IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 5 Ver. VI (May. 2016), PP 17-21
www.iosrjournals.org

A Study Of Total Hip Replacement Done Through Posterolateral Approach Kashmir Prespective

Jawed A Bhat,Tabasum, Naseer A Mir, Sahel Majid,Faizan
Associate prof Skims Medical College Srinagar

A prospective study of total hip replacement done through posterolateral approach was conducted at Skims medical college, on 86 cases from December 2010 to april 2016.

Introduction:Since its inception in 1960,Total hip arthroplasty has revolutionised the treatment of painful hip arthritis 1.The concept of replacing the abnormal joints has long been recognised by surgeons,but efforts were hampered by the lack of suitable materials and imprecise surgical technique.

Primitive attempts at replacing the ankylosed or debilitating arthritic hip in 1800 used wood,ivory,and even pig bladders 2.In the first half of the 20^{th} century acetabular cups made of pyrex and Teflon and femoral heads of acrylic cement were tried unsuccessfully2-4.In 1930,an alloy of cobalt chromium-molybedenum called vitallium was discovered 2-3 and cobalt chrome alloys are one of the metals still used today.The modern era of "low friction" hip arthroplasty began in 1960 with the work of Sir Jhon Charnley,who pioneered the use of stainless steel metal- on-polyethylene[MOP] prosthesis 5.Many different variations and designs have since been introduced,but most follow his principle of a metal femoral head articulating against polyethylene socket.Hip arthroplasty has become so successful.with some designs having a 25 year survivorship almost 80% 6,that the hip is the most commonly replaced joint ,with more than 5,00,000 performed each year world wide 7.

The posterior approach to the hip was popularised by Moore in the 1950 8. A recent survey of surgeons from around the world suggest that posterior approach is the most common surgical approach used internationally for the total hip arthroplasty 9.

The main advantages of the posterolateral approach compared with other mini-incisions are its simplicity, with shortened operating time. While the surgical time for a posterior approach is an average of 37 to 70 minutes throughout the literature,the 2-incision approach prolongs the surgery by a factor of 2or 3.Compared with the anterior or 2-incision approach,the posterolateral and anterolateral approaches also have a much lower incidence of perioperative complications,with the rate being similar to rates seen with a standard incision.For the 2-incision technique and the anterior mini-incision approach,perioperative periprosthetic fracture rates of up to 8.7% and 8.4%,respectively,have been described.Considering that mini-incision total hip replacement has no dramatic clinical benefits other than the cosmetic appeal,the use of mini-incision total hip replacement by the average orthopaedic surgeon should be carefully monitored 10.

Complication of total hip arthroplasty performed with mis technique occur most often in women with osteoporosis above 65 years of age or with BMI of more than 32.The rate of complication doubles with surgeons performing less than 50 total hip arthroplasties per year 11.

I. Material Methods

Study was conducted on 86 cases[89 hips] during years dec 2010 to april 2016.After thorough cleansing and scrub of both legs draping was done.Two surgical assistants were used.Average age was 69.58.There were 47 females[54.6],39 males[45.3].Right side was affected in 44[49.4] and left in 45[50.5]. 22 cases presented with AVN,54 with femoral neck fractures,3 cases were diagnosed as rheumatoid arthritis ,5 cases as osteoarthritis and one case each as protrusive and neglected acetabular fracture.

In 34 cases oromed cemented implants were used and Avatar and Signature in 14 and 12 cases and Stryker, Depuy and Zimmer in 8,8 and 10 cases respectively.54 cases were cemented ,32 as non cemented and 2 as hybrid.

