

A rare case report of Ankylosis of Rt.Hip in 18yrs old female patient treated with two staged Uncemented Total Hip Arthroplasty.

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Abstract:

Introduction: Total hip arthroplasty is considered one of the most successful operations today for many hip disorders. The success rate is high and results are excellent in primary cases. Despite the results of Total Hip Arthroplasty in septic arthritis of hip with Ankylosis show high complication rate, Two stage Arthroplasty provides a good chance of infection control and remarkable functional outcome. Therefore two stage Total Hip Arthroplasty remains a fruitful procedure.

Case report: An 18 yr old female patient presented with severe Rt.Hip pain, gross Limitation of Movements, difficulty in walking and doing daily activities like squatting with past history of Incision and Drainage when she was 10 yrs of her age followed oral antibiotics and pain medication . Patient was evaluated clinically and radiologically and diagnosed as Rt.Ankylosed hip probably due to Post septic sequele. Patient was treated with Debridement and insertion of Antibiotic loaded cement spacer was done in first stage. After eradication of infection successfully after 6 weeks it was converted to Uncemented Total hip Arthroplasty in second stage. After, two staged reconstruction of Rt. Hip joint found to give satisfactory results during follow up of 10 days, 3 weeks, 6 weeks, 12 weeks.

Results: Decreased visual analog score, Harris hip score on each follow up were noticed. By the end of 12 th week of surgery patient achieved near to normal range of movements. Gait improved on Rt. side. She is able to sit cross-legged comfortably on floor and doing her daily activities without any difficulty.

Conclusion: Despite the results of Total Hip Arthroplasty in septic arthritis of hip with Ankylosis show high complication rate, Two stage Arthroplasty provides a good chance of infection control and remarkable functional outcome. Therefore two stage Total Hip Arthroplasty remains a fruitful procedure.

Key Words: Ankylosed Hip, Post Septic Sequelae, Total Hip Replacement, Septic Arthritis

Date of Submission: 06-07-2019

Date of acceptance: 22-07-2019

I. Introduction

In 1943, Girdlestone described resection arthroplasty for the treatment of septic arthritis of the hip [8]. Although this procedure successfully controlled infection and relieved most pain, variable and poor functional results have been reported [1, 14]. In order to improve the hip function, total hip arthroplasty may be the treatment of choice after resection arthroplasty. Total hip arthroplasty is considered one of the most successful operations today for many hip disorders. The success rate is high and results are excellent in primary cases [17]. In one-stage THA was chosen to treat active hip infection, complete curettage and debridement of infected tissues at the time of operation would be a crucial procedure to guarantee the success of surgery [12, 13]. Shen et al. [10] and Yoon et al. [14] suggest that if a thorough debridement cannot be achieved, a two-stage surgery should be considered. Furthermore, most authors suppose that patients with sinus drainage are not good candidates for one-stage joint arthroplasty [3, 11, 14, 15]. The presence of sinus drainage usually indicates pyogenic superinfections from S. aureus or other pathogens. Sinus tracts can also increase the difficulties of thorough debridement.

II. Case Report

An 18 yrs old female patient, student by occupation came to Narayana Medical college and Hospital complaining of Rt. Hip gross limitation of movements associated with difficulty in doing daily activities.

History of Presenting illness: She had pain and swelling in Rt. Hip at 10yrs of her age for which she underwent incision and drainage and treated conservatively on medications. Patient was pain free with all her active movements and was able to do her activities up to 15 yrs of age.

Since, three years patient has pain in gradually radiating to Rt. Lower limb. Aggravates on squatting and sitting crosslegged on floor relieving on pain medications. Patient has history of fever on and off with no involvement of other joint. Eventually, patient developed restriction of movements of Rt. Hip and unable to do her daily activities. No history of trauma, no history of loss of weight, no loss of appetite and no history of evening rise of temperature. No consumption of drugs like Steroids, Alcohol, Antiepileptic drugs for long duration. No History of Endocrine disorders. No history of bleeding per rectally and no other associated symptoms noted.

