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Original Research Article

Impact of surgical approach and size of femoral head in risk of dislocation post total hip arthroplasty

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ABSTRACT

Background: Total hip arthroplasty (THA) is one of the orthopedic procedures that are both economical and routinely successful. THA offers dependable benefits for patients with end-stage degenerative hip osteoarthritis (OA), including pain alleviation, functional recovery, and overall better quality of life.
Methods: This was a retrospective study which was conducted on patients who visited the hospital's outpatient department received THA and also received the revisions of THA, were included. The reasons for THA were analyzed and their revisions were studied. The patients were studied according to various approaches based on the hip surgery, such as, straight lateral, anterolateral, posterolateral, and anterior and also based on the sizes divided into three groups 22-28 mm, 32 mm, and 36 mm.
Results: The posterolateral approach (n=40) was used for the majority of THAs, followed by the straight lateral (n=35), anterior (n=25), and anterolateral (n=20) approaches. 22.5% of THAs that were done with a posterolateral approach used a 36-mm head. Each reason for different size of heads have been statistically analyzed. During the six-year follow-up, this (unadjusted) risk was 1.15% for femoral heads measuring 22 to 28 mm. THA with 32-mm heads had a considerably decreased risk of revision for dislocation (0.75%), compared to 36-mm heads (0.55%).
Conclusions: The study concluded that the patients who received THA at posterolateral approach, experienced dislocations more frequently and also it has been found that the patients using 22 to 28 mm femoral head had more dislocations.

Keywords: Hip arthroplasty, Hip dislocation, Fixation

INTRODUCTION

Total hip arthroplasty (THA) is one of the orthopedic procedures that are both economical and routinely successful. THA offers dependable benefits for patients with end-stage degenerative hip osteoarthritis (OA), including pain alleviation, functional recovery, and overall better quality of life. Total hip arthroplasty (THA) has shown to be a good and dependable therapeutic option for advanced hip pathology, with positive clinical results at 15–20 years of follow-up. Following the initial issues that early-career surgeons identified in the 1960s and 1970s, such as surgical methods, structural implant failures, and infection, orthopedic surgeons encountered problems in the 1980s with regard to the selection of suitable acetabular and femoral implants as well as component fixation. However, it has been clear that many different factors contribute to a THA's long-term survival. THA modification rates have risen substantially in recent years despite favorable outcomes. Increased THA use is linked to a longer lifespan in a population that is aging globally, which raises the pace of revision. loosening, wear, displacement or instability, and infection are common reasons for revision THA. For patients with end-stage, tricompartmental, and degenerative osteoarthritis, TKA offers dependable results (OA). While millions of Americans suffer from OA, the knee is the most often affected joint. Articular cartilage gradually degenerates and wears away as the condition progresses.[1-3]

Total hip replacement revolutionized the treatment of senior arthritic patients in the 1960s, with excellent long-term outcomes. Young people today seek hip replacement surgery in the hopes of regaining their quality of life, which usually involves physically demanding activities. The development of hip prostheses has been driven by advancements in bioengineering technology. Hips with and without cement can both offer dependable fixation. The usage of large-bore bearings, which offer a greater range of motion with improved stability and very low wear, has been made possible by better materials and design. Surgery that is just minimally invasive limits soft tissue injury and speeds up recovery.[4]

According to Epstein, car accidents were the primary reason for most hip dislocations in males between the ages of 16 and 40. According to other researchers, 70–100% of posterior hip dislocations are caused by car accidents. However, only 11 of the total 32 severe hip dislocations studied by Pape et al. were due to motorcycle accidents. The risk of hip dislocation is much higher for unrestrained passengers than for those who are restrained. During the research period, there were very few traumatic sports-related hip dislocations in the United States. The majority of football-related injuries were incurred by male teenagers between the ages of 15 and 19. In comparison to noncontact sports, contact sports, most frequently football, snowboarding, skiing, and basketball, saw much more hip dislocations. These findings help to raise clinical awareness of these injuries because osteonecrosis may have few treatment choices for young athletes.[5,6]