Technique
Position: Lateral
Anaesthesia :spinal/combined spinal/epidural
Incision length 10-20cms posterior to mid lateral line(fig 1)
Split gluteus maximus and fascia along the length of incision
Partial release of the gluteus maximus tendon
Release of the quadrates femoris from the posterior border of the vastus lateralis
Release of the short external rotators and posterior capsule as one sleeve from the femoral neck and piriformis fossa

Dislocation of femoral head and its amputation
Release of the reflected head of the rectus femoris to allow for anterior mobilisation of the femur
Full exposure of acetabulum achieved by putting steinmen pin at 120 clock position,C retractor anteriorly,right angled homan posterior and afuranc retractor inferiorly(fig 2)
Femur exposed by pushing it proximally and a jawed homan underneath
Appropriate size acetabular cup and femoral stem put after following the steps
2 drill holes done in posterior aspect of trocahanter and posterior capsule and external rotators stitched back as one layer
Tensor fascia repaired with #2 ethibond and # o vicryl interrupted and running sutures
Drain kept in sub fasial layers
Local antibiotic and xylocaine was injected
Skin stitched with staples

Fig 1: shows the posterolateral incision

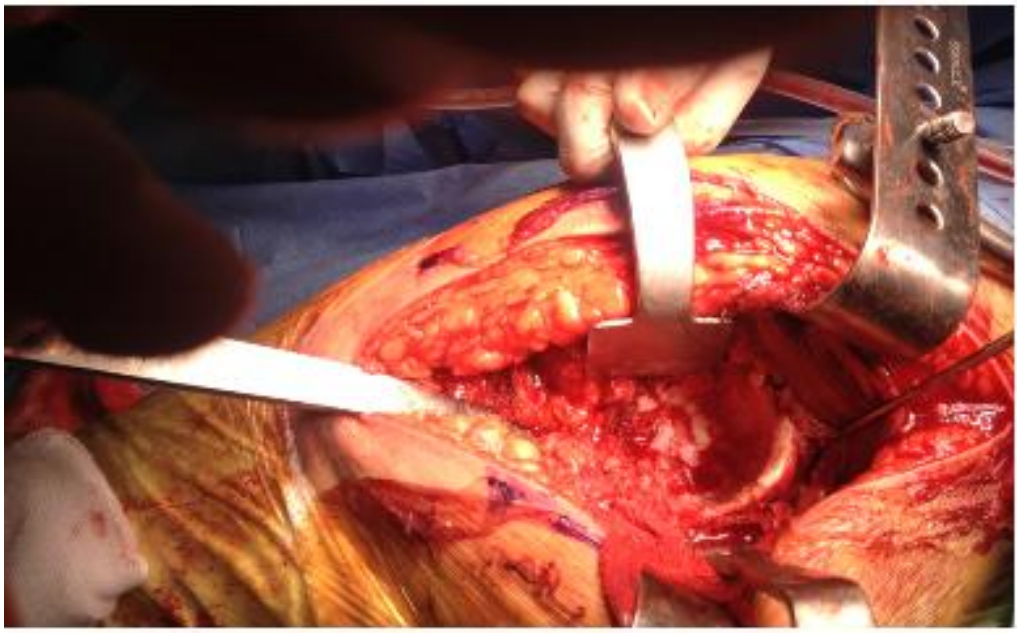

Fig 2: Acetabulum fully exposed

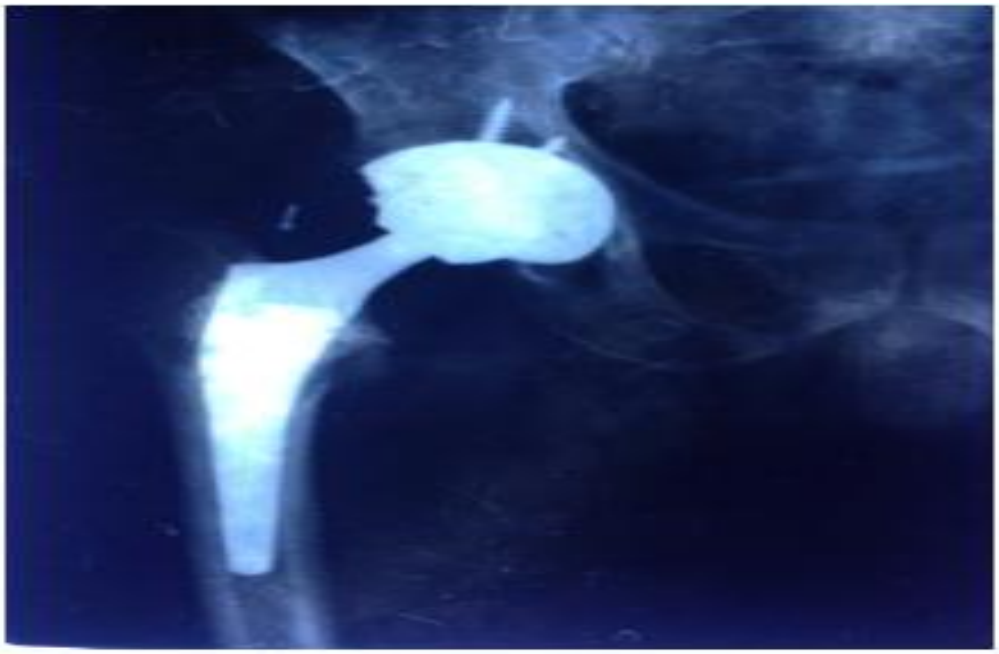

Fig 3: Showing Follow up picture at 1 year

II. Results

There were 4 deaths,one case died on the first postoperative day.6 cases were lost to follow up.follow up extended from 1 month to 5 years(fig 3) .Dislocation was seen in 6 cases[6.74],two cases dislocated more than two times and open reduction and roboust repair of posterior capsule and external rotators was done. Haris Hip score{HHS} average preoperatively was less than 25[10-96] and postoperative average HHS was 81.6 with P value less than 0.001.

Visual analogue scale{VAS} :86% good/ excellent result
88.25% none/mild pain
76.5% had no restrictive activity

95.1% had leg length discrepancy less than 1cm
Radiograph :Bony ingrowth of cup was seen in 98% cases
Subsidence was seen 5 stems
