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Outcomes and Patient's Point of View on the Preferred THA Approach

Mohammadhasan Sharafi [1], Mahlisha Kazemi [2], Alireza Mirzamohamadi [3], Mosayeb Soleymani [4], Ramin Shayan-moghadam [5*]

[1] Department of Orthopaedic and trauma Surgery, Shariati Hospital and school of medicine, Tehran University of Medical Sciences, Tehran, Iran.

[2] Consultant at Department of Orthopaedic and trauma Surgery, Shariati Hospital and school of medicine, Tehran University of Medical Sciences, Tehran, Iran.

[3] Department of Orthopedic and Trauma Surgery, Center for Orthopedics Trans-Disciplinary Applied Research, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran.

[4] Department of Orthopedic and Trauma Surgery, Shariati Hospital and School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

[5] Ramin Shayan-moghadam, Department of Orthopaedic and Trauma Surgery, Center for Orthopaedic Trans-disciplinary Applied Research, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran.*

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Keywords: Total hip arthroplasty, outcome, direct anterior approach, posterolateral approach.

ABSTRACT

Aims & Objectives: Hip osteoarthritis is one of the most common types of hip degenerative disease. Total hip arthroplasty (THA)[1] significantly decreases pain and improves the function of patients with hip osteoarthritis. In this study, we evaluated outcomes and patients' points of view on the different THA approaches.

Materials & Methods: A retrospective cohort study was conducted on data collected from the Electronic Database of Shariati Hospital, a crucial tertiary referral medical center in Tehran, Iran. The study population was 12 patients who experienced bilateral THA due to osteoarthritis and hip avascular necrosis with posterolateral approach (PA)[1] on one side and direct anterior approach (DAA)[1] on the other side. Subsequently, in a semi-structured interview, patients were asked about physical complications, post-operative function, overall satisfaction, and preferred approach.

Results: The mean age of patients was 41.62 years old (ranged from 22 to 64.3 years old) in the PA surgery and 42.32 years old (ranged from 22.5 to 68 years old) in the DAA surgery. Female to male ratio was 7:5. Eight patients (66.66%) preferred DAA because of better satisfactory recovery, while four patients (33.33%) preferred PA and three of them (25%) thought they had a better recovery time after PA. One patient mentioned no difference between the two approaches during recovery time.

Conclusion: Both PA and DAA are successful for THA and have their advocates among orthopedic surgeons. In the current study, most of patients prefer DAA because of quick recovery time.

Introduction

Osteoarthritis is the most common type of degenerative hip disease. Hip osteoarthritis has a deteriorative effect on the lifestyle of these patients [1, 2]. In the initial stages of hip osteoarthritis, conservative treatments include painkillers, non-steroidal anti-inflammatory drugs (NSAIDs), physiotherapy, and special exercises. In the end stage of hip osteoarthritis, total hip arthroplasty (THA)[1] is the gold-standard treatment [3, 4].

THA is one of the most successful orthopedic surgeries, which has a significant role in decreasing pain and improving the function of patients with hip osteoarthritis [5]. There are different types of surgical approaches for THA. The most accepted approaches are the posterolateral approach (PA)[2], direct anterior approach (DAA)[3], and lateral approach. Some infrequent methods, such as Watson-jones and superior gluteal, also had been tried by different surgeons [6, 7]. The most common approach used for THA is the PA, which was described by Von Langenbeck for the first time and later by Kocher [8, 9].

Lately, there has been a significant tendency to DAA for primary THA between hip surgeons [10]. Different studies have indicated multiple advantages of the DAA. Such as more acceptable visual analog scale (VAS) pain scores in the early post-operative stage, less hospitalization time, higher patient-reported outcome scores, better position of the acetabular cup, and lower risk of dislocation in comparison with other methods. The DAA's most specified benefit is less time for functional recovery [11, 12]. On the other hand, various disadvantages of DAA have been mentioned, like increased surgery, wound complications, neurovascular problems, and additional time for completing the learning curve [13, 14].

