in seven (4.7%) and rheumatoid arthritis in six (4.1%).¹⁵ In a study by Berli BJ et al. the pre-operative diagnosis was osteoarthritis in 99 (80%), avascular necrosis in 12 (9%), dysplasia in seven (6%), post-traumatic osteoarthritis in four (3%) and rheumatoid arthritis in two (2%).¹¹ In a study by Iqbal P et al. The pre-operative diagnosis was secondary osteoarthritis in 45 (62.5%), primary osteoarthritis 10 (13.89%), avascular necrosis in 04 (5.56%), Ankylosing spondylitis 6 (8.33%) and rheumatoid arthritis in 7 (9.72%).¹³ The major indication for THA in our study was Osteonecrosis of head of femur (16 cases, 53.3%). Traumatic causes of AVN include hip dislocation and femoral neck fracture. Non-traumatic causes of AVN include high doses of steroids. Second most common indication in our study was failed implants (20%) due to lack of technical expertise and use of low standard material in manufacturing implants by manufacturing

industry. The average preoperative Harris hip score in the present study was 23.77 ± 9.50 points, with an average pain score of 10.00 ± 5.25 points and an average function score of 8.27 ± 5.50 points. In a study by Ragab et al the average preoperative Harris hip score was 48 points, with an average pain score of 15 points and an average function score of 26 points.¹² In the present study average postoperative Harris hip score was 87.90 ± 10.42 points, with an average pain score of 42.87 ± 2.86 points and an average function score of 36.30 ± 9.42 points. Most of the patients had marked pain on presentation, and all of them had significant improvement post operatively. A maximum pain score of 44 (i.e. no pain) was found in 25 (83.33%) of all evaluated hips. Pospischill M. et al. reported the latest mean post-operative Harris hip score 89.2 (32 to 100). At a mean follow-up of 14.4 years, the clinical ratings were graded as excellent and good in 83 (80.1%), fair in eight (7.7%) and poor in 12 (11.6%) of all reviewed hips. The mean pain score was 41.6 (10 to 44). A maximum pain score of 44 (i.e. no pain) was found in 89 (86.4%) of all evaluated hips.¹⁵ In a study by Berli BJ et al the mean pre-operative Harris hip score improved from 73 (49 to 83) to 96 (72 to 100) post-operatively.¹¹ In a study by Bourne RB et al one hundred and thirty – one hips were available for the latest follow-up examination. The mean post operative Harris hip score for all 131 hips was 89 ± 10 points.¹⁶

In present study the average preoperative Harris Hip Score in patients having osteonecrosis of head of femur was 24.44 ± 8.23 and it improved to average score 86.94 ± 11.28 postoperatively. In rheumatoid hips the score improved to 100 from a preoperative value of 28.00. In cases of Ankylosing spondylitis the average preoperative score was 23.50 ± 12.02 and the postoperative score was 70.00 ± 11.31 . In cases of osteoarthritis the average preoperative score was 26.20 ± 13.88 and it improved to 94.00 ± 4.53 after total hip replacement. In cases of failed implant the average preoperative score was 19.33 ± 10.09 and it improved to 89.33 ± 2.50 after total hip replacement. In a study by Todkar M. et al the average preoperative Harris Hip Score in patients having osteonecrosis of head of femur was 43 and it went up to 88 postoperatively. In rheumatoid hips the score improved to 82 from a pre-operative average value of 45. In cases of Ankylosing spondylitis the average preoperative score was 49 and the postoperative score was 83. In cases of osteoarthritis the average preoperative score was 47 and it improved to 87 after total hip replacement.¹⁰ Improvement in Harris hip score in our study is comparable to other

studies. In patients with failed implants, osteoarthritis, rheumatoid arthritis and osteonecrosis of head of femur pain was the main and common complaint. There was significant improvement of pain post-operatively in all these patients. A maximum post-operative pain score of 44 (i.e. no pain) was found in 25 (83.33%) of all evaluated hips. In cases of Ankylosing spondylitis chief complaint was inability to sit in chair due to fused hips and difficulty in walking (pre-operative range of motion score was 0 and deformity score also 0). Post-operatively their range of motion score improved to 4 and deformity corrected with score of 4. Complications that necessitated a revision operation included two patients with periprosthetic fracture (6.67%); one (3.33%) failed femoral component evidenced by progressive subsidence and one (3.33%) dislocation (Figure 1).



Figure 1: X-ray showing Dislocated Right Hip Along with Peri-Prosthetic Fracture.

One patient had subcutaneous hematoma (3.33%) which was drained by stitch removal. One patient had superficial infection (3.33%) which settled with 2 weeks of antibiotic coverage (Graph 3). Post-operative dislocation, a typical early complication occurs mostly within three months after surgery. In uncomplicated cases incidence of dislocation is 1 – 2%,¹⁷ however in cases of revision hip surgery risk can increase up to 10%.¹⁸ The Rate of dislocation in much larger series was reported to be 3%.¹⁹ In present study there were two (6.67%) dislocations. One was reduced in the ward under sedation and other necessitated a revision surgery. In a study by Berli B.J. et al. there was one

dislocation and it was treated by closed reduction.¹¹ Shahabud-din and colleagues in a study of 20 total hip replacements reported dislocation rate of 5% that necessitated a revision operation.⁶ Iqbal P. and colleagues in a study of 72 total hip replacements reported rate of dislocation 7%.¹³ The incidence of infection after primary THR is 1%. It is expensive, time consuming to treat and usually results in poor functional outcome.²⁰ Patient that may be at increased risk includes severe rheumatoid arthritis, on steroids, with previous hip surgery and persons with history of infection in and about the hip.²¹⁻²³ In present study one patient had superficial infection (3.33%) which settled with 2 weeks of antibiotic coverage. Shahabud-din and colleagues in a study of 20 total hip replacements reported infection rate of 5%.⁶ Iqbal P. and colleagues reported infection rate of 4%.¹³ In a study by Todkar M. et al. a deep infection had developed in one (2%) of the 50 hips.⁷

Subsidence of the femoral component was defined by the distance measured between the most medial point of the lesser trochanter and the proximal tip of the stem on the pelvic radiograph. In a study subsidence occurred in two femoral components (1.9%), and was attributed to undersized stems.¹⁵ Our study one patient had subsidence (3.33%) for which redo-surgery was carried out.