Average inclination was 46.0
Mobilisation was done on 3rd post operative day
Complications:
No intraoperative fractures were seen
Pulmonary embolism was seen in one
DVT was seen in two cases
Perforation of cortex in one case
Wound infection was observed in one case who was diabetic and thorough lavage of the wound was done

III. Discussion

The direct anterior approach was described by smith Peterson in 1940 and was later modified by heuter in 1950 12.Internationally this approach is gaining popularity in hip arthroplasty community 9. Advocates of this approach consider its advantages to the muscle sparing nature of its internervous intervals,earlier restoration of gait kinemetics and low dislocation rates 13-17.

Direct anterior approach is a muscle sparing approach,there is immediate muscle tone preservation,reduced muscle degeneration, decreased risk of dislocation;decreased postoperative pain,shorter stay in the hospital and faster return to daily activities .In DAA,there is no violation of abductor mechanism{Dorr,Hip arthroplasty,sanders 1996}.Posterior capsule and external rotators are preserved and there is excellent exposure of acetabulum.In DAA,There is difficulty in femoral canal preparation and high chances of fracture.it has utility in high riding hip and fusion take down.

Potential disadvantages:is technically demanding,new approach for most surgeons,learning curve is high,more than 40 cases,more operative time;increased blood loss,femoral fractures and lateral femoral cutaneous nerve injury.learning curve:

Woolson 2009 ------ 20-30 cases

D' Arring 2009 -------20-30cases
Sparains 2012 ------- 46 cases and stopped
Goytia 2012 -------60 cases and
Bhandari 2009 ----- 100cases.

Direct Lateral approach to the hip was described by Hardinge in 1982 18.Approximately 60% of Canadian orthopaedic surgeons perform tha using a direct lateral approach19.This approach provides adequate exposure of both proximal femur and acetabulum 8.*It* has benefit of providing an extensile exposure to the femur as required.A very low dislocation rate has also been reported in clinical follow up 20-21.