Contrary to various studies comparing post-operative and late outcomes of different THA approaches with the DAA, few studies compared these approaches in the same patient. In this retrospective study, distinguished surgeons for each approach presented a consecutive series of patients who experienced posterolateral THA on one hip and DAA THA for the contralateral hip. The main goal of this study was to assess outcomes and patients' points of view on the preferred THA approach. The study conducted emphasizes the quantitative results, which were asked directly through a semi-structured interview with patients. We hypothesized that functional outcome and patient satisfaction would be higher in the hip treated with the DAA.

Methods

Study Design

This is a retrospective cohort study on data collected from the Electronic Database of Shariati Hospital, a crucial tertiary referral medical center in Tehran, Iran. The study population was patients who experienced bilateral THA due to osteoarthritis and hip avascular necrosis with posterolateral approach (PA)[4] on one side and direct anterior approach (DAA)[5] on the other side. Subsequently, in a semi-structured interview, patients were asked about physical complications, post-operative function, overall satisfaction, and preferred approach.

[1] Total hip arthroplasty
[2] Posterolateral approach
[3] Direct anterior approach
[4] Posterolateral approach
[5] Direct anterior approach
[6] Direct anterior approach
[7] Posterolateral approach
[8] Direct anterior approach

Setting: The schedule arrangements for the time and place of the interview were made through a phone call with patients. Patients were invited to the hospital clinic to be interviewed in a secure room with privacy, on October 15, 2020. After informed consent, all interview questions were asked in one session.

Participants

The study population was all patients who experienced bilateral THA due to osteoarthritis and hip avascular necrosis with PA surgery on one side and DAA on the other side, from August 2013 to September 2020. All PA surgeries were performed by a single experienced surgeon (experience of more than 100 THA procedures). Furthermore, all of the DAA surgeries were done by another different experienced surgeon. Exclusion criteria were prior hip surgery due to fracture or other reasons, developmental dysplasia of the hip, THA due to cancer, pathologic fracture, bone metabolic disorders, osteomyelitis, active or latent hip infection, neuromuscular disorders, cyst or tumors in the hip area. After obtaining Institutional review board approval all of the history data of surgeries were collected and evaluated.

All surgeries in different approaches were performed by a single, fellowship-trained surgeon with multiple years of THA experience, including after the "learning curve" for the new approach. General anesthesia and spinal anesthesia were performed in different procedures. Uncemented implants were used for both operations: Zimmer Trilogy acetabular component and Zimmer M-L Taper femoral stem (Zimmer Biomet, Warsaw, IN). One patient received a Stryker Accolade HFx femoral stem (Stryker, Kalamazoo, MI). Pre-operative and post-operative cares for all patients were equal after two surgeries. The post-operative recovery protocol included multimodal pain control and rapid physical therapy mobilization, beginning on the first post-operative day.

Variables: The key outcome variables in this study are hip function, pain relief, and patients' satisfaction. Pain levels were measured by amount of analgesia used in the 48 hours after surgery, time to ambulation and VAS pain scale at 1-year follow-up. Function was evaluated using the WOMAC questionnaire at 1-year follow-up. These questionnaires are in Appendixes A and B. These standardized questionnaires evaluate lifestyle, daily activities, pain, stiffness and physical function. The key exposure variable is surgical approach - either direct lateral or posterior. Variables that were measured as potential confounders include demographic data (age, sex, BMI), radiologic data (pre- and postoperative x-rays at multiple timepoints), and surgical data (duration of surgery and anesthesia, blood loss, incision size).

Qualitatively, patients' satisfaction and perspectives on issues like pain, mobility, lifestyle, and their preferred surgical approach were gathered through a semi-structured interview 1 year after the second surgery. The interview contained open-ended questions about the negative aspects of each approach, which approach they would recommend, and their reasoning.

A key effect modifier that may influence outcomes is prior hip surgery status. Patients who have undergone only a single hip surgery are likely to have different baseline pain and function compared to those receiving a second hip surgery. This may modify the relative effects of the surgical approach. Confounding by factors like anesthesia technique and analgesic use are partially controlled for by measuring these variables, but there may be additional unknown confounders. For example, surgeon skill could impact measured outcomes like pain and function; However, in present study all surgeries in different approaches were performed by a single, fellowship-trained surgeon with multiple years of THA experience, including after the "learning curve" for the new approach.