Since the labrum and acetabulum are deep, the joint capsule is robust, and there are strong muscular structural supports, this is a genuine ball and socket joint that is unlikely to dislocate. For the hip joint to separate, Arvidsson showed that a traction force of 400 N (90 lbs) was necessary. The type and direction of the dislocation were established by the path of the force vector applied and the location of the injured lower limb. A simple hip displacement is one in which neither the proximal femur nor the acetabulum has been broken. The femoral head, femoral neck, or acetabulum are all involved in complex fracture-dislocations. Compared to fracture-dislocations, the prevalence of posttraumatic arthritis is substantially lower in simple dislocations. A high-energy motor vehicle accident is the most frequent mechanism of damage and is frequently accompanied by additional systemic and musculoskeletal injuries. The hip should indeed be lowered immediately and without stress. In order to assess for instability and decide whether surgical fixation is necessary following an acetabular fracture, intraoperative stress assessments may be essential. On conventional radiographs and CT scans, the presence of a concentric reduction does not exclude intra-articular hip disease; such injury may hasten long-term degenerative changes.[5,7]

Hip dislocations of any kind must be treated right away because they are urgent situations. The time span between the presentation and the decrease should not exceed six hours. If the hip is not decreased within the 6-hour interval, permanent consequences and invasive surgeries may become necessary. A fast closed reduction can typically be carried out under adequate anesthesia in the emergency room, barring any contraindications like IPD, fractures, or ipsilateral knee injuries. Inline traction and external rotation are frequently used to treat anterior hip dislocations, and a helper may apply pressure to the femoral head or move the femur laterally to speed up the healing process. The most frequent type of hip dislocations, posterior hip dislocations, can be prevented by applying longitudinal traction with internal rotation to the hip. An emotionally traumatic experience, the displacement of a total hip endoprosthesis should be avoided wherever possible. The procedure should be carried out with the finest possible method, the best possible physical design of implant components, soft-tissue balance, and an orthopedic surgeon with sufficient experience.[8-10]

METHODS

Study design

This was a retrospective study which was conducted on patients who came to the Outpatient Orthopaedic Department of our hospital between July, 2021 and October, 2022. A detailed medical history of the patients was taken and examined and diagnosed. Of the total patients who went to the hospital 120 patients were included in the study and were grouped into four categories, namely, straight lateral, anterolateral, posterolateral, and anterior approaches based on the hip surgery and based on the sizes divided into three groups 22-28 mm, 32 mm, and 36 mm.

Inclusion and exclusion criteria

Patients over 60 who visited the hospital's outpatient department received THA and also received the revisions of THA, were included. Again, those patients who completed the study protocol and provided informed consent were included in the study.

Females who did not follow the study protocol or did not provide consent were not included in the study. The patients with tuberculosis, heart disease, diabetes, and other chronic conditions were also excluded.

Statistical analysis

The revision rates are overestimated by the traditional Kaplan-Meier survival study. Therefore, using competing-risk analyses, we computed the crude (unadjusted) cumulative incidence of revision. For the purpose of comparing the adjusted revision rates among the various surgical techniques and femoral head size categories, we conducted a multivariable cox proportional hazard regression analysis. To identify independent risk variables for revision arthroplasty, adjustments were made for age at surgery, sex, ASA score, fixation (cemented, cementless, hybrid), and the time period during which surgery was performed. The proportional hazard assumption was verified and met for each covariate included in the multivariable cox proportional hazards regression models. P values less than 0.05 were regarded as statistically significant.

Ethical approval

The patients were given a thorough explanation of the study by the authors. The patients' permissions have been gotten. The concerned hospital's ethical committee has accepted the study's methodology.

RESULTS

Table 1 shows that most THA patients had ASA II status, were female, between the ages of 60 and 74, and had received a 32 mm or 28 mm head ceramic-on-polyethylene or metal-o7n-polyethylene bearing with cementless fixation. The posterolateral approach (n=40) was used for the majority of THAs, followed by the straight lateral (n=35), anterior (n=25), and anterolateral (n=20) approaches. 22.5% of THAs that were done with a posterolateral approach used a 36-mm head. 36-mm heads were used in 25% of the anterior approach THA group, in comparison. Patients who underwent anterior THA surgery had ceramic-on-ceramic couplings implanted more frequently (25%) than patients who underwent other surgical procedures (5-7%).

