

**CASE REPORT****Girdle Stone Procedure in bilateral Rheumatoid Hip: A Case Report**IJAZ AMIN<sup>1</sup>, TALHA ABDUL MOEED<sup>2</sup>, WAJIDA PERVEEN<sup>1\*</sup>, MUHAMMAD AKHTAR<sup>3</sup>, UMER ILYAS<sup>4</sup>, SHOAIB JAVAID<sup>2</sup><sup>1</sup>Department of Physiotherapy, Sialkot College of Physical Therapy, Sialkot-Pakistan<sup>2</sup>Department of Orthopedic Surgery, Mayo Hospital, Lahore-Pakistan<sup>3</sup>Department of Physiotherapy, UOL, Lahore-Pakistan<sup>4</sup>Department of Physiotherapy, PSRD College of Rehabilitation Sciences, Lahore-PakistanCorrespondence to Dr. Wajida Perveen, Email: [wjda\\_noor@yahoo.com](mailto:wjda_noor@yahoo.com) Tel:+92-333-3507157.**SUMMARY**

Rheumatoid arthritis is multisystem disease affecting synovial joints at most. Females are the largest victims. Usually it affects the peripheral joints but weight bearing joints are also not spared. Rheumatoid hip is one of the presentations. Here we present a case of young girl with bilateral rheumatoid hip. She was having bilateral avascular necrosis of femoral heads rendering her crippled to perform activities of daily living along with severe pain. Girdle stone procedure was performed followed by physiotherapy. She progressed well and was able to walk with stick and perform ADL's with ease.

**Keywords:** Rheumatoid hip, girdle stone procedure, hip arthroplasty, avascular necrosis, lower extremity function scale,

**INTRODUCTION**

Hip joint disease affects 30-40% of patients with RA<sup>1</sup>. Total hip arthroplasty has revolutionized the treatment of patients with failed operative treatment for hip trauma. However, medically unfit for arthroplasty and functionally compromised patients, who have a high anesthetic and operative risk, may not be convenient for any further major interventions. In such cases, the Girdle stone resection arthroplasty (pseudoarthrosis coxae) is preferred as an procedure of choice<sup>2</sup>. In non-ambulatory patients with no probability of reimplantation, Girdle stone procedure is one of the options for treating an infected hip arthroplasty<sup>3</sup>. The Girdle stone procedure seems to be effective in controlling infection and relieving pain which is a common complaint after failure of surgeries for hip fractures. In surviving group of patients, the satisfaction rate was appreciable probably because of their limited functional demands despite of a high mortality rate and poor functional outcome<sup>2</sup>.

Girdle stone procedure (GSP) is a salvage procedure and its indications to perform it have significantly been modified over time<sup>4</sup> however it can be considered at young age to prevent functional limitations, avoid pain and improve quality of gait<sup>5</sup>. In a study conducted in Germany by F Hefti, it was suggested that in juvenile RA, if hip is involved GSP may be considered prior to hip arthroplasty<sup>6</sup>. Here we present a rare case of juvenile RA with bilateral infected hip joints and avascular necrosis which was treated with girdle stone procedure.

**METHODOLOGY**

A young female (adolescent) presented to orthopedic OPD with complaints of pain, dysfunction and restriction of movements at both hip joints leading to inability in performance of activities of daily living (ADL's). She was a known case of "Juvenile Rheumatoid Arthritis". On radiological examination her both hips were having avascular necrosis (AVN) of femoral head. On Physical examination her lower extremity function score (LEFS) was 14/80 in right and 14/80 in left, Hip Haris Score (HHS) was 17/100 on right and 17/100 on left side. LEFS is a 20 item questionnaire evaluating persons' daily activities. LEFS score ranges from 0-80 and 9 point change is considered as clinically minimal important difference and minimal detectable change value<sup>7</sup>. While HHS consist of ten items with 4 domains measuring pain, function, absence of deformity and range of motion<sup>8</sup>. Its highest score is 100 and less than 70 is considered poor.

She belonged to poor socioeconomic status and her parents were not able to afford any expensive surgical procedure and long follow ups. With the consent of parents, orthopedic surgeon decided to opt for girdle stone procedure for both hips. They were

clearly briefed about outcomes, potential risks and benefits of the procedure. Base line Pre-Operative investigations were carried out and surgery was performed under spinal anesthesia. Wounds were stitched over tube drain; soft tissues were repositioned and attached. Bilateral POP de-rotation boots were applied for four weeks. Bilateral skeletal traction was applied with proximal tibial pins. Drain was removed after 48 hours and patient was discharged. Home programme including elevation at 45° hip flexion with 10Kg weight traction on each side for four weeks, was advised.