Data Sources/Management

1. Quantitative data

Two different researchers reviewed all the Electronic Databases of Shariati Hospital for collecting base demographic data (such as age,

sex, body mass index, radiologic data (such as pre-operative X-rays, post-operative and 6,12, and 24 months follow-up X-rays), surgical data (such as surgery time duration, anesthesia time, peri-operative and post-operative bleeding, size of incision), and post-operative data such as the amount of analgesia each patient demands in 48 hours after surgery and time of ambulation. Moreover, a hip surgeon rechecked and reviewed all the data that the two researchers collected.

2. Qualitative data

One year after the second surgery, all patients in the clinic were asked to fill out the Visual Analog Score (VAS) questionnaire for pain measurements and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) to evaluate the improvement of lifestyle and function of patients. These questionnaires are in Appendixes A and B.

In an innovative idea, we also conducted a semi-structured interview with all cases in the same session to gather patients' opinions about different approaches to issues like pain, mobility, lifestyle, their preferred approach of the surgery, the negative point of each approach, and which approach they would recommend to other patients. The complete sample of the opening questions listed in these interviews is attached in Appendix C.

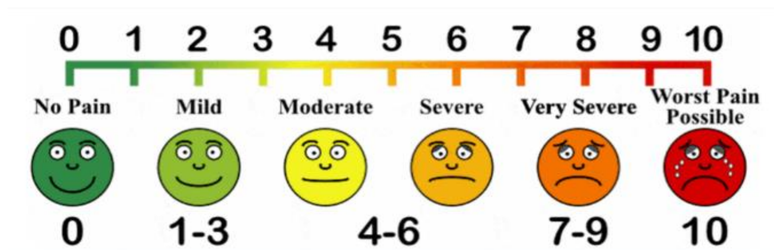
Appendix:

WESTERN ONTARIO AND MCMASTER OSTEOARTHRITIS INDEX (WOMAC)

Please circle the appropriate rating for each item.

RATE YOUR PAIN WHEN...	NONE	SLIGHT	MODERATE	SEVERE	EXTREME	HOSPITAL USE ONLY
Walking	0	1	2	3	4	
Climbing stairs	0	1	2	3	4	
Sleeping at night	0	1	2	3	4	
Resting	0	1	2	3	4	
Standing	0	1	2	3	4	TOTAL
RATE YOUR STIFFNESS IN THE...	NONE	SLIGHT	MODERATE	SEVERE	EXTREME	HOSPITAL USE ONLY
Morning	0	1	2	3	4	
Evening	0	1	2	3	4	TOTAL
RATE YOUR DIFFICULTY WHEN...	NONE	SLIGHT	MODERATE	SEVERE	EXTREME	HOSPITAL USE ONLY
Descending stairs	0	1	2	3	4	
Ascending stairs	0	1	2	3	4	
Rising from sitting	0	1	2	3	4	
Standing	0	1	2	3	4	
Bending to floor	0	1	2	3	4	
Walking on even floor	0	1	2	3	4	
Getting in/out of car	0	1	2	3	4	
Going shopping	0	1	2	3	4	
Putting on socks	0	1	2	3	4	
Rising from bed	0	1	2	3	4	
Taking off socks	0	1	2	3	4	
Lying in bed	0	1	2	3	4	
Getting in/out of bath	0	1	2	3	4	
Sitting	0	1	2	3	4	
Getting on/off toilet	0	1	2	3	4	
Doing light domestic duties (cooking, dusting)	0	1	2	3	4	
Doing heavy domestic duties (moving furniture)	0	1	2	3	4	TOTAL
PATIENT SIGNATURE				DATE		
REVIEWED BY PHYSICAL THERAPIST				DATE		WOMAC TOTAL SCORE /96

Appendix A: *WOMAC Score*



Appendix B: *VAS Score*

Interview questions	
Opening question/s	1. What is your opinion about your THA surgeries?
Introductory question/s	2. Are you overall satisfied with your THA surgeries?
Transition question/s	3. Tell us one unpleasant experience from your non-preferable approach?
Key question/s	4. Which approach was better for you?
	5. Why? explain your reason.
Conclusions questions	6. If you were to undergo total hip arthroplasty again, which approach would you choose?
	7. Which approach would you recommend to one of your relatives?

