

TO ANALYSE BETTER PROCEDURE INTRA-OPERATIVELY IN VARIOUS APPROACHES FOR PRIMARY TOTAL HIP REPLACEMENT BY FUNCTIONAL SCORING SYSTEM & MUSCLE CHARTING.

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Abstract:

Background & Method: The aim of this study is to analyse better procedure intra-operatively in various approaches for primary total hip replacement by functional scoring system & muscle charting. Total 40 patients were included in the study. All patients were avn hip or arthritic hip either unilateral or bilateral who had undergone total hip arthroplasty were included in study. On admission a careful evaluation of the hip was done which include the examination of neurovascular status, range of motion, various deformities and associated sysemic problems and health status of patient.

Result: Total % improvement in oxford hip score was max in anterolateral approach (93.81%) & minimum in posterior (75.56%).

Conclusion: The question regarding which surgical approach to the hip to use to implant an artificial hip prosthesis has been debated extensively. Despite this, there is no consensus regarding which approach is best for primary THA. There are multiple surgical approaches for hip surgery & there r also multiple surgeons who advocate one particular approach over other. Best & preferable these two words r very different. There have been studies proving one approach superior than others but not a single approach has proved to be best.

Keywords: intra-operatively, total hip replacement, & muscle charting.

Study Designed: Observational Study.

1. INTRODUCTION

An awareness of the history of hip replacement is necessary to appreciate not only its current status but also its future. The history of total hip replacement has been dynamic evolving over a period of some 160 years in specific stages, owing to current advances in materials research. This has been categorized as Osteotomy arthroplasty, Interpositional arthroplasty, Reconstructive arthroplasty, Partial Replacement and Total Replacement arthroplasty and final to Resurfacing arthroplasty[1].

The first hip Arthroplasty performed through this approach was by Robert Judet in 1947 at Hospital Raymond Poincare in Garches outside Paris. A Judet acrylic prosthesis was implanted[2]. Judet referred to the surgical approach as the “Heuter Approach”. A published reference for this however is unknown and Heuter may refer to Heuter Volkmann and the approach for drainage of a tuberculosis hip abscess. The approach can also be called the “Short Smith-Pete” because it follows the interval of the SmithPetersen distal to the anterior superior iliac spine.

A unique feature of this prosthesis was that it was inserted as a single unit. The components were press- fitted, with the acetabular component having several layers of metal petals that were driven into the previously prepared bone[3]. Whatever the prosthesis, the basic concept of the low friction torque arthroplasty has become established and the metal on polyethylene articulation is the standard in total hip arthroplasty. The recent development of Modular Femoral component with tapered post on which components with different head diameters and neck length may be attached have led to improved biomechanics[4]. Presently the use of porous coated pressfit and Hydroxyapatite coated stems and cups of titanium alloy and modern cementing techniques are being studied.

2. MATERIAL & METHOD

The prospective observational study of various approaches in total hip replacement was carried out in the department of orthopedics at Amaltas Institute of Medical Sciences, Dewas (M.P.) & GMC, Mahasamund (C.G.) from Jan 2021 to Dec 2021. Total 40 patients were included in the study. All patients were avn hip or arthritic hip either unilateral or bilateral who had undergone total hip arthroplasty were included in study.

Selection of Cases:

On admission a careful evaluation of the hip was done which include the examination of neurovascular status, range of motion, various deformities and associated sysemic problems and health status of patient. Patients were also examined for other associated complaints. Radiographs were always needed to assess the degree of damage to the joint and extent of involvement & also for preoperative measurements for provisional size of implant in procedure

All total hip replacement cases which have been there in our study were done electively. After admission proper history was recorded and points stressed were regarding duration of

pain, functional disability, associated systemic complaints, social status, addiction, any old history of trauma, history of long intake of steroids, treatment received prior to reaching Hospital.

3. RESULTS

Table 1: SEX RATIO

S. No.	Sex	No. of cases	Percentage
1	Male	34	85%
2	Female	06	15%

Table 2: Approach used

S. No.	Approach used	No. of cases	Percentage
1	Anterolateral	09	22.5%
2	Lateral	18	45%
3	Posterior	13	32.5%

Table 3: IMPROVEMENT IN OXFORD HIP SCORE

S. No.	Approach used	% Improvement in OHS
1	Anterolateral	93.81%
2	Lateral	83.61%
3	Posterior	75.56%

Total % improvement in oxford hip score was max in anterolateral approach (93.81%) & minimum in posterior (75.56%).

Table 4: MUSCLE CHARTING

S. No.	Approach used	Muscle charting
1	Anterolateral	No weakness of any group of muscle
2	Lateral	Weakness of abductor group of muscle
3	Posterior	Weakness of external rotators of hip

4. DISCUSSION

Orthopaedic surgeons continue to discuss which surgical approach is best for primary THA because all of these approaches have merits and limitations. A Cochrane review by Jolles and Bogoch concluded, despite numerous studies examining the effect of surgical approach in

THA, the quality and quantity of such trials were insufficient to enable a firm conclusion regarding whether one approach was superior to the other[5&6]. In particular, of the four prospective cohort studies included in the Cochrane review, only one study by Barber et al. included functional outcomes using Harris hip score with a short follow-up of 2 years and involving only 49 patients. The effect of surgical approach on dislocation rates after primary THA also has been the primary focus of numerous studies so were biased[7].

In our study there was max blood loss in anterolateral group & minimum blood loss was in posterior group. Study done by Sir Thomus P. Sculco & David E. Tale shows more bleeding in posterior group of patients than lateral group of patient. *Acta Orthop. Belg.*, 2008, 74, 200-205[8], a study done by Aashish GULATI, Amitabh J. DWYER, David L. SHARDLOW From Yeovil District Hospital, Somerset, United Kingdom shows that posterior approach causes minimum intraoperative blood loss to patient than other surgical approach. A study by Sir Richard A. Sweet, M.D. Louisville Orthopaedic Clinic Louisville, KY also shows that posterior approach causes minimum blood loss than anterior approaches.

Improvement in functional score was max in anterolateral group & was min in posterior group of patients. study done by Jeya Palan et al[9] shows no significant difference in functional outcome by anterolateral approach & posterior approach. Groups with the posterior approach had more normal hip abductor-muscle strength and more inward rotation on the operated side than group with the anterolateral approach. Groups with the anterolateral approach had more outward rotation on the operated side than groups with the posterior approach.

5. CONCLUSION

The question regarding which surgical approach to the hip to use to implant an artificial hip prosthesis has been debated extensively. Despite this, there is no consensus regarding which approach is best for primary THA. There are multiple surgical approaches for hip surgery & there r also multiple surgeons who advocate one particular approach over other. Best & preferable these two words r very different. There have been studies proving one approach superior than others but not a single approach has proved to be best.

6. REFERENCES

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