Table 1: Descriptive statistics according to femoral head size and approach for primary non-MoM THAs for osteoarthritis.

Variables	22-28 mm	32mm	36 mm	Total
	N (%)	N (%)	N (%)	N (%)
Straight lateral approach				
Number of cases	13	17	5	35
Age (in years)				
<60	1 (7.7)	2 (11.8)	1 (20)	4 (11.4)
60-74	6 (46.1)	9 (52.9)	3 (60)	18 (51.4)
≥75	5 (38.5)	6 (35.3)	1 (20)	12 (34.3)
Sex				
Male	3 (23)	5 (29.5)	2 (40)	12 (34.3)
Female	10 (76.9)	12 (70.6)	3 (60)	25 (71.4)
ASA score				
I	4 (30.8)	5 (29.4)	2 (40)	11 (31.4)
II	8 (61.5)	11 (64.7)	3 (60)	22 (62.8)
III-IV	2 (15.4)	2 (11.8)	0 (0)	4 (11.4)
Period				
2007-2009	5 (38.5)	4 (23.5)	1 (20)	10 (28.6)
2010-2012	6 (46.1)	7 (41.2)	3 (60)	16 (45.7)
2013-2015	3 (23)	8 (47)	2 (40)	13 (37.1)
Articulation				
MoP	6 (46.1)	5 (29.4)	1 (20)	12 (34.3)
CoP	7 (53.8)	11 (64.7)	2 (40)	20 (57.1)
CoC	1 (7.7)	1 (5.9)	1 (20)	3 (8.6)
Other	1 (7.7)	1 (5.9)	1 (20)	3 (8.6)
Fixation				
Cemented	5 (38.5)	4 (23.5)	1 (20)	10 (28.6)
Uncemented	7 (53.8)	11 (64.7)	4 (80)	22 (62.8)
Hybrid	1 (7.7)	1 (5.9)	1 (20)	3 (8.6)
Reverse hybrid	1 (7.7)	1 (5.9)	1 (20)	3 (8.6)
Unknown	1 (7.7)	1 (5.9)	1 (20)	3 (8.6)
Posterolateral approach				
Number of cases	13	18	9	40
Age (in years)				
<60	1 (7.7)	3 (16.7)	2 (22.2)	6 (15)
60-74	6 (46.1)	9 (50)	5 (55.5)	20 (50)
≥75	5 (38.5)	6 (33.3)	2 (22.2)	13 (32.5)

Continued.

