

CASE REPORT

AVN OF BILATERAL HIP IN 36 YEAR OLD MALE PATIENT TREATED CONSERVATIVELY: A CASE REPORT

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ABSTRACT: CLINICAL DETAILS: History: A 36 year old patient with bilateral hip pain and limp of nine months gradually progressed to rest pain with inability to squat and low back pain. **EXAMINATION:** Bilateral hip joint line tenderness (left>right). Left hip restriction of movements, wasting with abduction deformity. **INVESTIGATIONS:** X-ray showed increased density (left>right) in subchondral region of head, >50% segmental collapse in left hip, regional osteoporosis. Blood investigations showed high triglyceride, uric acid with anaemia. **MANAGEMENT:** Traction and physiotherapy with Zolendronic acid 5mg i.v. infusion, balanced diet, calcium, iron and methylcobalamine supplementation. **RESULTS:** X-rays revealed improvement in osteoporosis and disappearance of acetabular osseophyte, rebuilding of vertical trabeculae. MRI on 14th month showed revascularization of trabeculae with maintenance of articular cartilage without hyper intensity in T2 images. Triglycerides and uric acid level normalized. **DISCUSSION:** AVN Hip is the result of vascular insult due to many causes. In this patient contributing factors are non-vegetarian diet, tobacco chewing, hypertriglyceridemia, hyperuricemia. All these resulted in endothelial damage of vessels. **CONCLUSION:** AVN of femoral head grade 2 and 3 managed conservatively with physiotherapy, dietary modification and bisphosphonates gave good results as assessed with Harris hip score

KEYWORDS: AVN, Corticosteroids, Bisphosphonates, physiotherapy, diet modification.

INTRODUCTION: CLINICAL DETAILS: HISTORY: A 36 year old male presented to family physician for both hip pain for nine months, left hip more than right hip with referred pain to knee and medial aspect of thigh, insidious in onset and gradually progressive. Patient had limp and was walking with support of a cane. Pain used to aggravate by standing, walking and on climbing stairs and relieved by rest in right hip. His left hip pain was not relieved even at rest. No night pain.

The patient was prescribed NSAIDs and steroids by family doctor. Then he was referred to an orthopaedician who suggested THR of left hip and core decompression of right hip. Then he moved to our hospital for treatment because of non-affordability. Past history revealed history of tobacco consumption for more than 20 years with regular non vegetarian diet. The patient is non-alcoholic and not a smoker. He had no noticeable weight loss in recent past. He stated that he has not worked since the time he started to limp.

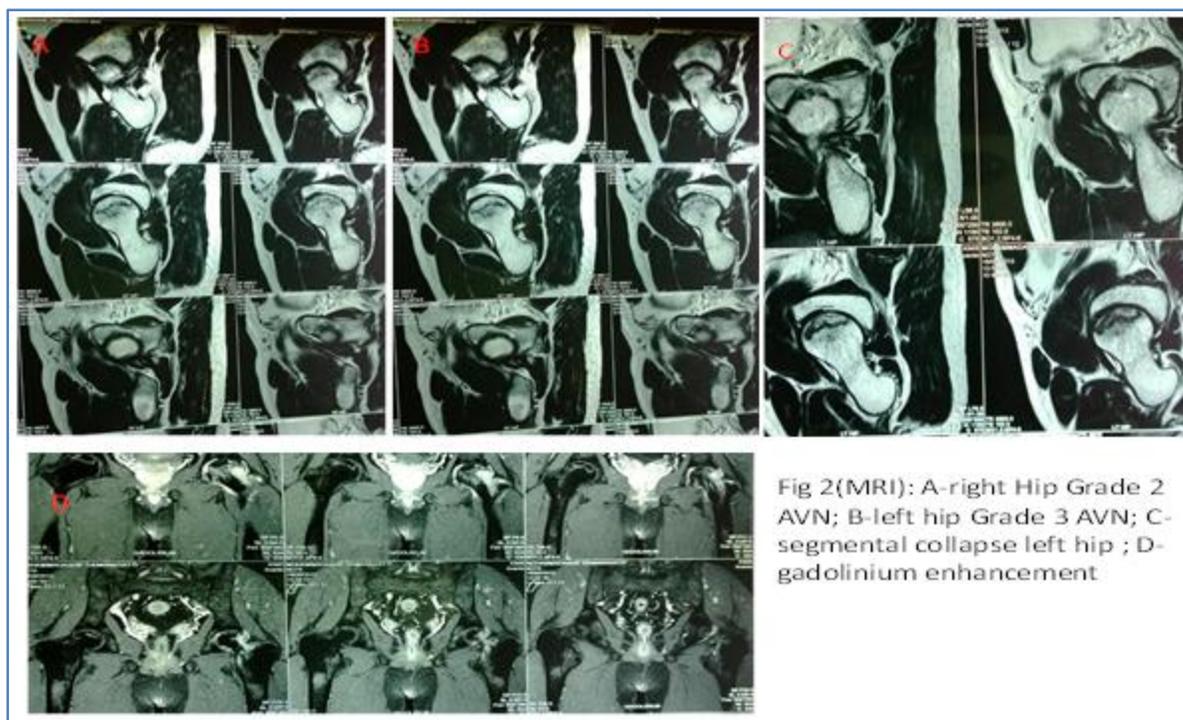
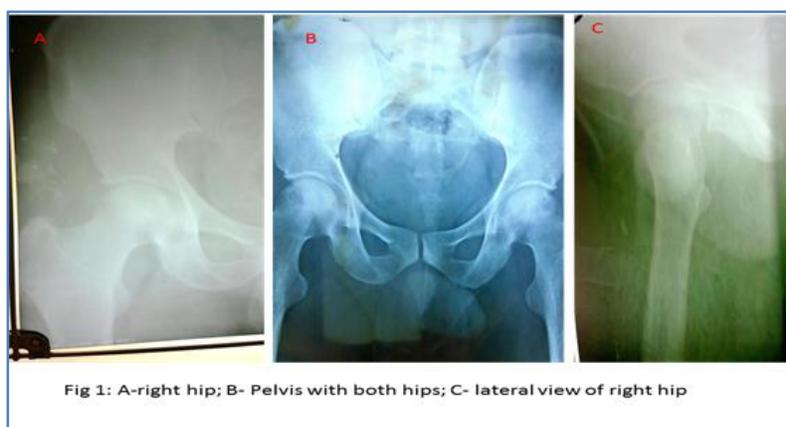
PHYSICAL EXAMINATION: On physical examination range of motion of left hip was painful, restricted in all ranges with severe restriction in abduction and internal rotation.

