Case Report

Indian Journal of Anesthesia and Analgesia
Volume 10 Number 4 October-December 2023
DOI: http://dx.doi.org/10.21088/ijaa.2349.8471.10423.9

Clinical Evaluation: An Essential Tool for Diagnosis

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How to cite this article:
Shubha V Hegde, Khaja Javed Khan/Clinical Evaluation: An Essential Tool for Diagnosis/Indian J Anesth Analg. 2023;10(4) 205-208.

Abstract

Low back pain is one of the commonest and leading causes of hospital visits, functional limitation and absence from work in the world.[1] Low back pain can occur at any age, but its highest prevalence is in third decade of life. Avascular necrosis of Hip commonly presents at the age of 35-50 years with mean age being 36 years.[3] Presenting complaints of both lumbar spine and hip pathologies are overlapping which include low back pain with associated buttock, groin, anterior thigh, and knee pain. Therefore, identifying the exact pain generator becomes crucial, where clinical evaluation plays a vital role.

Keywords: Low back pain; Hip Osteoarthritis; Sciatica; Clinical Evaluation.

Key Message: Presenting complaints of both lumbar spine and hip pathologies include low back pain with associated buttock, groin, anterior thigh, and, perhaps, knee pain. Since both these conditions are more common in young men, with overlapping symptoms, identifying the exact pain generator becomes crucial where, clinical evaluation plays a vital role.

INTRODUCTION

Low back pain has a numerous potential anatomical pain generators such as nerve roots, myofascial structures, bone, joints, intervertebral discs, and organs within the abdominal cavity.[4] Apart from the anatomical sources, peripheral and central sensitization also play an important role in chronic Low Back Pain.[5] Biopsychosocial model is considered as the dominant model in explaining the cause and prognosis of LBP.[6] Hence the diagnosis of Low back pain needs a comprehensive clinical evaluation.

Osteonecrosis of Hip is caused by vascular disruption of femoral head which leads to death of bone and bone marrow which extends to subchondral plate.[7] Causes of Osteonecrosis of Hip can be broadly divided into Idiopathic, traumatic which can occur due to trauma to hip, non-traumatic which includes hemoglobinopathies like sickle cell disease, smoking, collagen vascular disease, hypercoaguable state, long term exposure to corticosteroids.[8] Osteonecrosis of Hip also known as Avascular necrosis of Hip commonly presents at the age of 35-50 years with mean age being 36 years.[3]

Presenting complaints of patients who have both

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Received on: 15.09.2023

Accepted on: 10.10.2023

lumbar spine and hip pathologies include low back pain with associated buttock, groin, anterior thigh, and, perhaps, knee pain. This may be because of the fact that they are dependent on each for their functions.[9] That's the reason why there can be significant relief of low back pain on treating the hip pathology.[10]

Osteoarthritis of Hip has the referral pattern of pain to the groin (84%), buttock (76%), anterior thigh (59%), posterior thigh (43%), anterior knee (69%), shin (47%), and calf (29%).[11] Since, presenting complaints overlap, a thorough clinical examination helps in narrowing down to the exact diagnosis.

CASE DESCRIPTION

A 31 year old male patient presented to our out patient department with complaints of low back pain radiating to right lower limb till heel. Pain was continuous, sharp, burning in nature, intensity of pain measured in terms of Numerical Rating Scale which was.[8] Prolonged sitting (>30 minutes), rising from sitting position, bearing weight on leg, aggravated the pain. Lying down on bed and analgesics (Non-steroidal anti-inflammatory drugs) relieved his pain. Low back pain radiated to right lower limb till heel which was associated with tingling and numbness. History of trauma, that is, fall from bike two years ago, following which patient had no symptoms. After 6 months of fall patient developed these symptoms. Patient had no other co-morbidities or habits.

On examination, patient had an antalgic gait, no muscular atrophy, no scars were found on inspection. Straight Leg Raising test was positive at 40 degrees (Right leg) and at 60 degrees (Left leg). Neurological assessment revealed no abnormality. On performing the FABER (Flexion, Abduction and External rotation) bilaterally, patient was unable to abduct and external rotate the hip joint. Severe spasm of both thigh Adductor muscles was noted. On examining Bilateral hip joint, there was tenderness in the scarpa's triangle, posterior hip joint line, anterior hip joint line. Movements of hip joint in all directions were painful an grossly restricted. There was no neurological deficit elicited. Patient had consulted other doctors previously and was prescribed neuropathic pain medications for 2 months which did not give any significant pain relief.