Family History: No history of TB, Rheumatoid arthritis, CDH, Ankylosing spondylitis, Dwarfism, Angular deformity.

Personal History: Patient denies history of smoking, alcohol and other illicit drugs usage.

On Examination:

Gait: Antalgic gait

Patient examined in supine position with exaggerated lumbar lordosis with hip Rt. Hip in flexion, knee in flexion, Ankle and foot in internal rotation.

Inspection:

Anteriorly: Anterior superior iliac spine higher level on Rt. Side.

Fullness in scarpas triangle, no scars and swellings present.

Incision and drainage scar present over Rt. Inguinal region. No wasting of muscles present. Patella facing roof.

From Side: Exaggerated lumbar lordosis present. No scars, sinuses present.

From Back: Asymmetric Gluteal folds present, scoliosis, gross wasting of muscles present.

Palpation:

Superficial Palpation: Local rise temperature present.

Deep Palpation: Anterior joint line tenderness present.

Vascular sign of narath Negative

Gross muscle wasting present.

Movements: Global restriction of movements. No active movements present.

Deformity: Fixed flexion deformity – 20 degrees.

Fixed Adductor deformity- 20 degrees.

Fixed Internal rotation deformity- 10 degrees

Limb Length Discrepancy: Rt. Lower limb is 1.5cm shorhtening present compared to Lt. Lower Limb.

Special Tests:

Thomas test unable to perform.

Bryants triangle on Rt. Side is shortened when compared to other side base of triangle.

Shoe maker line : Congruence on opposite side just below the umbilicus.

Cheyne's line: Converging on Right side.

Nelaton's line: Unable to perform.

Trendelenberg test: unable to perform.

Telescopy test: Unable to Perform.

Clinical Evaluation:

Lab Investigations: CBP, ESR, CRP.

Radiological investigations:

X-rays : x-ray Pelvis with both hips(Fig.1), chest x-ray taken.



Fig-1: X-ray Pelvis with Both Hips shows Bony Ankylosis of Rt. Hip with preservation of Rt. Inferolateral aspect.

Culture: Blood culture, Throat culture, Sputum culture sent.

MRI : Rt. Hip shows Abscess of size 4.4x4.3x4.8cm tracking along the paraspinal muscles into Sacroiliac joint on Rt.Side(Fig-2).

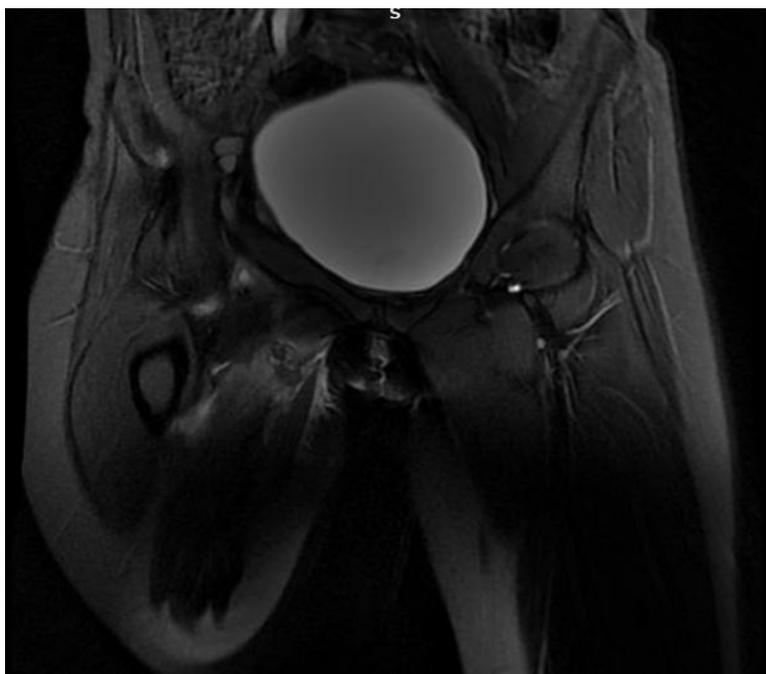


Fig-2: MRI T2 Coronal section image shows Abscess tracking along the paraspinal muscles into Sacroiliac joint of Rt.HIP.