Variables	22-28 mm	32mm	36 mm	Total
	N (%)	N (%)	N (%)	N (%)
Sex				
Male	3 (23)	6 (33.3)	4 (44.4)	13 (32.5)
Female	10 (76.9)	12 (66.7)	5 (55.5)	27 (67.5)
ASA score				
I	3 (23)	5 (27.8)	3 (33.3)	11 (27.5)
II	8 (61.5)	12 (66.7)	5 (55.5)	25 (62.5)
III-IV	2 (15.4)	3 (16.6)	2 (22.2)	7 (17.5)
Period				
2007-2009	4 (30.8)	3 (16.6)	1 (11.1)	8 (20)
2010-2012	5 (38.5)	6 (33.3)	4 (44.4)	15 (37.5)
2013-2015	4 (30.8)	9 (50)	4 (44.4)	17 (42.5)
Articulation				
MoP	6 (46.1)	5 (27.8)	2 (22.2)	13 (32.5)
CoP	7 (53.8)	10 (55.5)	4 (44.4)	21 (52.5)
CoC	1 (7.7)	1 (5.5)	2 (22.2)	4 (10)
Other	1 (7.7)	2 (11.1)	1 (11.1)	4 (10)
Fixation				
Cemented	6 (46.1)	5 (27.8)	1 (11.1)	12 (30)
Uncemented	5 (38.5)	11 (66.6)	8 (88.9)	24 (60)
Hybrid	1 (7.7)	2 (11.1)	2 (22.2)	5 (12.5)
Reverse hybrid	1 (7.7)	1 (5.5)	0 (0)	2 (5)
Unknown	0 (0)	0 (0)	0 (0)	0 (0)
Anterolateral approach				
Number of cases	11	9	5	25
Age (in years)				
<60	1 (9)	1 (11.1)	1 (20)	3 (12)
60-74	6 (54.5)	5 (55.5)	3 (60)	14 (56)
≥75	5 (45.4)	3 (33.3)	1 (20)	9 (36)
Sex				
Male	3 (27.2)	3 (33.3)	3 (60)	9 (36)
Female	8 (72.7)	6 (66.7)	2 (40)	16 (64)
ASA score				
I	3 (27.2)	2 (22.2)	2 (40)	7 (28)
II	7 (63.6)	6 (66.7)	3 (60)	16 (64)
III-IV	2 (18.1)	1 (11.1)	0 (0)	3 (12)
Period				
2007-2009	4 (36.3)	1 (11.1)	1 (20)	6 (24)
2010-2012	4 (36.3)	4 (44.4)	3 (60)	11 (44)
2013-2015	2 (18.1)	4 (44.4)	1 (20)	7 (28)
Articulation				
MoP	5 (45.4)	2 (22.2)	2 (40)	9 (36)
CoP	6 (54.5)	7 (77.7)	2 (40)	15 (60)
CoC	1 (9)	1 (11.1)	1 (20)	3 (12)
Other	1 (9)	1 (11.1)	1 (20)	3 (12)
Fixation				
Cemented	4 (36.3)	1 (11.1)	0 (0)	5 (20)
Uncemented	5 (45.4)	7 (77.7)	4 (80)	16 (64)
Hybrid	1 (9)	0 (0)	0 (0)	1 (4)
Reverse hybrid	1 (9)	0 (0)	0 (0)	1 (4)
Anterior approach				
Number of cases	7	6	5	20
Age (in years)				
<60	1 (14.3)	1 (16.7)	1 (20)	3 (15)
60-74	3 (42.8)	3 (50)	3 (60)	9 (45)
≥75	3 (42.8)	2(33.3)	1 (20)	6 (30)

Continued.

Variables	22-28 mm	32mm	36 mm	Total
	N (%)	N (%)	N (%)	N (%)
Sex				
Male	2 (28.6)	1 (16.7)	3 (60)	6 (30)
Female	5 (71.4)	5 (83.3)	3 (60)	13 (65)
ASA score				
I	2 (28.6)	1 (16.7)	2 (40)	5 (25)
II	5 (71.4)	4 (66.6)	3 (60)	12 (60)
III-IV	1 (14.3)	1 (16.7)	0 (0)	2 (10)
Period				
2007-2009	1 (14.3)	0 (0)	0 (0)	1 (5)
2010-2012	2 (28.6)	1 (16.7)	2 (40)	5 (25)
2013-2015	4 (57.1)	5 (83.3)	3 (60)	11 (55)
Articulation				
MoP	3 (42.8)	2(33.3)	1 (20)	6 (30)
CoP	4 (57.1)	3 (50)	1 (20)	8 (40)
CoC	1 (14.3)	1 (16.7)	3 (60)	5 (25)
Other	1 (14.3)	1 (16.7)	0 (0)	2 (10)
Fixation				
Cemented	2 (28.6)	1 (16.7)	0 (0)	3 (15)
Uncemented	3 (42.8)	5 (83.3)	5 (100)	13 (65)
Hybrid	1 (14.3)	1 (16.7)	1 (20)	3 (15)
Reverse hybrid	2 (28.6)	1 (16.7)	0 (0)	3 (15)

Table 2: Reasons for revision in patients who received a non-MoM THA for osteoarthritis.