MRI of Bilateral Hip joint with screening of Lumbo-Sacral spine was suggested (Fig. 1-3) and the report revealed Bilateral Avascular Necrosis of Hip with Osteoarthritic changes in the Hip (Ficat Stage 4) with no significant disc herniation/ evidence of Spinal Canal Stenosis. Hence, we referred the patient to the orthopedic surgeon for further management (Total Hip Replacement).

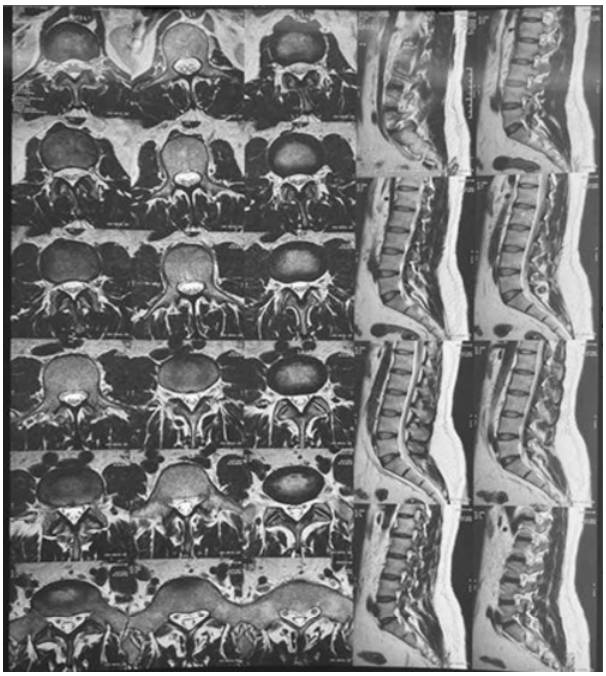

Fig. 1: MRI of Lumbo- Sacral Spine (Lateral view with Axial cuts)

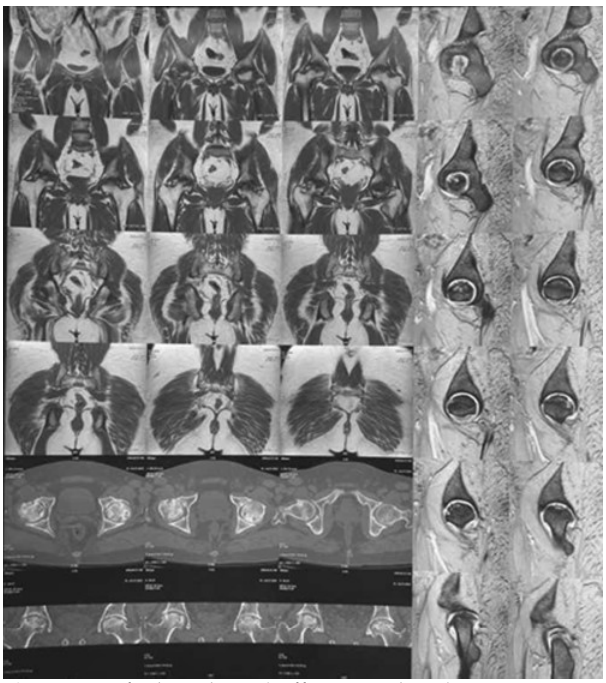

Fig. 2: MRI of Bilateral Hip (Different axial cuts)