**RESULTS**

Physiotherapy was started after six weeks of surgery, including Range of motion exercises and exercises to improve the muscles tone acting on hip was started initially for six weeks and after reassessment for four more weeks. Along with periodic assessments, major follow up was done after two years. She was able to walk initially with a walking frame and later on with a stick. There was no Leg length discrepancy found. Values of outcome measurement scales LEFS & HHS are expressed as table 1. Difference between pre and post op values were found significant (P=0.000)

Figure-1: X-Ray Pelvis before Surgery



Figure-2: X-Ray Pelvis after Surgery



Received on 24-07-2021

Accepted on 13-12-2021

Table-1: Values of outcome measurement scales LEFS &amp; HHS

Parameters	Right Hip	Left Hip	P value
HHS (before GSP)	17/100	17/100	0.000*
HHS (after GSP)	72/100	72/100	
LEFS (before GSP)	14/80	14/80	0.000*
LEFS (after GSP)	14/80	14/80	

\*Statistically significant

## DISCUSSION

In this study bilateral girdle stone procedure was performed on young female with history of rheumatoid hip. The outcomes were satisfactory in improving LEFS and HHS.

A study reported the result of 78 resections of the head and neck of femur (girdle pseudoarthrosis) in patient with infected hips. The mean follow up was five years. The girdle stone pseudoarthrosis succeeded in controlling the infection in 86% and relieving pain in 83%. The mean shortening of limb was 4.1cm and every patient needed some type of external walking aid. No correlation was found between the causative organisms and continuity of infection, nor between shortening and the functional results. The girdle stone pseudoarthrosis is an acceptable method of controlling infections and relieving pain after infection of a total hip replacement<sup>9</sup>. Although this study was carried out on infected hip joints, and our subject was having JRA, but the outcomes are comparable. The major difference is that, they followed up to five years, while we have reported the outcome after two years.

Another case series reported data of 92 patients who underwent excision arthroplasty of hip (girdle stone arthroplasty). Excision of head and neck of the femur was found to be an excellent salvage procedure for infected hips especially yielding uniformly satisfactory results at all ages irrespective of the disease. Outcome was painless and mobile hip. Leg length discrepancy and unstable gait were observed in some cases. With reference to its functional end results, this measure may be a good alternative to more modern and sophisticated hip surgeries in the form of partial or total hip replacement under certain conditions<sup>10</sup>. Our study support the findings of this case report in GSP was considered appropriate to cope with the functional disabilities, pain and improved gait biomechanics<sup>5</sup>. In later years hip arthroplasty may be considered if the condition of the patient allows. Although

complications reported included deep vein thrombosis, re-infection and anemia<sup>1</sup> but our patient was safe of these major complications.

## CONCLUSION

It was concluded that although GSP is a salvage procedure, but may be considered in cases when surgeon have limited choices in terms of follow up and cost of surgery.

**Author's contribution: IA&TAM:** Conception & design of study, **UI & SJ:** Data collection & Analysis, **MA&WP:** Drafting and revisions of manuscript.

**Conflict of interest:** None

**Funding:** None

## REFERENCES

- Kelly IJAotrd. Surgical treatment of the rheumatoid hip. 1990;49(Suppl 2):858.
- Sharma H, Kakar R. Outcome of Girdlestone's resection arthroplasty following complications of proximal femoral fractures. Acta orthopaedica belgica. 2006;72(5):555.
- Cordero-Ampuero J. Girdlestone procedure: when and why. Hip International. 2012;22(8\_suppl):36-9.
- Vincenten C, Gosens T, Van Susante J, Somford M. The Girdlestone situation: a historical essay. Journal of bone and joint infection. 2019;4(5):203-8.
- Marinko LN, Christie RE, Lewis CLJP. Successful rehabilitation of a young adult with total hip arthroplasty a decade after a Girdlestone procedure: a case presentation. 2015;7(8):895-900.
- Hefti F. Juvenile rheumatoid arthritis. Pediatric Orthopedics in Practice: Springer; 2015. p. 661-5.
- Dingemans SA, Kleipool SC, Mulders MA, Winkelhagen J, Schep NW, Goslings JC, et al. Normative data for the lower extremity functional scale (LEFS). Acta orthopaedica. 2017;88(4):422-6.
- McLean JM, Cappelletto J, Clarnette J, Hill CL, Gill T, Mandziak D, et al. Normal population reference values for the Oxford and Harris Hip Scores—electronic data collection and its implications for clinical practice. Hip International. 2017;27(4):389-96.
- Castellanos J, Flores X, Llusa M, Chiriboga C, Navarro A. The Girdlestone pseudarthrosis in the treatment of infected hip replacements. International orthopaedics. 1998;22(3):178-81.
- Sharma S, Gopalakrishnan L, Yadav S. Girdlestone arthroplasty. International Surgery. 1982;67(4 Suppl):547-50.