

Bone marrow oedema syndrome: A rare case

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ABSTRACT

We describe a case report of 52 years old lady with persistent right hip pain whose diagnosis was obscure for two months. The symptoms started two months ago which was spontaneous and acute in onset without fever. The pain was continuous in nature, non radiating, which aggravated with activities. After thorough clinical evaluation and MRI scan a diagnosis of Bone Marrow Oedema Syndrome (BMOS) was made. BMOS is a disease of late pregnancy but rare in post menopausal lady, and her well and early response to core decompression treatment which would otherwise have been treated conservatively for 6 to 12 months with analgesic and rest made us present the case.

INTRODUCTION

Bone Marrow Oedema Syndrome of hip is a well-recognized, though uncommon, syndrome characterized by pain and rapidly emerging osteoporosis of the femoral head. The condition was originally described in women in the last trimester of pregnancy, 1,2 but it is now seen in patient of both sexes and all age from early adulthood onwards.³ The cause is unknown, but MRI features are characteristic of marrow oedema. It has been suggested that the condition is a precursor of avascular necrosis but there is little evidence to support this. Typically the changes last for 6-12 months, after which symptoms subside and X-ray gradually returns to normal. Most patients with BMOS will have a self-limiting course, but the duration of symptoms may be reduced by core decompression treatment.

The aetiology of this condition is obscure and there are no tropic changes in the soft tissues and no long term effects. There is diffuse change in MRI- low signal intensity on T1 weighted image and matching high signal

intensity on T2 weighted image which is characteristic of bone marrow oedema syndrome (BMOS) and is usually regarded as reversible condition.⁴

CASE REPORT:

A 52 years old post-menopausal lady, teacher by profession came to our OPD with chief complaints of sudden onset of pain in her right hip since last 2 months. The pain was continuous in nature, non radiating, which aggravated with activities. There was no history of trauma, fever and weight loss. She is non-alcoholic, non-smoker and denies intake of any other drugs (cortisone). She denies any similar episodes of pain in the past.

Before being seen by us she was taken to a local hospital where all her hemato-radiological parameters was within normal range thereby managed symptomatically in the emergency room and was discharged on oral analgesic. Despite the treatment she had persistent pain and could walk only with the help of a cane.

On physical examination the right hip was externally rotated, abducted and slightly flexed. It was non tender on palpation with a normal local temperature and the range of motion was painful in all direction. There was no paresthesia and muscular weakness in her right

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lower limb. Her spine and right knee examination was within normal limit.

Her routine blood, ESR and urine examination revealed normal except C Reactive Protein which was positive. Plain antero – posterior and lateral radiograph of right hip was normal.(Fig. 1)



Figure 1: X-ray of Pelvis showing normal hip joints

With these clinical presentation and investigation she was admitted in the hospital with skin traction and analgesic for one week. In spite of the treatment, her symptoms did not subside therefore she was sent for MRI.

T1 weighted image in MRI showed decreased signal intensity in the area of head, neck and inter-trochanteric region of Right femur (Fig. 2) and in T2 weighted image these area showed increase in signal intensity (Fig. 3) as compared with normal bone marrow. MRI even showed moderate joint effusion with normal acetabulum. With this investigation we could exclude stress fracture, AVN, neoplasm, TB hip and osteomyelitis.



Figure 2: T1 weighted image in MRI showing decrease signal intensity in the area of head, neck and inter-trochanteric region of right femur.



Figure 3: STIR image showing increase in signal intensity in the area of head, neck and inter-trochanteric region of right femur.

With this MRI report and the continuous symptoms we came to a working diagnosis of BMOS for which core decompression was performed with 8 mm trephine. The material obtained from core decompression was sent for histo-pathological examination. Later the report showed increased interstitial fluid in the bone marrow space filled with pale to dark staining homogenous fluid consistent with BMOS.

The clinical result of core decompression in our patient was excellent as she had immediate pain relief and restoration of a nearly normal range of movement within one week. The patient was able to return to her normal work remaining pain free after 6 weeks of protected weight bearing during which she was given calcium and bisphosphonate. At three and six month follow up the patient was totally asymptomatic and could walk without assistance with a normal X-ray.

DISCUSSION:

The evidence of focal loss of radiodensity in the affected femoral head, neck and inter-trochanteric region and its later spontaneous recovery in this syndrome prompted us to use the term Transient Osteoporosis.⁵ After the invention of MRI the obscure skeletal disorder had a distinct type of localized marrow oedema in patient suffering from this syndrome, hence the term transient osteoporosis is now replaced by Bone Marrow Oedema Syndrome. Turner et al (1989) showed that 6 patients with MRI changes of BMOS were actually suffering from AVN.⁶ Despite this most author still believe that BMOS is a self limiting disease often seen in last trimester of pregnancy.⁷

In our case the x ray being normal and the MRI of T1 weighted image showing decrease signal intensity and STIR image showing increase signal intensity in the head and inter-trochanteric region of right femur with an inconclusive histopathological report diagnosed as a case BMOS, which usually is a self limiting disease seen in last trimester of pregnancy, but our patient being a post menopausal lady showed its rarity. There is still controversy about the aetiology, pathophysiology and outcome of the disease but the relationship between elevated bone marrow pressure and pain has been established.⁸

The development of oedema in the bone marrow and increased intramedullary pressure both suggest that the cause may be disturbed venous outflow rather than arterial interruption.⁹ In cases of radiologically proven BMOS some authors have presented histological evidence of early AVN.

CONCLUSION:

BMOS is usually diagnosed by MRI and it is a self limiting disease whose clinical symptoms abolish by 6 to 12 months¹⁰, without surgical intervention. However symptomatic period and intake of analgesics for longer period of time with its adverse effect can be reduced by core decompression in established case of BMOS diagnosed by MRI scan.

BMOS of hip has been well documented in literatures as a disease of late pregnancy but the syndrome still is not widely recognized in post and peri menopausal women^{1,2} as we have presented in our case.

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