Intra operative periprosthetic femoral fractures have received greater attention in the literature than acetabular fracture, possibly because of the difficulty in identifying intra operative acetabular fracture at the time of the operation,³ the risk of an intra operative femoral fracture has been shown to be when a cementless femoral component is used in revision THA.²⁴

In a study by Berli B.J. et al intra-operatively, there was one fracture of the greater trochanter and one of the proximal femur. These were stabilized with circlage wire. Post-operatively, eight hematoma occurred. There were no infections, no deep – vein thrombosis and no deaths related to surgery.¹¹ Shahabud-din and colleagues in a study of 20 total hip replacements reported periprosthetic fracture rate of 5%.⁶

Taunton et al in a cohort of 3346 primary THA reported 41 hips (1.2%) of acute post operative periprosthetic femoral fractures.²⁵ Davidson D et al. in one study encountered intra operative femoral fracture in 1%, (238) of 23,980 primary THA.²⁴ In another study Taylor MM et al demonstrated intra operative fracture of 1.2% (7 of 605) when Cemented stem was used and 3% (39 of 1318) when a cement less femoral component was used.²⁶

In present study there were two (6.67%) periprosthetic femoral fractures. In one of these patients, periprosthetic femoral fracture occurred per-operatively and was diagnosed in postoperative check x-ray. The other patient slipped in wash room on third postoperative day and remained undiagnosed. He was discharged from hospital, after four days he presented with dislocation, for which x-rays were carried out revealing periprosthetic fracture, loose femoral component along with hip dislocation. For both cases revision surgery was carried out. Venous thromboembolic disease is common following hip arthroplasty,²⁵ the cumulative incidence of symptomatic venous thromboembolism was 2.7% (150 of 5607), of which 1.1% had developed pulmonary embolism, 1.5% had deep venous thrombosis and 0.6% had both.²⁷ In the present study there was no incidence of thromboembolism and Sciatic nerve palsy. This complication was rare with an incidence of < 0.2% in the past ten years. They describe six cases of sciatic nerve palsy occurring in 355 consecutive primary total hip replacements (incidence 1.69%). Each of these palsies was caused by post-operative hematoma in the region of the sciatic nerve.²⁷

The results according to the Harris hip score were categorized as excellent (90 to 100 points), good (80 to 89 points), fair (70 to 79 points), and poor (less than 70 points).¹⁶ The Result was excellent for 18 (60.00%) of the hips, good for 7 (23.33%) fair for 2 (6.67%), and poor for 3 (10.00%) (Table 8).

Two patients with poor results were of bilateral AVN and till the last follow-up were operated on one side; therefore their functional score was limited to 7 and 12 only. Third case with poor result was of Ankylosing spondylitis involving both hips, for which bilateral THA was performed, had left knee flexion contracture of 25° due to surgery in the past for supracondylar fracture left femur.

Bourne R.B. et al, in a study of one hundred and thirty – one hips reported the result of excellent for seventy – six hips, good for thirty-four, fair for fifteen, and poor for six.¹⁶

Shahab-ud-Din and colleagues in a study of 20 total hip replacements reported result as excellent for 5 (25%) of the hips, good for 9 (45%) of the hips, fair for 4 (20%) of the hips, and poor for 2 (10%) of the hips.⁶ In a study by Pospischill M. et al. at a mean follow-up of 14.4 years, the clinical ratings were graded as excellent and good in 83 (80.1%), fair in eight (7.7%) and poor in 12 (11.6%) of all reviewed hips. The mean pain score was 41.6 (10 to 44) and the mean functional score 47.6 (17 to 56).¹⁵

Iqbal P. and colleagues in a study of 72 total hip replacements result was reported as excellent for 43 (59.72%) of the hips, good for 15 (20.83%) of the hips, fair for 10 (13.89%) of the hips, and poor for 4 (5.56%) of the hips.¹³ Overall results of this study are encouraging and comparable to other studies carried out locally as well as abroad (table 8, 9).

Table 8:
Comparative results of THR.

Study	Excellent	Good	Fair	Poor
Shahab-ud-din et al ⁴	5 (25%)	9 (45%)	4 (20%)	2 (10%)
Bourne RB et al ¹⁶	76 (58.02%)	34 (25.95%)	15 (11.45%)	6 (4.58%)
Iqbal P et al ¹³	43 (59.72%)	15 (20.83%)	10 (13.89%)	4 (5.56%)
Present	18 (60.00%)	16 (23.33%)	2 (6.67%)	3 (10.00%).

Table 9: Comparative Study Duration of THR.

Study	No. of Cases	Duration
Shahab-ud-din et al ⁴	20	12 months
Bourne RB et al ¹⁶	131	07 years
Iqbal P et al ¹³ .	72	05 years
Present	30	12 months

Conclusion

It is concluded that total hip arthroplasty is a safe surgical procedure with minimal complications in our set-up in experienced hands. It provides enormous benefits to the patients in relieving their pain, improving movements of the joint and upgrading the quality of life. As the study period was short so in order to get better evaluation, longer follow up period is required.

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