Appendix C: *Semi-structured interview format.*

BIAS

This retrospective study is subject to certain biases that were considered. Selection bias was minimized by including all eligible patients who underwent hip surgery at the Shariati Hospital over the defined time period. Information bias was reduced by utilizing standardized quantitative questionnaires like the WOMAC and VAS. However, there remains the possibility of subjectivity in the qualitative interview responses. Conducting the interviews 1 year after surgery helps occurring recall bias. Variability between the surgeons performing each approach is a limitation and potential confounder, which was not directly controlled for due to the retrospective nature of this study. The use of multiple surgeons increases generalizability but also introduces more variability compared to a single surgeon. While this study has limitations, the use of validated outcome measures, paired with qualitative data provides a more comprehensive evaluation of outcomes, within the constraints of a retrospective design.

Study Size: The study aimed to analyze the full cohort of eligible patients who received bilateral hip arthroplasty surgeries at Shariati Hospital over a time period, applying strict inclusion and exclusion criteria to remove potential confounding conditions. Given the single center, retrospective nature of this study, the sample size was fixed by the number of bilateral hip arthroplasty patients meeting criteria within the defined timeframe, rather than a formal prospective sample size calculation. Nonetheless, this yielded a substantial sample of eligible patients, which helps provide adequate statistical precision in comparing outcomes between the posterior and direct anterior surgical approaches.

Quantitative Variables

Quantitative variables (age at time of surgery, BMI, blood loss, duration of follow-up, surgery and anesthesia time, time to ambulation, hospital and independent ambulation duration, incision length, WOMAC and VAS scores, inclination and limb length discrepancy) were not categorized and were analyzed as continuous variables using the mean. The differences in means between the two surgical approaches for these quantitative outcomes were compared using the Chi-square test.

Statistical Method

Statistical analysis was performed using IBM SPSS Statistics (Version 22, IBM Corp., Armonk, NY). The Chi-square test was used for the analysis of categorical variables. P values lower than 0.05 were considered statistically significant.

Results

Participants

Two hundred twenty-three patients were treated with bilateral THA between 2013 to 2020. Among them, 23 patients were treated with different approaches. Ten patients were excluded from the survey due to exclusion criteria factors. One patient was excluded from the study because of a non-surgical complication.

Descriptive Data

The mean age of patients in the first surgery (PA) was 41.62 years old (ranged from 22 to 64.3 years old). The mean age of patients in the second surgery (DAA) was 42.32 years old (ranged from 22.5 to 68 years old). Five patients (41.66%) were male, and seven (58.33%) were female.

The mean Body Mass Index (BMI) at the PA surgery was 24.37 (ranged from 15.26 to 25.99). The mean BMI at the time of the DAA surgery was 24.84 (ranged from 15.26 to 26.11). Of 12 hip joints that underwent THA with PA, seven cases were due to Avascular Necrosis (AVN), four patients were due to osteoarthritis, and one was due to fracture-dislocation.

Outcome Data

Of 12 hip joints that underwent THA with a DAA, eight cases were due to AVN, and four patients were due to osteoarthritis. Underlining diseases in four cases (33.3%) were hip osteoarthritis, three cases (25%) were Rheumatoid arthritis (RA), two cases (16.66%) were Ankylosing spondylitis, one case (8.33%) was Juvenile rheumatoid arthritis (JRA), and one case (8.33%) was dermatomyositis. In 11 patients, the underlying disease for both approaches were similar. On the other hand, in one patient the underlying reason for the PA surgery was hip fracture-dislocation, and for the DAA surgery, it was arbitrarily corticosteroid intake.

The mean follow-up interval in PA surgery was 49.5 months (ranged from 32 to 67 months). The mean follow-up interval in DAA was 29.5 months (ranged from 14 to 37 months). The mean of two surgery follow-ups was 32 months (ranged from 5 to 49 months). All of the demographic data are summarized in Table A.