The posterior approach to the hip was popularised by Moore in 1950.A recent survey of surgeons from around the world suggest that posterior approach is the most common surgical approach used internationally for tha 9.It provides adequate visualization of both the acetabulum and femur during reconstruction procedures.The approach spares the abductor muscles during surgical exposure of the acetabulum and femur 8.It has also the benefit of providing an extensile exposure to the femur and acetabulum as required.

Thomas sculco is a pioneer of minimal invasive posterolateral approach which can easily be extended,there is less blood loss and is expeditious but increased dislocation rate. Considering that mini-incision total hip replacement has no dramatic clinical benefits other than the cosmetic appeal, the use of mini- incision total hip replacement by the average orthopaedic surgeon should be carefully monitored.In a recent study where 1465 total hips were replaced and followed for 8.4 years[2-10.4],average skin incision was 8.4[6-10].His radiographic evaluation included:

Abduction 42.2[28-59]
Cement 95%[A or B]
Stem 93%
Complication
Dislocation: 18[1.2%]
Femoral fracture 5[0.3%]
Nuropraxia 5[0.3%]
Wound complication
Haemotoma: 4
Wound infection 3
Less dislocation

1037 thr	0.96	sigene etal
437 thr	0.61	matta etal
2132 thr	1.3	kanan etal
1374 thr	1.5	seral etal
1465 thr	1.2	sculco etal

The advantages of minimally invasive posterolateral approach total hip arthroplasty are multiple.They include more rapid rehabilitation and more prompt return to activities of daily living.There has been a clear impression that patients experience less postoperative pain and improved satisfaction.There has been concomitant decrease in hospital stay and improved cosmesis and potentially reduced blood loss.This technique is certainly more demanding and there may be a tendency to vertical cup placement.A tendency to eccentric reaming of the acetabulum may be noted if the proximal femur is not adequately retracted anteriorly22.

Minimally invasive surgery[MIS]is defined as a surgical technique performed through a short skin incision to avoid injury to muscles and tendons.The advantages of MIS over the classical technique in total hip arthroplasty include :faster recovery,shorter rehabilitation and hospital stay,decreased blood loss,less pain and a shorter scar.The anterior approach to the hip,first described by Robert judet in 1947 as a modified smith-petersen approach,follows the [principles of MIS.Other approaches advertised as minimally invasive[posterior,lateral,or double incision approach]are associated with muscle and or tendon injury.Therefore they should be referred to as less invasive surgery[LIS] 11.

A review of the literature to date provides no convincing evidence of any significant advantagesof small incision THR compared with standard incision THR other than a shorter surgical scar.Comparision studies that prove both significant advantages and low complication rates of small incision THR are needed before these procedures can be recommended for general use 23.

Jose A Rodriguez etal Compared the direct anterior approach and conventional posterior approach and observed faster functional recovery with the direct anterior approach up to 2 weeks and no differences were observed between groups beyond 6 weeks 24.

In the present study ,though not compared with other approaches,our results were consistent with other studies where conventional posterolateral approach was used .

IV. Conclusion

Commonly practised approaches anterior ,lateral and posterior each have its advantages and disadvantages.High-quality clinical comparisons are lacking in the literature;therefore,surgeon preference is likely more a function of training and anecdotal success.Therefore ,emphasis is that surgeons should choose the approach with which they are conversant and have experience.Further research should determine the long term implications of surgical approach on clinical outcomes,gait analysis and economics.

