UNCEMENTED TOTAL HIP ARTHROPLASTY IN RHEUMATOID ARTHRITIS PATIENTS: A FOLLOW UP STUDY

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ABSTRACT: Total Hip Arthroplasty is a surgical procedure in which the hip joint is replaced by prosthetic implant which is most commonly done to treat joint failure caused by Osteoarthritis, Rheumatoid arthritis, avascular necrosis and certain hip bone fractures. During the last 20 years there has been tremendous increase in use of uncemented total hip arthroplasty surgeries because of the low morbidity and mortality and the low infection rate. We are here reporting 31 cases of successful uncemented total hip replacement among 29 to 55 years age group females with rheumatoid arthritis without radiographic loosening except with one case developing superficial infection. Twenty one unilateral and 10 bilateral total hip arthroplasties were performed for the last 10 years while all the patients were followed up for a period of 6 years. We demonstrated the benefits of uncemented total hip arthroplasty among females' rheumatoid arthritis patients, being cost effective with lesser complications.

KEYWORDS: Total Hip Arthroplasty, Rheumatoid arthritis, Females, uncemented THA, radiographic loosening.

INTRODUCTION: Total hip replacement is a surgical technique wherein the hip joint is completely replaced by prosthetic implant. In fact it is one of the most successful and cost effective interventions in orthopedic surgeries.^{1 and 2} This operational procedure provides reliable and relief of pain and dramatic improvement in function with patients suffering from osteoarthritis or rheumatoid arthritis.^{3 and 4} The indications of surgery was pain, functional limitations, joint stiffness, age and radiographic changes. In this surgical technique most hip prostheses consist of an ultrahigh-molecular weight polyethylene acetabular cup and a metal-alloy femoral component. In cemented techniques, polymethylmethacrylate cement is used to fix the femoral component in bone, whereas in uncemented arthroplasties, the prosthesis interfaces with bone directly.

In current practice, acetabular components are rarely cemented, even if a surgeon chooses to fix the femoral component with cement.⁵ Non cemented devices were most frequently used in young patients which has low revision rate and excellent prosthetic durability. But most of the studies reflect that the comparison of short term effects of uncemented total hip replacement less satisfactory with cemented counterpart whereas the long term results after 5 to 20 years the results were similar in two procedures.⁶ We are reporting a series of 31 female patients suffered from rheumatoid arthritis who underwent total hip arthroplasty surgeries using uncemented technique for the last 10 years.

AIMS AND OBJECTIVES: To analyze the results and outcome of Total Hip Arthroplasty surgeries among 31 female adult patients with rheumatoid arthritis.

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MATERIAL AND METHODS: Study design: Prospective study.

Study Area: Tertiary care institute (St. Isabel Hospital).

Study Period: 1995 to 2005.

Data Collection: A total of 31 female patients with 29 to 55 years of age group were undergone Total Hip Arthroplasty surgeries. No males in the study. Unilateral Total Hip Arthroplasty was done among 21 individuals whereas 10 underwent bilateral Total Hip Arthroplasty procedure.

Follow up Period: Every 6 months for 6 years.

Surgical Technique: Patients in supine position, the transgluteal approach (Hardinge approach) were performed in all the patients. The implants used in the technique were Sportano CLS femoral stem St Nabor cup. There were no per operative untoward events in any of the patients who underwent for surgery. Post operatively the patients were administered antibiotics, low molecular weight heparin. Patients were mobilized on 3rd post-operative day. Touchdown and weight bearing was followed by 6 weeks.

RESULTS: A total of 31 females with rheumatoid arthritis who underwent total hip arthroplasty at our hospital were followed up for a period of 6 years. The study showed 29 patients were pain free whereas only 2 had increased pain with activities. Fifty two percent of the patients were able to walk with little or no support while 58% had normal function without restriction. (Table 1 and 2)

	Good (8 to 10)	Fair (6 - 7)	Poor (5 or less)
Pain	Slight or nil (29 patients)	Increased with activities (2 patients)	Unbearable, present all the time (NIL)
Walking	Little or No support (52%)	Moderately (35%)	Markedly (13%)

Table 1: Follow up ten point hip rating scale

	Satisfactory (6 or more)	Un satisfactory (5 or less)
Function	Function without restriction (58%)	Limited house work. Inability to ADL (42%)
Activity	Unlimited house work. Moderate activities (52%)	Inactive, dependent on others (48%)

Table 2

There was no radiographic loosening in any of the 31 patients after the surgery. Only one patient had superficial infection and one case of per operative greater trochanteric fracture was encountered.

Figure 1

Figure 2

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Figure 3

DISCUSSION: Total hip arthroplasty is continuously evolving in terms of materials, prosthetic design, surgical technique, prevention of complications, and postoperative management. All hip replacements share one thing in common: they include a ball-and-socket joint. The surgical procedure and the technique differs little bit according to the approach like whether posterior approach, lateral approach and antero-lateral approach. As it is known that the prosthetic implant used in hip replacements consists of three parts: the acetabular cup, the femoral component and the articular surface. The early complications encountered in this surgical technique would be fracture, nerve injury, dislocation due to loosening, mortality from pulmonary embolism, hematoma^{7,8 and 9}

The late complications include infection, heterotrophic ossification and loosening. Most studies report the infection rate of less than 1% and are most likely due to peri-operative contamination which is due to the routine use of prophylactic antibiotics.¹⁰ Our study had shown that one case developed superficial wound infection which was cured later by simple course of antibiotics. The next important debated topic in hip replacement surgeries are, whether implants should be used with or without cement. Long term survival rates of cemented implants remains superior to non - cemented and the non-cemented implants have higher implant failure rate.¹¹ Surgeon factors like inexperienced surgeons doing hip replacement surgeries had higher dislocations, patient deaths, cost and length of hospital stay etc.^{12,13}

But a systematic review of cemented total hip arthroplasty in rheumatoid arthritis showed increased rates of aseptic loosening among 10 out of 20 case series on the cup and six out of 19 in the stem.¹⁴ Many comparative studies on cemented and uncemented implants finally concluded that the survival rate of cemented implants is better than uncemented implants and it is also better for osteoarthritis patients rather than rheumatoid arthritis patients.¹⁵ Nevertheless, our study had not shown any of the complications which were encountered in other literature reviews either cemented or uncemented implants. This could have been due to the experienced group of orthopedicians and the surgical approaches which reduced the incidence of complications in our patients.

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This was strongly supported by Rob E. Zwartele et al¹⁶ study that there is no evidence was found to establish that cementless components perform less well than cemented components. This study results justify the use of cementless THA in RA patients.

CONCLUSION: Our study supported the evidence that the uncemented implants can be used carefully to the rheumatoid arthritis patients which does not perform less than cemented implants. Further follow up for another 5 to 10 years may be required to exactly assess the outcome of cementless implants in total hip arthroplasty surgeries.

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