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Palpation of left hip revealed tenderness, less so in right hip. Muscle wasting present on left thigh. Active straight leg raising produced pain on left hip more than on right hip. Muscle palpation revealed tenderness in lumbar paraspinal and bilateral gluteal musculature.

Bilateral knee range of motion is full. Muscle palpation revealed tenderness in left TFL and quadriceps. Lower limb neurological examination revealed normal reflexes and sensations. Bilateral global muscle weakness noted in left lower limb when compared to right lower limb.

INVESTIGATIONS: Radiograph revealed left hip anterolateral segmental collapse with subchondral sclerosis with involvement of 50% of head. Right hip had metaphyseal lucency with sclerosis. This reports lead to the diagnosis of bilateral AVN left> right. Patient was also diagnosed with early spondylosis. Blood investigations revealed borderline anemia and hypertriglyceridemia.



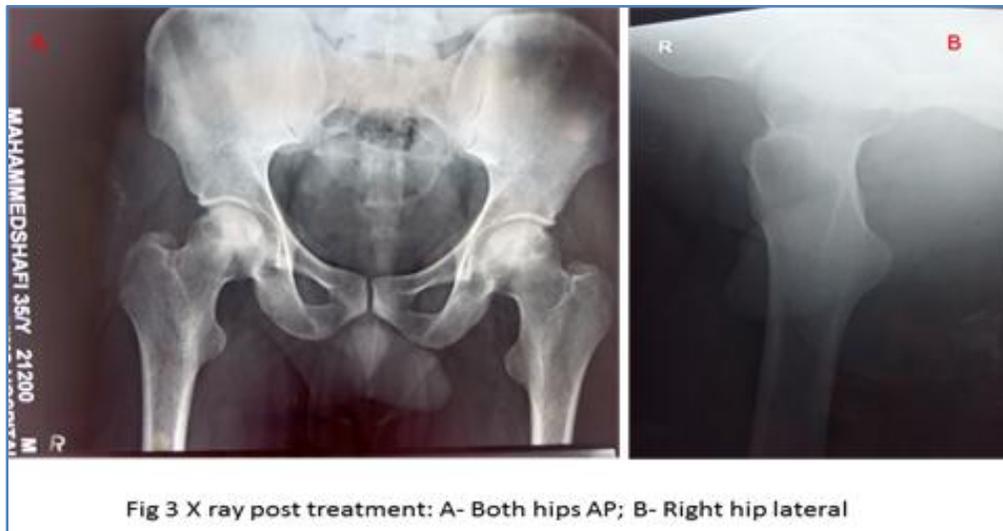
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MANAGEMENT:

- Traction with 3 kg weight for bilateral lower limbs.
- Physiotherapy: Muscles around hip stretching exercises, strengthening exercises, passive and active movements with resistance exercises, quadriceps and hamstring exercises, along with upper limb exercises.
- Zolendronic acid 5mg i.v. infusion during hospitalization.
- Calcium, iron, vitamin D3, methylcobalmin supplementation.
- Patient was discharged after 3 weeks advising to have balanced diet, to continue same exercises at home and to attend his routine work.

RESULTS: Clinically patient had both hip full range of movements within 2 months, limping stopped in 2 weeks. The triglycerides level without Clofibrates touched base line, anaemia improved, back pain was relieved.