Table A: *Demographic data of the patients*

Variables	DAA	PA	P Value
Age at the time of surgery	42.32 year (Range 22.5-68 yr.)	41.62 year (Range 22-64.3 yr.)	0.722
Sex			
Male	5 (41.66 %)	5 (41.66 %)	1
Female	7(58.33 %)	7(58.33 %)	
BMI (kg/m2)	24.84(range 15.26-26.11)	24.37(range 15.26- 25.99)	0.933
Surgical Indication			
OA	4 (33.33 %)	4 (33.33 %)	
AVN	8 (66.66 %)	7 (58.33 %)	
Fracture/Dislocation	0 (0 %)	1 (8.33 %)	
Medical history	(25 %) RA	(25 %) RA	
	(8.33 %) JRA	(8.33 %) JRA	
	(16.66 %) AS	(16.66 %) AS	
	(8.33%) Dermatomyositis	(8.33%) Dermatomyositis	
	(33.33 %) hip osteoarthritis	(33.33%) hip osteoarthritis	
	Corticosteroid consumption (8.33%)	(8.33 %) hip dislocation	
Mean of follow-up	29.5 month (range 14 – 37 m)	49.5 month (range 32 – 67 m)	

Main Results

1. Surgical results:

All PA surgeries were done in the lateral position, while all DAA surgeries were done in the supine position. In 8 cases (66%) of the PA group, the type of anesthesia was General anesthesia (GA), and in 4 patients (33%) it was spinal anesthesia (SA). In the DAA group, the type of anesthesia in 3 cases (25%) was GA, and in 9 patients (75%) was SA.

The mean time of surgery in PA groups was 99 minutes (ranged from 78 to 125 minutes). In comparison, the mean surgery time in the DAA group was fewer (83 minutes). The reduction in time of the DAA method was statistically significant.

The mean anesthesia time was higher in the PA group than in the DAA group (155.75 minutes in the PA group and 143.25 minutes in the DAA group). The mean size of the incision in the PA group was 14.5 cm, while in the DAA group was 9 cm. This difference was statistically significant (p-value < 0.05). The mean volume of blood loss in the PA groups was 362.5 cc, while in the DAA group, it was 279.16 cc. Blood loss was lesser in DAA groups but it was not statistically significant. Only one patient (8.33%) in the PA group had a blood transfusion indication.

None of the patients in the DAA or PA group suffered from major intraoperative complications (such as acetabular fracture, femoral fracture, or nerve injury). All surgical results are summarized in Table B.

Table B: *Surgical results of the study population*

Variable	DAA	PA	P value
Mean Time of surgery (min)	83 min (57-108 min)	99 min (78-125 min)	0.04
Mean Time of anesthesia (min	143.25 min (90-180 min)	155.75 min(120-210 min)	0.275
Mean of incision length (cm)	9 cm (8 – 11.2 cm)	14.5 cm (14 – 16.5 cm)	0.04
Mean of Blood loss (cc)	279.16 cc (200-500 cc)	362.5 cc (250- 400 cc)	0.523
Need to blood transfusion	0 %	1 (8.33 %)	0.23
Intraoperative complications	0 %	0 %	1.00
Type of anesthesia			
G. A	3 (25 %)	8 (66.66 %)	--
S. A	9 (75 %)	4 (33.33 %)	
Position			
Supine	12 (100 %)	0 (0 %)	--
Lateral	0 (0 %)	12 100 %)	

2. Post-operative results:

Post-op ICU care was only needed in one patient in the PA group (8.33%). The mean time of ambulating in the PA group was 1.83 days (ranged from 1 to 3 days). in comparison to the DAA group with 1.66 days (ranged from 0 to 2 days), the difference was not statistically significant. The mean hospitalization in the PA group was 3.14 and in the DAA group was 2.82 days. This difference was not statistically significant. The initiation of ambulation in both groups was Toe-touch walking with a standard walker. Both groups ambulate independently four weeks after surgery. All post-operative results are summarized in Table C.

Table C: *Post-operative results*

Variable	DAA	PA	P value
Need to ICU admission	0 %	1(8.33%)	0.23
Time of ambulation (day)	1.66 day (range 0-2)	1.83 day (range 1-3)	0.241
Time of hospitalization (day)	2.82 day (2 – 5 day)	3.14 day (2 – 5 day)	0.396
Independent ambulation (week)	4 weeks	4 weeks	1.00

3. One-year follow-ups:

The mean WOMAC score in the PA group was 35.78, while in the DAA group, it was 33.41; which was not statistically significantly different. The mean VAS score was 3 in the PA group and 2.5 in the DAA group. However, the difference was not statistically significant too. All questionnaire results are summarized in Table D.

