

Management of Septic Arthritis of hip in preexisting inflammatory arthritis with total hip replacement

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ABSTRACT

Septic arthritis is often difficult to diagnose in presence of preexisting inflammatory arthritis. The classical signs of infection are absent and it is only high index of suspicion leading to diagnosis. Our case was a 45-year-old gentleman with inflammatory arthritis and avascular necrosis of femoral head. He had been planned for left total hip replacement after pathological fracture of femoral head. Intraoperatively, it turned out to be a case of septic hip. His infection was eradicated with thorough debridement and placement of antibiotic-laden spacer. He underwent two stage hip replacement and is doing well in the subsequent follow ups.

KEYWORDS: Inflammatory arthritis; septic arthritis; total hip replacement

INTRODUCTION

The classic presentation of septic arthritis is a single, acutely hot, swollen and painful joint (in 80%–90% of cases). However, patients with inflammatory arthritis may not present classically.¹ The presentation may be more subtle in patients who are taking glucocorticoids, disease-modifying antirheumatic drugs or biologic agents. In addition, there are a significant number of mimics of septic arthritis, including abscess, cellulitis, gout, rheumatoid arthritis, osteomyelitis, malignancy, Lyme disease, and avascular necrosis. Often the only significant finding is the rise in inflammatory markers

Resection arthroplasty for the treatment of septic arthritis of hip was described by Girdlestone in 1943. However, this procedure is associated with poor functional results despite the fact that it successfully controls the infection.^{2,3} In order to improve the hip function, total hip arthroplasty may be the treatment of choice after resection arthroplasty. Total hip replacement (THR) is considered one of the most successful operations today for many hip disorders.

Two-stage procedure with the use of an antibiotic-loaded acrylic cement spacer is a

well-established procedure in the management of chronically infected THR.⁴ We present to you a case of septic arthritis of hip with preexisting inflammatory arthritis managed by two stage THR.

CASE REPORT

A 45-year-old male with Raynaud's disease, Interstitial lung disease and inflammatory arthritis along with bilateral avascular necrosis (AVN) of femoral head presented to the outpatient department of National Trauma Center in late February of 2019 with increasing left hip pain. He had been discharged from a private hospital a week earlier where he was treated for the acute flaring of his inflammatory arthritis. He had been diagnosed with inflammatory arthritis 4 years back elsewhere and since then had been under Hydroxychloroquine and Prednisolone. His hip pain started 6 months earlier and had been diagnosed with bilateral avascular necrosis of femoral head, Ficat and Arlet Stage IV, 2months earlier. On radiological examination there was a pathological fracture of left femoral neck. Blood investigations were unremarkable other than elevated C reactive protein (CRP) and Erythrocyte sedimentation rate (ESR)

which were assumed to be in line with recent flaring up of the disease. The patient was planned to undergo left THR. On the second week of March 2019, we were surprised in the operation theater as pus started oozing out from the joint as soon as the capsule was opened. A plan of two stage THR was formulated and a Girdlestone operation performed. We debrided the joint, sent the pus and surround tissue for culture sensitivity and placed a Vancomycin laden cement spacer within acetabulum. Culture sensitivity could not yield any organism but as the overall demeanor was improving, second stage was planned after 3 to 6 months. However, two months post operatively patient developed a pathological fracture of right hip after a trivial fall. On June of 2019 right sided THR was undertaken successfully. Post-operative period was uneventful. ESR and CRP were monitored to follow a downward pattern in the following 6 weeks. Approximately 9 months after the left Girdlestone patient was readmitted for the second stage final operation of left hip. An upper tibial skeletal traction was applied for 2 weeks prior to surgery as a 4cm proximal migration of femur was present. ESR had fallen to 26 from 62. And CRP to 8 from 64. The traction helped reduce the shortening to 2.5 cm. On January of 2020 a hybrid left THR was performed. One-year post right THR and 6 months post the left THR patient was painless, getting along with daily activities and walking without support. There was a final 2 cm of left lower limb supratrochanteric shortening. There were no signs of infection, deep vein thrombosis and loosening of hip prosthesis during follow-ups.



Figure 1: Xray Pelvis AP showing pathological fracture of left femoral neck



Figure 2: Post operative Xray Pelvis AP with antibiotic laden cement spacer



Figure 3. Six-month post-operative X-ray Pelvis AP after the two stage left THR

DISCUSSION

Septic arthritis can be difficult to diagnose, especially when it is mistaken for a flare of pre-existing inflammatory arthritis.

Patients with inflammatory arthritis may have many of these risks combined with the use of immunosuppressive medications. For example, an increased risk for septic arthritis due to joint damage, poor skin condition, and immunosuppression.

The incidence of septic arthritis among patients with pre-existing inflammatory arthritis has not been well studied, with an estimated annual incidence of 28 to 38 per 100 000,⁵ and a prevalence of 0.3% to 3%

An elevated peripheral leukocyte count and elevated levels of inflammatory markers (e.g., ESR, CRP) may be supportive, but not diagnostic, of septic arthritis.⁶

Septic arthritis consists of a bacterial infection of the joint space that is associated with rapid joint destruction. Mortality rates can be significant, ranging from 3-25%. Despite the severity of illness, it may be subtle lacking the classic signs, symptoms, or laboratory findings.⁷

Blood cultures will be positive in over one-third of all patients, and 14% of patients with negative synovial fluid cultures will have positive blood cultures.

Culture of the synovial fluid or of synovial tissue itself is the only definitive method of diagnosing septic arthritis. Cultures of the joint fluid in gonococcal infections yield positive results in only about 25% of cases.

As with the other imaging techniques, MRI is nonspecific and is unable to differentiate between infectious and noninfectious inflammatory arthropathies.⁸

The goal of treatment is to rapidly eradicate the infection and to protect the joint.

Resection hip arthroplasty helps to eradicate the infection but leaves the patient with a leg length discrepancy, dependency on ambulatory aids, and variable pain relief.⁹ Two-stage THR with an interval antibiotic-loaded polymethylmethacrylate spacer has been proposed to clear infection and improve hip function after septic hip arthritis. Regis et al.¹⁰ described a similar successful two-stage hip reconstruction after septic arthritis with an antibiotic-loaded cement spacer.

The biggest clinical advantage of using an antibiotic-loaded spacer is that it helps to

maintain joint space and minimizes the risk of large limb shortening, while local antibiotic delivery prevents bacterial re-colonization of the implant

CONCLUSION

Septic arthritis does not always present classically as red, hot, swollen joints and diagnosis often requires high degree of clinical suspicion. The presence of underlying inflammatory arthritis makes situation ever more confusing. Often the only findings are elevated ESR and CRP as in our case. In cases of hip septic arthritis two stage THR with adequate surgical toileting and antibiotic laden cement spacer gives a very good clinical outcome.

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