

KARNATAKA RADIOLOGY EDUCATION PROGRAM

<u>CASE PRESENTATION:</u> Solitary bone plasmacytoma: the unusual case of extra-cranial mini brain.

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INTRODUCTION

Solitary plasmacytoma is an uncommon tumor. We present a case in patient demonstrating the mini brain sign that has been published in a couple of reports as a diagnostic radiological pattern produced by plasmacytoma.

Identification of "mini brain appearance" on imaging can direct the radiologist and clinicians to the diagnosis of plasmacytoma and obviate the necessity of pre-operative biopsy.

HISTORY

59 yr old male presents with
H/o back pain and difficulty in walking since one month.
No history of trauma.





FINDINGS

- Altered signal intensity lesion involving vertebral body, articular process, pedicle, lamina, transverse process and spinous process of D12 vertebra.
- The lesion appears hypointense on T1 and hyperintense on T2/STIR sequences. on postcontrast study shows intense homogeneous enhancement.
- Lesion is extending into the epidural space, causing significant spinal canal narrowing and compressing thoracic spinal cord at D12 vertebral level. Spinal cord at D11-D12 appears bulky with STIR hyperintensity (Likely myelomalacia). On post contrast study no significant enhancement within the cord.
- Multiple linear hypointense cortical clefts noted which are hypointense on T2/T1 images surrounding the T2 hyperintense lesion ('Mini brain' sign in the axial images).
- CT shows solitary expansile lytic lesion in D12 vertebra with thinning of cortex with few areas of cortical breech giving trabeculated appearance without sclerosis.

DISCUSSION

Solitary plasmacytoma is a rare tumor and observed in 3–7% of patients with plasma cell neoplasms.- The lesion is commonly found in the axial skeleton with a predominant lytic component. Often, the lesion is present for many years as a single lesion; however, occasionally it can progress to multiple plasmacytomas. An association with multiple myeloma has been observed, but plasmacytoma can present prior to laboratory findings of multiple myeloma for years.

There are many vertebral-based tumors encountered in the practice of radiology, which show non-specific radiological features in terms of MRI signal characteristics and specially if the whole vertebral body was involved. This case report illustrates the appearance of a mini brain sign on axial images of MRI, which has been described in few prior case reports and a case series.

The characteristic appearance of thickened radially arranged cortical bands that resemble cortical sulci (hence the name) has been suggested to be a result of a stress-like effect caused by lytic process of the plasmacytoma directing the rest of the unaffected bone component to increase size and thickness to compensate for the damaged and weakened component.

D/D...

- Chronic osteomyelitis.
- Osteolytic metastasis.
- Osteoid osteoma.
- Osteoblastoma.
- Aneurysmal bone cyst.

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