Table D: *Pain and functional outcome results*

Variable		DAA	PA	P Value
Mean of WOMAC scores		33.41(range 18-42)	35.78(range 18-48)	0.73
Mean of VAS scores		2.5(range 0-6)	3(range 0-6)	0.78

4. Radiologic results:

The mean inclination on the PA side was 38.7 degrees, while on the DAA side was 40.5 degrees. This difference was not significant. The mean leg-length discrepancy in both groups was 0.5 cm. Radiologic results are summarized in Table E.

Table E: *Radiologic results*

Radiologic findings	DAA	PA	P Value
Mean of Inclination	40.5(range 36.5-45.5)	38.7(range 35.3-41.8)	0.69
Mean of Limb length discrepancy (LLD)	0.5 cm		

5. **Qualitative results:** To conclude the semi-structured interview results, two researchers rechecked patients' answers twice. To address the patient's answers, distinguished codes were determined. According to their content, Codes were classified into different sub-categories and categories (Figure A-C).

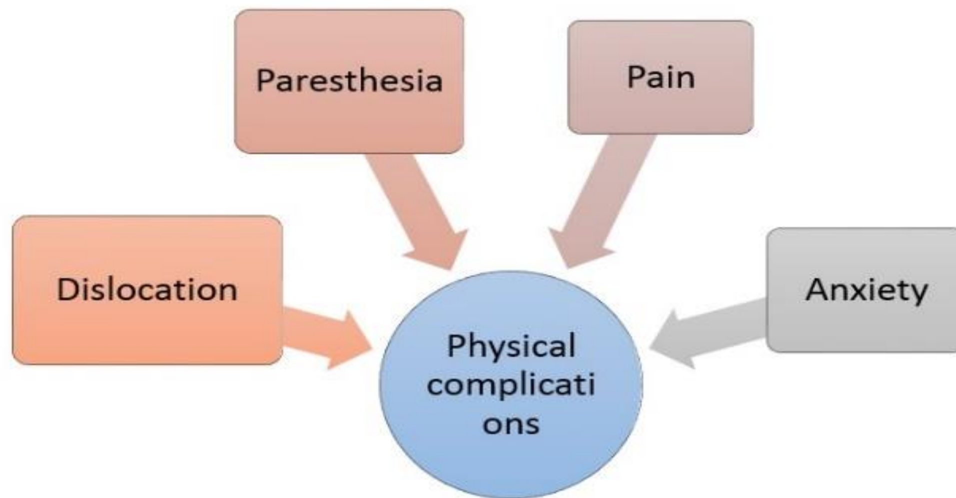


Figure A: *Sub-categories of physical complication category*

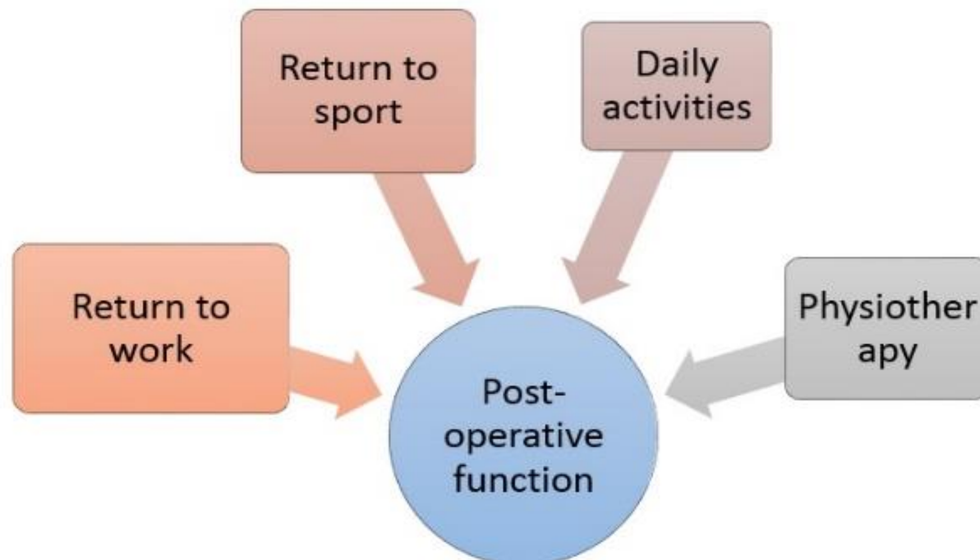


Figure B: *Sub-category of post-operative function category*

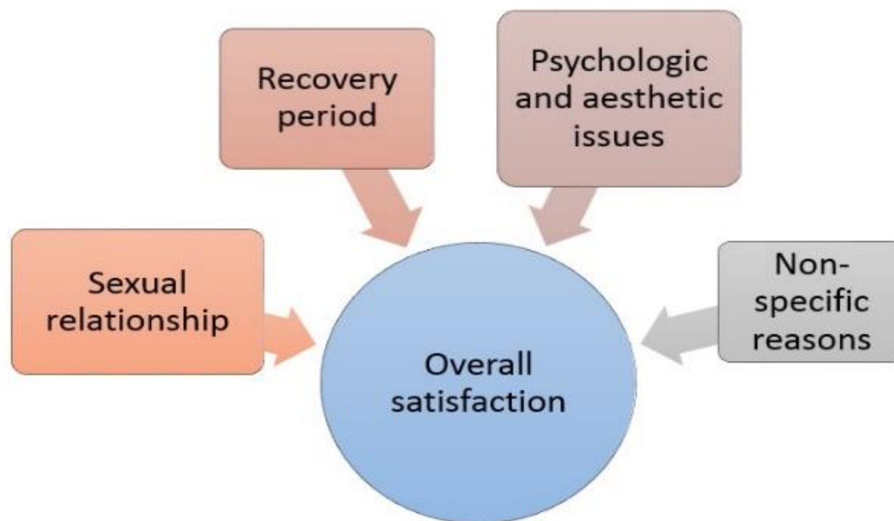


Figure C: *Overall satisfaction sub-categories*

The main categories were:

1. Physical complications related to surgery:
    - 1.1. Anxiety
    - 1.2. Pain
    - 1.3. Paresthesia
    - 1.4. Dislocation
2. Post-operative function:
    - 2.1. Return to work or sport
    - 2.2. Daily activities
    - 2.3. Physiotherapy and abandoning the walker or other devices
3. Overall satisfaction:
    - 3.1. Sexual relationship
    - 3.2. Psychologic and aesthetic issues
    - 3.3. Recovery period
    - 3.4. Non-specific reason

In a semi-structured interview with each patient, questions were asked about the above sections and sub-sections.

