

Case Report

Bilateral Total Hip Replacement In Steroid Induced Avn In A Young Patient

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Abstract:

A 30 years old female patient presented us with pain, restricted movement of hip and difficulty of walking. She had past history of taking oral Steroid for 6 months for gaining weight. Radiological examination revealed bilateral avascular necrosis of hips with advanced osteoarthritic changes. The patient had sequential Total hip replacement on both sides in 6 weeks interval. Post operatively she was uneventful and after proper exercise and physiotherapy she is maintaining her daily household activities smoothly.

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Introduction:

The hip joint is one of the major weight bearing joints of the body, so it is subjected to many stresses during daily activities. Primary Osteoarthritis was the most common diagnosis for patients undergoing Total Hip Replacement (THR) in series from Europe and USA. In contrast for the Asian population, avascular necrosis (AVN) is associated with various pathological conditions, among which the administration of steroids is particularly well known. AVN of the femoral head is one of the common causes of painful hip in young adult, progression of the disease causes collapse of the femoral head, followed by secondary osteoarthritic changes in the hips.

After confirming the diagnosis of AVN, management varies depending upon the age of the patient, stage of the AVN, occupation and previous treatment received etc. Core decompression, bone grafting and valgus osteotomy, hemiarthroplasty can be considered in early stages and total hip arthroplasty in later stages of AVN of femoral head, arthrodesis is also an alternative available. In advanced stages of disease life may be rendered, crippled and miserable, THR has proved to be a good option for those patients¹⁻⁸.

Case Report:

A 30-year-old female presented to our Orthopaedics clinic for ongoing low back and bilateral hip pain more on right side for the past 3 years, she didn't

give the H/O of any trauma or fall from height, She had received Tab. Prednisolone for 6 months to gain her body weight for 3 years and 6 months back consulting with quark at village. The patient had antalgic limp and walked with the help of a cane. She complained of intermittent pain radiating into her right groin and anteriomedial aspect of thigh. She stated that her symptoms were aggravated by walking and pain was relieved by sitting and resting condition. The patient did not report numbness or paresthesias in her lower extremities. There was no bowel and bladder dysfunction. The patient did not complain of any night sweats, fever or chills.

The patient had previously sought medical advice and was prescribed painkillers and anti-inflammatory for various occasions with no improvement. At that time, she had radiographs of her lumbar spine done, which she stated were normal. She then saw a Orthopaedic surgeon and diagnosed as AVN both hips. Subsequently she had muscle pedicle graft surgery left side 3 years back. The patient stated she does not drink or smoke. The patient stated that she does not have any night pain. In addition, she reported that she has had no noticeable weight change in the past year.

On physical examination, range of motion of the both hips was severely limited and painful in all ranges, most pain being felt in abduction and inter-

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nal rotation and more on right side. Palpation of the right hip region revealed extreme tenderness. Muscle palpation revealed tenderness in the lumbar paraspinal area, pelvic and right gluteal musculature and right thigh. Lumbar spine range of motion was full with pain at both hips. SI testing was painful for both sacroiliac joints. Range of motion of the both knees was full and pain free and no effusion was noted. Lower limb reflexes and neurological testing revealed normal, bilaterally, muscle weakness was noted in the both lower limb.

Impression:

The patient was suspected as having avascular necrosis of the right hip with differential diagnoses of hip osteoarthritis or healed fracture. She was advised for radiographs of the lumbar spine, hips and pelvis. The radiology report stated that there was marked irregularity to the both femoral head and acetabulum with sclerosis, collapse of femoral head with proximal migration. This report led to the diagnosis of avascular necrosis of both hips. Based on the radiology report, the patient was suggested to an Operative treatment, Total Hip Replacement on both sides. The patient was soon scheduled for hip replacement surgery first on right then left side.

X-rays taken prior to the surgery both show presence of patchy lucent and sclerosis in the right femoral head region with collapse and irregularity of the articular cortex, also compares the right and the left hip joints with proximal migration of femoral head.figure 1 CT scan of both hips figure 2 also taken about to see the extension of lesion.

