



## A RARE CASE OF APLASTIC ANAEMIA WITH MULTIPLE LYTIC LESIONS IN MAGNETIC RESONANCE IMAGING OF THORACO LUMBAR SPINE

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**ABSTRACT** Aplastic Anaemia is a potentially severe bone marrow disorder characterized by peripheral pancytopenia, and fatty tissue which replaces bone marrow is mostly devoid of hematopoietic cells<sup>(1)</sup>. We report a case of aplastic anemia in 45 years old female with MRI thoracolumbar spine showing multiple focal low signal intensity lesions. Biopsy of these lesions does not show any lymphoma or metastasis. These are regenerating hematopoietic tissue interspersed with fatty marrow.

### KEYWORDS :

#### INTRODUCTION:

Aplastic anemia is a rare hematopoietic stem cell disorder. This condition results in pancytopenia and hypocellular marrow. Most are acquired forms often due to immune injury to multipotent hematopoietic stem cells. Peripheral smear showing anisocytosis, poikilocytosis and increased red cell distribution width. Bone marrow aspiration shows hypocellularity, and bone marrow biopsy shows fatty tissue with islands of lymphocytes and plasma cells. Though focal areas of predominantly erythroid normal cellularity or hypercellularity may sometimes be present. These areas may appear as focal lytic lesions in MRI.

Magnetic resonance (MR) imaging has proposed as a noninvasive method for the evaluation of BM composition (6 - 14). The high-fat content of the marrow results in high signal intensity (SI) on T1 weighted images (T1WI), allowing the noninvasive evaluation of cellularity in patients with AA.

#### CASE REPORT

A 48 years old female presented with complaints of headache, giddiness, generalized weakness of body, easy fatigability since one month, having fever since ten days, continuous fever low grade, associated with chills and rigors present not associated with rash, history of excessive bleeding per vagina since ten days

On physical examination, she is moderately built and nourished with signs of pallor present, no icterus, lymphadenopathy, petechiae, purpura, ecchymoses. Tachycardia present rest of vital data is normal. Laboratory investigations showing hemoglobin 3.9g%, RBCs 1.20 millions, MCV 96 fl WBC 2300/cu mm Absolute neutrophil count 490/cu mm, platelet count 4,000/cumm, corrected reticulocyte count 0.5, Alkaline phosphatase 94IU/l, CRP 2.1mg/dl, malaria parasite not detected. Dengue serology negative, widal test negative, calcium 9.1 mg/dl, serum albumin 3.2mg, blood urea 24mg/dl, serum creatinine 0.5mg/dl.

#### ULTRASONOGRAPHY OF ABDOMEN:

No hepatomegaly splenomegaly, gallbladder, pancreas, kidneys, urinary bladder, uterus normal Ultrasonography of bilateral breast and thyroid normal Urine bence zones proteins are negative

#### PROTEIN ELECTROPHORESIS: Normal

#### BONEMARROW ASPIRATION AND BIOPSY:

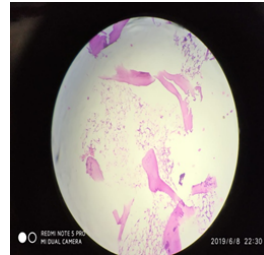
Aspiration is dry tap and biopsy showing marked reduction tissue in marrow cellularity (20%) and is replaced by fatty

#### MAGNETIC RESONANCE IMAGING OF THORACO LUMBAR SPINE:

T1&T2 weighted images showing multiple focal and diffuse hypointense signal lesions in dorsolumbar vertebral bodies. No paravertebral soft tissue,

AA has been classified as severe when at least two of the following three criteria are present: (1) anemia with a CRC < 1 percent ; (2) ANC

< 500 per cubic millimeter; and (3) PC < 20,000 mm<sup>3</sup> In addition, marrow hypocellularity must account for less than 25 percent of marrow space. By these criteria, our patient classified as severe aplastic anemia. Based on hepatic and renal function, and immunologic and cytogenetic studies, underlying diseases causing pancytopenia are excluded.



**Fig-1: Bone marrow Biopsy**



**Fig-2: MRI Spine**

#### DISCUSSION

Although bone marrow method for assessing BM cellularity in AA, this is difficult to quantitate accurately and may not be representative of the entire bone marrow. Magnetic resonance (MR) imaging has been proposed bone marrow (BM) biopsy is the standard as a noninvasive method for the evaluation of bone marrow composition. The high fat content of the marrow results in high signal intensity (SI) on T1 weighted images (T1WI), allowing the noninvasive evaluation of cellularity in patients with AA.

In AA, MR imaging findings and the role of MR imaging in monitoring patients with AA to determine their response to therapy have been reported. In untreated stages, marrow demonstrates diffuse high SI, reflecting the preponderance of fatty marrow and the lack of hematopoietic marrow. With treatment, foci of low signal intensity representing islands of hematopoietically active tissue appear in the yellow marrow.

On T1 WI, diffusely homogeneous high SI was classified as pattern 1, hyperintense background with less than 25 % hypointense nodules as pattern 11, extensive homogeneous bright and low SI as pattern III, and diffuse hypointense SI with scattered bright nodules less than 25 % as pattern IV. On STIR with reversed SI, pattern 1 included diffusely homogeneous low SI, pattern II hypointense background with less than 25 % of bright SI nodules, pattern III mixed patchy bright and low signal areas, and pattern IV diffusely high SI with less than 25 % hypointense area. According to SI patterns seen on T1 WI and STIR, BM was categorized as follows: 1, homogeneous fatty marrow; II, fatty marrow with focal cellular nodules; III, mixed fatty & cellular marrow; and IV, cellular marrow with focal fatty nodules. On T1-weighted images, low signal was less than or equal to the signal of paravertebral muscle, and high signal was equal to or greater than the signal of subcutaneous fat.

## CONCLUSION

In conclusion patients with aplastic anemia lytic lesions in Magnetic Resonance imaging is because of regenerating hematopoietic marrow. Magnetic resonance imaging is used as means of followup and monitoring patients with aplastic anemia. It is important to recognize that low intensity lesions scattered between the high signal intensity of the fatty marrow may represent a normal finding of regenerating, expanding haematopoietic marrow. In some cases these hypo dense lesions may represent a secondary pathology such as lymphoma or metastasis.

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