Primary Surgery: Patient was planned for Total Hip Arthroplasty under Hardinge's approach. Femoral Head was delivered as piecemeal.

Per operatively: Active pus from the sinus tract found. So Planned for Antibiotic cement spacer was inserted (4 gms of Vancomycin in 40gms of Bone Cement)(Fig-3) into the Rt.Hip joint.

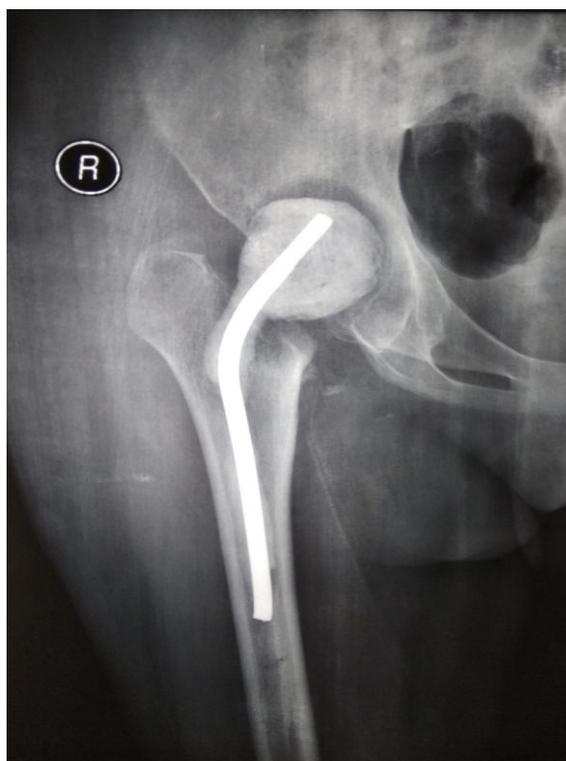


Fig -3: K-Nail with Antibiotic cement spacer has been inserted into Rt. Hip Joint.

Patient was started on Prophylactic Antitubercular therapy for 6 weeks along with third generation cephalosporins. Sinus tracts healed and repeated repeated CRP, Throat culture, sputum culture after confirming the CRP Level normal and Throat culture , sputum culture confirmed no organism isolated , patient was planned for Uncemented Total Hip Arthroplasty.

Second surgery: Through Hardinges approach after preparing acetabulum and femur, 48mm uncemented Acetabular prosthesis was applied and femur component Poly on 28mm ceramic coated head was applied with out application of cement(Fig-4,5,6).



Fig-4: Post op X-ray



Fig-5: X-ray pelvis with both hips AP view showing Rt. THR after 6 weeks

After the first surgery, Patient was followed for 10 days, 3 weeks, 6 weeks. On Every follow up X-ray, Routine blood investigations were done and checked for progression of second surgery.

Second surgery Follow Up:



Fig-6: X-ray Pelvis with both hips showing Rt.THR after 12 weeks

Results: Decreased visual analog score, Harris hip score on each follow up were noticed. By the end of 12 th week of surgery patient achieved near to normal range of movements. Gait improved on Rt. Side with 0.5cm shoe rise. She is able to sit cross-legged comfortably on floor and doing her daily activities without any difficulty.