Variables	22-28 mm	32mm	36 mm	Total	P value
	N (%)	N (%)	N (%)	N (%)	
Straight lateral approach (n=35)					
Dislocation	10 (28.6)	7 (20)	5 (14.3)	22 (62.8)	P<0.05
Loosening femoral component	7 (20)	10 (28.6)	11 (31.4)	28 (80)	P>0.05
Preprosthetic fracture	5 (14.3)	7 (20)	6 (17.1)	18 (51.4)	P>0.05
Infection	5 (14.3)	6 (17.1)	4 (11.4)	15 (42.8)	P>0.05
Loosening acetabular component	5 (14.3)	7 (20)	3 (8.6)	15 (42.8)	P<0.05
Girdlestone	3 (8.6)	2 (5.7)	1 (2.8)	6 (17.1)	P>0.05
Cupliner wear	3 (8.6)	1 (2.8)	0 (0)	4 (11.4)	P<0.05
Periarticular ossifictaion	1 (2.8)	3 (8.6)	2 (5.7)	6 (17.1)	P>0.05
Other	8 (22.8)	5 (14.3)	9 (25.7)	22 (62.8)	P>0.05
Posterolateral approach (n=40)					
Dislocation	18 (45)	14 (35)	8 (20)	40 (100)	P<0.05
Loosening femoral component	5 (12.5)	6 (15)	12 (30)	23 (57.5)	P<0.05
Preprosthetic fracture	4 (10)	5 (12.5)	8 (20)	17 (42.5)	P<0.05
Infection	5 (12.5)	8 (20)	6 (15)	19 (47.5)	P<0.05
Loosening acetabular component	6 (15)	4 (10)	5 (12.5)	15 (37.5)	P>0.05
Girdlestone	1 (2.5)	2 (5)	3 (7.5)	6 (15)	P>0.05
Cupliner wear	2 (5)	3 (7.5)	1 (2.5)	6 (15)	P<0.05
Periarticular ossifictaion	1 (2.5)	2 (5)	3 (7.5)	6 (15)	P>0.05
Other	6 (15)	8 (20)	7 (17.5)		P>0.05
Anterolateral approach (n=25)					
Dislocation	6 (24)	3 (12)	1 (4)	10 (40)	P<0.05
Loosening femoral component	5 (20)	9 (38)	12 (48)	8 (32)	P<0.05
Preprosthetic fracture	3 (12)	4 (16)	2 (8)	9 (38)	P>0.05
Infection	4 (16)	2 (8)	5 (20)	11 (44)	P>0.05
Loosening acetabular component	4 (16)	5 (20)	3 (12)	12 (48)	P>0.05
Girdlestone	3 (12)	1 (4)	0 (0)	4 (16)	P<0.05
Cupliner wear	2 (8)	1 (4)	1 (4)	3 (12)	P<0.05

Continued.

Variables	22-28 mm N (%)	32mm N (%)	36 mm N (%)	Total N (%)	P value
Periarticular ossifictaion	1 (4)	2 (8)	0 (0)	3 (12)	P>0.05
Other	4 (16)	3 (12)	5 (20)	12 (48)	P>0.05
Anterior approach (n=20)					
Dislocation	6 (30)	5 (25)	2 (10)	13 (65)	P<0.05
Loosening femoral component	5 (25)	3 (15)	8 (40)	16 (80)	P<0.05
Preprosthetic fracture	3 (15)	4 (20)	2 (10)	9 (45)	P>0.05
Infection	2 (10)	1 (5)	3 (15)	6 (30)	P>0.05
Loosening acetabular component	2 (10)	3 (15)	1 (5)	6 (30)	P>0.05
Girdlestone	1 (5)	0 (0)	2 (10)	3 (15)	P>0.05
Cup liner wear	1 (5)	3 (15)	2 (10)	6 (30)	P>0.05
Periarticular ossification	0 (0)	1 (5)	2 (10)	3 (15)	P>0.05
Other	4 (20)	5 (25)	3 (15)	12 (60)	P>0.05

Table 3: Crude cumulative 6-year revision rates for dislocation, for any reason except dislocation, and for all causes, for patients who received a non MoM THA for osteoarthritis, according to femoral head size group (n=120).