References

[1]. Charnley J.Arthroplasty of the hip.A new operation.Lancet.1961;1:1129-32.{pubMed}
[2]. Eftekhar NS.Total Hip arthroplasty.St.Louis,MO;Mosby-year Book;1993;3-14
[3]. Habermann ET.Total joint replacement an overview.semin Roentgenol 1986;21;7-19
[4]. Freiberger RH.Evaluation of the hip prosthesis.semin Roentgenol 1986;21;20-28
[5]. Charnley J.The long term results of low –friction arthroplasty of the hip performed as a primary intervention.J Bone Joint Surg Br 1972;54;61-66
[6]. Bery DJ.Harmsen WS,Cabamela ME,Morrey BF.twenty five year survivorship of two thousand consecutive primary charnley total hip replacements;factors affecting survivorship of acetabular and femoral components.J bone Joint surg;am 2002;84;171-177
[7]. Griffiths HJ.priest DR.Kushner D/Total hip replacement and other orthopaedic hip procedures.Radiol clin North Am1995;33;267-287
[8]. Hoppenfeld s,DeBoer P,Buckley R.Surgical exposures in orthopaedics:the anatomic approach.Philidelphia,PA;Lippincott Williams and Wilkins:2009
[9]. Chechik O,Khashan M,Lador R,etal.surgical approach and prosthesis fixation in hip arthroplasty worldwide.Arch Orthop trauma Surg.2013;133:1595-600{PubMed}
[10]. Bottner F,Delgado S,Sculco TP Minimally Invasive Total Hip replacement:The Posterolateral approach.Am J Orthop{Belle Mead NJ}.2006 May ,35(5)218-24
[11]. Wojciechowski p,Kusz D,Kopec K,Borowski M Minimally invasive approaches in total hip arthroplasty. Ortop Traumatol Rehabil. 2007 Jan-Feb;9(1):1-7
[12]. Light TR,Keggi K.Anterior approach to hip arthroplasty.Clin Orthop Relat Res.1980:152:255-60{PubMed}
[13]. Siguier T,Siguier M,Brumpt B.Mini-incision anterior approach does not increase dislocation rate:a study of 1037 total hip replacements.Clin orthop Relat Res,2004;426:164-73{pubMed}
[14]. Matta JM,Shahrdar C,Ferguson T.Single-incision anterior approach for total hip arthroplasty on an orthopaedic table.Clin Orthop Relat Res.2005:441:115-24.{PubMed}
[15]. Kennon RE,Keggi J,wetmore R,et al.Total hip Arthroplasty through a minimally invasive anterior surgical approach.J Bone Joint Surg Am.2003:85-A:39-48{pubMed}
[16]. Nakata K,Nishikawa M,Yamamoto K,etal.A Clinical Comparative study of the direct anterior with mini-posterior approach:two consecutive series.J Arthroplasty.2009;24:698-704.{pubMed}
[17]. Mayr E,Nogler M,Benedetti M,et al.A prospective randomised assessment of earlier functional recovery in THA patients treated by minimally invasive direct anterior approach:a gait analysis study.Clin Biomech(Bristol,Avon);24:812-8{pubMed}
[18]. Hardinge K.The direct lateral approach to the hip.J Bone Joint Surg Br.1982:64:17-9[pubMed}
[19]. Burnett R.total hip arthroplasty;techniques and results.BCMJ.2010:52:455-64.
[20]. Masonis JL,Bourne R.Surgical approach,abductor function,and total hip arthroplasty dislocation.Clin orthop Relat Res.2002:405:46-53.{pubMed}
[21]. Kwon MS,Kuskowski M,Mulhall k,et al.Does surgical approach affect total hip arthroplasty dislocation rates.clin Orthop Relat Res.2006;447:34-8[pubMed}
[22]. Hartzband MA Ostrolateral minimal incision for total hip replacement:Technique & early results Orthop clin.North Am 2004 Apr,35(2) 119-24
[23]. Woolson S T In the absence of evidence- why bother.A Literature review of minimally invasive total hip replacement surgery.Instr course Lect 2006;55:189-93
[24]. Jose A.Rodriguez etal Does the Direct Anterior Approach in THA Offer Faster Rehabilitation and comparable safety to the posterior Approach.Jose A.Rodriguez etal Clinical Orthopaedics and Related Research February 2014,volume 472,issue 2,pp455-463