At the end of the interview, patients were asked about the approach they preferred more by considering the above sections and sub-sections. Eight patients (66.66%) preferred DAA, while four patients (33.33%) preferred PA (P=0.001). Another question was about the approach they would recommend to one of their relatives if they wanted to consider THA. Eight patients (66.66%) recommended DAA, and four patients (33.33%) recommended PA. Table F summarizes each patient's preference and reason for their choice.

Table F: *Summary of each patient's preference and reason of their choice.*

Patient (age, sex)	DAA is better than PA due to	PA is better than DAA due to
33 years old female	The other side was operated on posteriorly and has pain sometimes. The PA incision is big and gross.	
39 years old male	I am able to cross over my leg in this side	
26 years old male	Faster wound healing and better recovery time	
49 years old female	Feeling of numbness and cold in the other side during sitting	
53 years old female	Have some inconvenience during sleep in other side	
52 years old male	More pain during bending in other side and feeling of prosthesis by touching in other side	
53 years old female	More pain in other side	
38 years old male	More strength in DAA side	
28 years old male		Paresthesia and feel of burning in other side
65 years female		Faster union in this side and lesser pain
70 years old female		Fewer analgesia intake in this side
54 years old female		This side is better, but I don't know the reason

Other Analysis

TIP: - Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses

Discussion

Key Results

Both PA and DAA are successful for THA, and both have their advocates among orthopedic surgeons. (7, 15, 16) Still, there is no consensus among hip surgeons to choose which approach for THA.