Post Operative Rehabilitation:

A total hip replacement or arthroplasty was performed first on right side then left with 6 weeks interval. Following surgery, the patient was monitored with periodic follow-ups figure3 while undergoing postoperative rehabilitation. This initially consisted of passive stretching of the hamstrings, quadriceps, hip flexors and abductors, as well as passive and active range of motion exercises for the hip and knee. A number of strengthening exercises were slowly incorporated to strengthen primarily the quadriceps, hip abductors and hamstrings musculature. Once the patient was able to weight-bear, she was instructed in restoring normal gait. The patient attended the post surgical rehabilitation facility for about 10 days in decreasing frequency and then was discharged with an independent home exercise program. At that time, the patient had satisfactory hips

range of motion with a mild stiffness to the right hip, 6 weeks later left sided THR was performed and same post operative's protocol was followed. After a year the patient reported that her hips pain had significantly reduced and she had returned back to work when she was followed up at OPD after a year of discharge.figure4.

Postoperative radiographs of both hips showed the presence of cemented total hip prosthesis in good alignment.



Figure-1: Pre Operative X-Ray Pelvis



Figure-2: Pre Operative 3D Recon CT Pelvis



Figure-3: Post Operative X-Ray Pelvis



Figure-4: Post Operative patient

Discussion:

Avascular necrosis is characterized by osseous cell death due to vascular compromise¹. Avascular necrosis of bone results generally from corticosteroid use, joint infection, perthes' disease trauma, SLE, pancreatitis, alcoholism, gout, radiation, sickle cell disease, coagulation disorders, infiltrative diseases (e.g. Gaucher's disease), and Caisson disease^{3,6,8}. The most commonly affected site is the femoral head and patient's usually present with hip and referred knee pain³. This patient presented with avascular necrosis of the right hip with pain referred to the right knee. The possible causes in this case were corticosteroid use which was prescribed by quark for gaining weight. It appears that her avascular necrosis may have been initially overlooked.

Radiological features of osteonecrosis generally involve collapse of the articular cortex, fragmentation, mottled trabecular pattern, sclerosis, subchondral cysts, and/or subchondral fracture¹. This patient's radiographs demonstrated the presence of extensive osteonecrosis of the both hips. A bone-scan or MRI could also be used to confirm the presence and extent of avascular necrosis.

Treatment is mainly surgical and generally involves a total hip replacement or arthroplasty for end-stage femoral head osteonecrosis with advanced osteoarthritis^{6,7} using either a cemented or cementless prosthesis. Cemented total hip arthroplasties is the gold standard treatment because it has been reported that cemented prosthesis in young patients in all disease groups have good mid-term results also according to the study by Wroblewski and Siney of patients aged 50 and younger with cemented Charnley prosthesis^{4,7}. In this case, we performed a cemented total hip arthroplasty.

Rehabilitation treatment protocols vary widely after total joint replacement.³ It has also been suggested that a preoperative exercise program may be beneficial in increasing the rate of improvement in patient recovery after a total hip replacement^{3,7}. Early mobilization is the gold standard in restoring functional mobility after total joint arthroplasty^{3,7}. The goal of rehabilitation is to increase muscle strength/endurance, improve coordination, increase flexibility, increase aerobic capacity and promote tissue remodeling. In this case the patient underwent a comprehensive postoperative rehabilitation program to improve her functional ability.

According to J.P.Garino and M.E.Steiberg, using modern cement techniques and component, total hip arthroplasty can give excellent results in a young patients with AVN⁵. Some studies shown improved outcomes with cementless total hip arthroplasties for patients with femoral head osteonecrosis. The major concerns regarding cementless total hip arthroplasty have been thigh pain, osteolysis and long term stability⁷. Revision rates for cementless techniques are lower than for cemented techniques^{3,7}. More studies are needed to address the long term prognosis of hip arthroplasties in younger adults. Considering the age of this patient, periodic follow-ups.

Conclusion:

Avascular necrosis as a differential diagnosis whenever a patient presents with hip pain secondary to trauma and/or corticosteroid use. The diagnosis is

confirmed by imaging procedures. The physician should refer the patient to a Orthopaedic Surgeon if there is radiological evidence of avascular or osteonecrosis of the hip

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