Monthly x-ray both hips and pelvis and both hips lateral view were taken which revealed reduction in lucency and sclerosis of both femoral head with rebuilding of trabecular pattern with improvement in osteoporosis and disappearance of acetabular osteophyte. Rebuilding of vertical trabaculae seen. Sphericity was maintained. MRI on 14th month showed revascularization of trabaculae with maintenance of articular cartilage without hyper intensity in T2 images.



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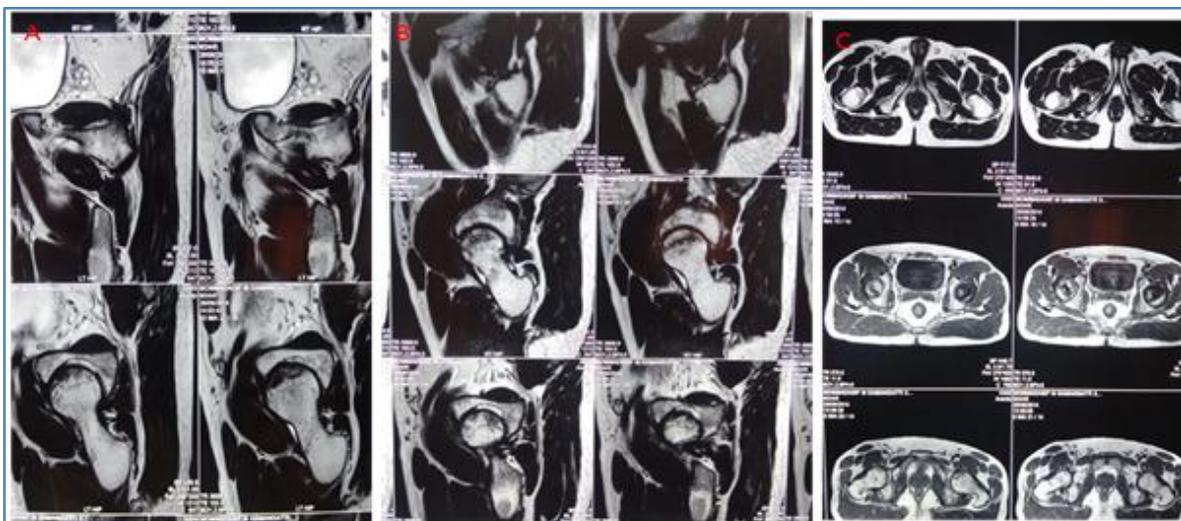


Fig 4; MRI post treatment: A- Left hip ; B- Right hip. C- both hips axial view.



Fig 5: Patient sitting cross legged post treatment

DISCUSSION: Avascular necrosis is characterized by osseous cell death due to vascular compromise. AVN of bone results generally from corticosteroid use, trauma, SLE, pancreatitis, alcoholism, gout, radiation, sickle cell disease, infiltrative [Goucher's] disease and Caisson disease. Most commonly affected site is femoral head. The possible causes in this case were corticosteroid use after subsequent allergic reaction to flu vaccination and trauma due to the fall.^{1,2} Radiological features of osteonecrosis generally involve collapse of the articular cortex, fragmentation, mottled trabecular pattern, sclerosis, subchondral cyst and/or subchondral fracture³. This patient's radiograph demonstrates the presence of extensive osteonecrosis of left hip more than right hip and articular congruity of right side is maintained. There was left hip segmental collapse radiologically. In this case rehabilitation has played vital role. No rest has been given and immediately he was back to his work after one month. The goal of rehabilitation

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is to increase muscle strength, stretching of contracted capsule and muscle, which increases aerobic capacity and promote tissue remodeling. Patient underwent comprehensive rehabilitation exercises, weight bearing mobilization with upper limb exercises. These exercises helped in prevention of venous stasis which leads to increased intraosseous vascularity. Clinically range of motion improvement was very fast and pain drastically came down and limping improved.

Agarwala et al have reported improvement in AVN hip with Alendronate.⁴ We used Zolendronic acid 5 mg as single infusion. Agarwala et al also showed improvement in the clinical function, a reduction in the rate of collapse and a decrease in the requirement for total hip replacement, compared with the findings of other studies in which no treatment was given. This improvement is particularly marked if the treatment is begun in the pre-collapse stages of the disease. Even in Ficat stage-III hips some benefit was obtained from treatment with alendronate by at least a delay in the need for total hip replacement.⁵

CONCLUSION: Avascular necrosis of femoral head with grade two and grade three managed conservatively in this patient with physiotherapy and bisphosphonates has given good results as assessed with Harris hip score. More studies are needed to address the long term outcome considering the age of the patient, extent of sclerosis. Periodic follow up is essential in monitoring the integrity of femoral head both clinically and radiologically.

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ABBREVIATIONS USED:

1. NSAIDs: Non-Steroidal Anti Inflammatory Drugs.
2. THR: Total Hip Replacement.
3. TFL: Tensor Fascia Lata.
4. AVN: Avascular Necrosis.
5. SLE: Systemic Lupus Erythematosus.

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