Femoral head size	Straight lateral (n=35) 6-year RR (95% Cl)	postero-lateral (n=40) 6-year RR (95% Cl)	Anterolateral (n=25) 6-year RR (95% Cl)	Anterior (n=20) 6-year RR (95% Cl)	Total (n=120) 6-year RR (95% Cl)
22-28 mm					
Dislocation	0.76 (0.62-0.94)	1.35 (1.25-1.56)	0.77 (0.57-1.03)	0.98 (0.65-1.59)	1.15 (1.05-1.25)
Any cause other than dislocation	1.99 (1.35-1.75)	1.67 (1.53-1.84)	2.45 (2.07-2.95)	3.25 (2.53-4.25)	1.95 (1.82-2.15)
All causes	2.75 (2.47-3.07)	3.07 (2.87-3.25)	3.30 (2.82-3.85)	4.27 (3.37-5.35)	3.05 (2.95-3.25)
32 mm					
Dislocation	0.45 (0.36-0.63)	0.91 (0.77-0.99)	0.37 (0.23-0.59)	0.35 (0.17-0.56)	0.75 (0.67-0.83)
Any cause other than dislocation	2.07 (1.45-1.82)	1.92 (1.77-2.07)	2.45 (1.97-2.96)	1.75 (1.12-2.75)	1.97 (1.85-2.15)
All causes	2.50 (2.25-2.90)	2.84 (2.65-3.05)	2.83 (2.35-3.45)	2.07 (1.37-3.07)	2.75 (2.58-2.85)
36 mm					
Dislocation	0.37 (0.25-0.59)	0.65 (0.55-0.85)	0.17 (0.05-0.65)	0.35 (0.15-0.65)	0.55 (0.45-0.67)
Any cause other than dislocation	2.69 (2.79-2.16)	2.50 (2.20-2.85)	3.35 (2.35-4.65)	3.16 (2.35-4.23)	2.68 (2.43-3.02)
All causes	3.07 (2.55-3.70)	3.25 (2.85-3.65)	3.45 (2.45-4.86)	3.48 (2.67-4.55)	3.24 (3.03-3.54)
All sizes					
Dislocation	0.59 (0.51-0.69)	1.07 (0.97-1.15)	0.52 (0.40-0.65)	0.60 (0.41-0.87)	0.86 (0.87-0.95)
Any cause other than dislocation	2.19 (2.01-2.35)	1.97 (1.88-2.09)	2.65 (2.35-3.02)	2.93 (2.45-3.47)	2.15 (2.07-2.25)
All causes	2.76 (2.57-2.98)	3.03 (2.85-3.17)	3.17 (2.85-3.52)	3.55 (2.97-4.05)	3.05 (2.95-3.15)

Table 2 shows dislocation, femoral component loosening, periprosthetic fracture, acetabular loosening, and infection were the most frequent causes of revision between 2007 and 2015. In general, 50% of all revisions were due to dislocation and femoral laxity. The type of revision necessary was statistically significantly influenced by the size of the femoral head and the initial surgical strategy. The most frequent cause of revision for 22 to 28 mm heads was a dislocation. With larger heads, the load of adjustments for dislocation was lessened for each approach. On the other hand, increasing the size of the head from 28 to 32 to 36 mm increased the chance of revision for femoral laxity. Anterolateral and anterior methods were more frequently used in primary THA which are more commonly associated with femoral loosening revision, but posterolateral approaches were more frequently used in revision for dislocation.

Table 3 states that the likelihood of revision for dislocating THA was minimal overall. During the six-year follow-up, this (unadjusted) risk was 1.15% for femoral heads measuring 22 to 28 mm. THA with 32 mm heads had a considerably decreased risk of revision for dislocation (0.75%), compared to 36 mm heads (0.55%). The unadjusted 6 year revision rate for the posterolateral approach was 1.1%, whereas the overall 6-year revision rate for dislocation, stratified by surgical technique, was 0.5-0.6% for either the anterolateral, straight lateral or anterior route. The posterolateral approach revealed a higher risk of revision for dislocation than the straight lateral and anterolateral approaches with head size stratification in the 22 to 28 mm head groups, but there was no difference from the anterior route.

A primary THA may need to be revised for causes other than dislocation, such as femoral laxity and periprosthetic fractures. The crude 6-year risk of revision for these additional reasons was equivalent for head sizes of 22 to 28 mm and 32 mm (1.9–2.0%); head sizes of 36 mm had a significantly greater revision risk (2.7%).