III. Discussion

Septic arthritis of the hip usually is encountered in children as an acute febrile illness induced either by septicemia of the local inoculation of a joint caused by trauma or adjacent osteomyelitis. Primary septic arthritis of the hip in an adult is relatively uncommon. Destruction of articular cartilage or resorption of subarticular bone is a late presentation in the septic hip. Resection arthroplasty resolves the problem, but early results reported in the literature were varied with some studies citing disappointing results [8, 9, 16]. Most patients with a resection arthroplasty will be left with a significant leg length discrepancy due to abductor strength weakness and piston effect, which sometimes require ambulatory aids. Therefore, Marchetti et al. recommended that resection arthroplasty should be considered a salvage procedure only in the elderly patient with poor bone stock after a failed total hip arthroplasty [13]. Arthrodesis of the hip is rarely necessary, and a total hip arthroplasty may be undertaken when the infection has been controlled [6]. Traditionally, arthrodesis or Girdlestone's excision arthroplasty is applied for pain relief and infection control, but the functionality of the hip is unsatisfactory [2, 5]. Total hip arthroplasty (THA) has been operated successfully in patients with quiescent TB [1, 6, 7]. Because recurrent infection is a major concern in patients who have received total hip replacement to treat a previous septic hip, every effort should be made to reduce the infection rate and identify the infecting organism. Cherney et al. reported the difficulties of reliance on the preoperative erythrocyte sedimentation rate (ESR), CRP and white cell count, aspiration and culture of aspirated material, tissue inspection and culture at surgery and even histological analysis of inflammation as indicators of the eradication of infection by previous debridement and antibiotic therapy [4]. Nevertheless, far more reliance has been placed on ESR as an indicator of persisting infection [2]. It is not easy to achieve thorough debridement for patients with advanced active infection of the hip because there is gross destruction of capsule, synovium, bones, and articular cartilage. The inflammatory and necrotic tissues and abscess are usually not restricted to the joint, but diffused to the periarticular area and even to the thigh or pelvis. Insect bites like cavities at the acetabulum and proximal femur can also cause trouble to curette them radically. In view of this situation, there are always some residual focuses. Shen et al. [10] and Yoon et al. [14] suggest that if thorough debridement cannot be achieved, a two-stage surgery should be considered.

A more recent approach in the treatment of an infected total hip arthroplasty is an articulating antibiotic depot prosthesis of antibiotic acrylic cement as an interim in a two-stage exchange [5]. the antibiotic-loaded cement spacer planted in the hip not only reserves the length and motion of the hip but also helps to eradicate infection [16, 17]. Lastly, specimens obtained in the operation for pathological examination and biopsy culture can help confirm the diagnosis. In this study, the ESR and CRP of all the patients were normal at the time of second operation, and intraoperative findings and pathological re-examination presented no active infection

Most authors suggest that patients with sinus drainage are not well qualified for one-stage joint arthroplasty [3, 11, 12, 14, 15]. The presence of sinus drainage usually indicates pyogenic superinfections. Sinus tracts can also increase the difficulties of thorough debridement. Öztürkmen et al. [13] suppose that patients with infected sinus tracts extended into the pelvis or thigh are not suitable for one-stage THA because of the risk of reactivation due to the incomplete curettage and debridement of infected tissues. Yoon et al. [14] consider that patients with sinus tracts extended into the pelvis or thigh may not be a contraindication of primary THA for tuberculosis of hip, but they chose resection arthroplasty with a two-stage operation. Neogi et al. [8] reported that one patient with preoperative sinus drainage had encountered tuberculosis reactivation and superimposed infection through the non-healing sinus tract. There were four patients with sinus tracts to the thigh or pelvis in the present study, and two of them were detected with superinfection by bacterial culture preoperatively. The two-stage protocol was chosen for these four patients. Two patients with superinfection were also treated by intravenous culturespecific antibiotics for a minimum of 6 weeks after the first operation. None of them were found with reactivation of TB and pyogenic infection.

IV. Conclusion

Despite the results of Total Hip Arthroplasty in septic arthritis of hip with Ankylosis show high complication rate.our practical experience shows that two-stage THA is an alternative option to treat this challenging disease under some difficult conditions. The hip with sinus tracts or destroyed extensively with difficulties of thorough debridement at one operation may be indications of two-stage THA. With antituberculous medications, also antibiotic therapy for superinfection patients, the two-stage THA protocol offers the greatest chance for the eradication of infection. Of course, further studies with a large sample size and a longer follow-up are needed.

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Dr. Sai Kumar Reddy Mukkamalla . “A rare case report of Ankylosis of Rt.Hip in 18yrs old female patient treated with two staged Uncemented Total Hip Arthroplasty. " IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 7, 2019, pp 24-29.