DISCUSSION

Patient came with a history of low back pain

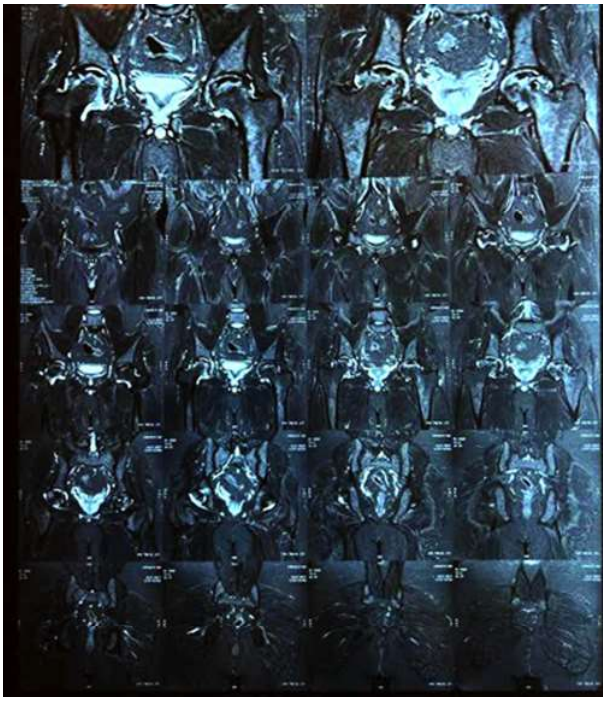

Fig. 3: MRI of Bilateral Hip (Different axial cuts)

radiating to right lower limb which is of burning type and associated with tingling and numbness. With this history, provisional diagnosis points towards Intervertebral Disc Prolapse at L 4-5 region. But on clinical examination, as there was antalgic gait, severe Adductor muscle spasm, we examined the Hip joint as well along with Spine examination. Often hip pathologies occur in combination with spinal canal stenosis or any other issues associated with low back as hip is a distal link to a proximal problem. Many studies have reported that there was improvement in back pain in patients who underwent Total Hip Replacement.[12]

Avascular necrosis of Hip can occur because of multiple risk factors like trauma to hip, hemoglobinopathies like sickle cell disease, autoimmune disorders like systemic lupus erythematosus, smoking, secondary to alcohol abuse, collagen vascular disease, hypercoaguable state, long term exposure to corticosteroids.[8] Most common causes of non traumatic Avascular Necrosis of hip are chronic steroid use and excessive alcohol consumption, which accounts for more than 80 % of cases. Most common traumatic cause is the neck of femur fracture (15% to 50%) or dislocation of the femoral head from acetabulum (10% to 25%).[13] When trauma occurs, the blood supply to the head of the femur can be easily disrupted because of the injury to vessels as a result of fracture or dislocation, leading to avascular necrosis.[13] In our case, the cause might be traumatic, as there is history of fall 2 years back.

Offierski and Mac Nab[14], described a term called "Hip - Spine syndrome" in 1983. It can be classified as simple, complex, secondary or misdiagnosed. In simple type, primary source of pain is clear despite of coexistent hip and spine pathology. In complex, even after a thorough physical examination, there is no clear source of pain. Further diagnostic tests or diagnostic injections are required for identifying te source. In secondary Hip-spine syndrome, due to the interdependancy of the pathologies, pain in one region can be secondary to the pathology in the other. In patients with misdiagnosed hip-spine syndrome, the primary source of pain is not correctly diagnosed, which may result in inappropriate and expensive treatment. Therefore clinical examination and diagnostic tests play an important role in diagnosing the primary source.

In a study 344 patients with hip osteoarthritis (170 of whom also had Low back pain), conducted by Parvizi *et al*.[15] who underwent Total Hip Arthroplasty, which is the treatment of choice in hip Osteoarthritis and Avascular Necrosis of hip, reported on the resolution of low back pain in 66.4% of the 170 patients in whom it was noted preoperatively. Therefore, Total Hip Arthroplasty is preferred plan of management in our case where the patient had grade 4 Avascular Necrosis of hip as it will even reduce the associated low back pain.

In patients coming with low back pain radiating to lower limbs, a thorough history has to be taken and a detailed clinical examination has to be done of the complaining joint as well as a joint above and below as they are functionally interdependent. To support the provisional diagnosis, diagnostic tests which includes, X-ray, MRI scan, CT scan can be done and diagnostic injections can also be used as one of the diagnostic tools. Therefore, clinical examination plays a vital role in narrowing down to exact diagnosis and avoiding misdiagnosis which may result in inappropriate and expensive treatment.

A Glossary of Terms

LBP - Low Back Pain

FABER - Flexion ABduction External Rotation

MRI - Magnetic Resonance Imaging

CT - Computed Tomography Scan

Acknowledgements: NIL

Conflict of Interest: None

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