DISCUSSION

Early review of total hip arthroplasty is most frequently caused by recurrent dislocation, whereas late revision is more frequently caused by aseptic loosening. The straight anterior surgical method has recently gained popularity, and more surgeons are employing it. According to several studies, adopting the anterior technique for surgical dissection results in a more stable hip and a quicker recovery. The increased interest in the direct anterior approach during hip arthroplasty during the past few years has been one of the most significant changes. The claim of less tissue injury and quicker healing could be one factor. Whether or not this is the case, when compared to the posterolateral technique, these potential benefits did not produce better patient-reported outcomes at the 1- to 3-year follow-up. According to a number of studies, the anterior approach carries a lower risk of dislocation than the posterolateral approach. According to our data, the anterior, anterolateral, and straight lateral methods carry a reduced risk of revision for dislocation than the posterolateral approach. However, in all groups, the absolute risk of revision due to dislocation was low. Aseptic loosening of the stem was the main cause of revision in the groups using the anterior and anterolateral approaches.[11-13]

In a single-surgeon, prospective, randomized clinical study that was approved by the IRB, the advantages of a direct anterior approach (DAA) versus a posterior-lateral approach (PA) to THA were evaluated. At 6 weeks, 3, 6 months, and 12 months the subjects were assessed.[12,13] The main goal was to be able to walk for an endless amount of time and usually climb stairs. Assessment using several outcome tools was one of the secondary endpoints. They had lower VAS pain scores on the first post-op day, more people were climbing stairs properly and walking unrestricted at 6 weeks, and higher HOOS Symptoms scores at 3 months.[13] DAA participants performed better in the immediate postoperative period. At later time points, there were no discernible differences between the groups. Results support prior observations on the advantages of DAA against PA in the early postoperative period.[14]

Although the use of a bigger femoral head has been hypothesized to lower the incidence of dislocation following total hip arthroplasty, only a small number of clinical studies have been conducted to support this claim. The likelihood of modification for dislocation was lower in the current study as a result of enlarging the head size from 28 to 32 millimeters. The risk was further decreased when the head size was increased to 36 mm. Our findings support those of prior research that compared the dislocation rates for different femoral head diameters. Mathematically, Sariali et al show that the danger of dislocation decreases as the head size grows (from 22 mm to 36 mm). There was no additional increase in jumping height with substantially larger heads. Greater liner wear and greater taper corrosion could be negative effects of larger heads in polyethylene liners. A bigger femoral head diameter was linked to a decreased long-term prevalence rate of dislocation in total hip arthroplasty. All surgical techniques were impacted by the femoral head diameter, but the posterolateral approach had the biggest impact overall. Recent developments in ceramic and polyethylene technology have made it possible to employ larger heads without affecting the wear characteristics of a total hip arthroplasty (THA). We dramatically reduced the dislocation rate by increasing the size of the head to 36 mm.[15-18]

Only partially understood is the impact of patient-related and technical aspects on the probability of revision due to dislocation following original total hip arthroplasty (THA). The lateral surgical technique is associated with a lower likelihood than the posterior and minimally invasive procedures, and gender and diagnosis affect the risk of revision due to dislocation, according to our hypotheses.[17,18] We also believed that increasing the size of the femoral head can lessen this risk. Patients who have osteonecrosis of the femoral head or a femoral neck fracture are more likely to experience a dislocation. This risk is also increased by the use of minimally invasive and posterior techniques, so we question whether patients who are part of risk groups should have surgery employing lateral approaches.[18,19]

The comparison of wound complication rates among primary THAs carried out using a posterior or direct anterior approach was the aim of this retrospective study. In comparison to the posterior method, the straight anterior approach produced a much higher frequency of wound problems that necessitated repeat surgery. Thus, patients should be informed about the potentially elevated risk of early wound issues associated with the direct anterior approach, and additional study is required to ascertain whether other closure methods can lower the risk of wound complications.[20]

CONCLUSION

The study concluded that the patients who received THA at posterolateral approach, experienced dislocations more frequently and also it has been found that the patients using 22 to 28 mm femoral head had more dislocations. Using other approaches may reduce dislocation. However, the risk of revision may increase with other approaches while it is the lowest with posterolateral approach. This current study had shown that using 32 mm heads can contribute significantly in reducing rate of revision as compared to 22 to 28 mm heads. For patients with higher ASA grade, using 36 mm heads with posterolateral approach can be justified and it is safe to use it. The study has certain limitations, such as, it did not consider the data on THA dislocation who have been treated non-surgically. Another limitation was that this current study did not consider radiological images as well. However, this study has pointed out clinically important findings in the management of THA.

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