Several studies indicated that DAA has lesser post-operative pain, lower hospitalization time, and faster recovery (17-19). Furthermore, DAA, due to muscle sparing technique, excellently restores limb length and lowers the risk of dislocation, has more acceptable results and higher patient satisfaction (12). On the other hand, some other studies emphasized that DAA has no superiority compared to different approaches. Moreover, there is a higher risk of peri-prosthetic fracture and reoperation in DAA (20-22). In addition, there is a higher risk of wound complications in the DAA (23).

One of the critical factors in the post-operative function assessment in both approaches is incision site pain, knee pain, and back pain after surgery because severe pain leads to higher analgesia intake and lower satisfaction. In this study, patients had less pain in DAA. This might be the reason why patients in the present study had higher pleasure in DAA, contrary to Radoicic et al. study (24). Factors such as time

of hospitalization and abandoning the standard walker show functional outcomes of the patients after THA. In present survey, time of leaving the walker was the same in both approaches. However, the time of hospitalization was longer in the PA group. however, this difference was not statistically significant.

One of the main goals of mini-incision procedures like DAA surgery is cosmetic issues and decreasing surgical scars (25). In this study, the mean incision length in DAA was 9 cm, while in PA groups was 14.5. the mean incision length was significantly lower in the DAA group. Aesthetic issues and surgical scars were essential for two patients (a 26-year-old male and a 33-year-old female), and it was not necessary for other patients. Maybe due to the higher mean of age in patients treated with THA, these factors are not required for patients. These factors are more decisive in patients whom THA must be treated at a younger age. One of the other vital goals of surgeons is to decrease the time of surgery and anesthesia because these factors significantly decrease surgery complications. In this survey, the time of surgery and anesthesia were lower in the DAA groups than in the PA group.

In Radoicic et al. study, of 21 patients who underwent bilateral THA with different approaches, 16 patients (76.19%) preferred PA, and only five patients (23.81%) preferred DAA. In contrast, in a study by Daas et al., most of the patients favored the DAA at a rate of 68%, citing benefits such as quicker recovery, reduced sleep disruption, and earlier mobility (19). This is consistent with the present study in which 66.66% of the patients preferred DAA and experienced more satisfactory recovery after DAA. On the other hand, three patients (25%) thought they had a better recovery time after PA. One patient mentioned no difference between the two approaches during the recovery time. The difference in satisfactory recovery was statistically significant (P=0.005).

Limitations & Strength

One of the main limitations of the present study was that different surgeons performed the surgery for each approach. In future studies, all surgeries should be performed by one surgeon. Moreover, it is known that more destroyed and painful hip joints should be replaced first, and in this study, all the first surgeries were done in PA. This factor could be the reason for better results in DAA. In future research, half of the first surgeries should be done in the PA, and the other half should be done in the DAA.

Also, the current study was a retrospective study, and like other studies, there was a risk of missing data and wrong information. Our strength and innovation in this survey was a semi-structured interview with patients and asking directly about two approaches and their actual perspective about different techniques.

Conclusion

Both PA and DAA are successful for THA, and both have their advocates among orthopedic surgeons. Still, there is no consensus among hip surgeons to choose which approach for THA.
In the survey performed, eight patients (66.66%) preferred DAA and thought they had a more satisfactory recovery after DAA. By contrast, three patients (25%) thought they had a better recovery time after PA. One patient mentioned no difference between the two approaches during the recovery time.

Authors' Contribution: Ramin Shayan-moghadam and Mahlisha Kazemi contributed to the study conception and designing method. Data collection and editing manuscript were performed by Alireza Mirzamohamadi. Mosayeb Soleimani contributed to data collection and analysis. Designing methods and writing the first draft of manuscript was done by Mohammadhasan Sharafi and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Ethical Approval and Patient Consent: Current study conducted in accordance with the ethical principles mentioned in the Declaration of Helsinski (2013) and all of the patients participated with informed consent. The ethical approval number is IR.TUMS.COTAR.2020.016.

Declaration of Patient Consent Form: All of the patients read and filled consent form. The form uploaded as supplementary file.

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