Posterior Reversible Encephalopathy Syndrome (PRES) without radiological correlate : Is it possible?

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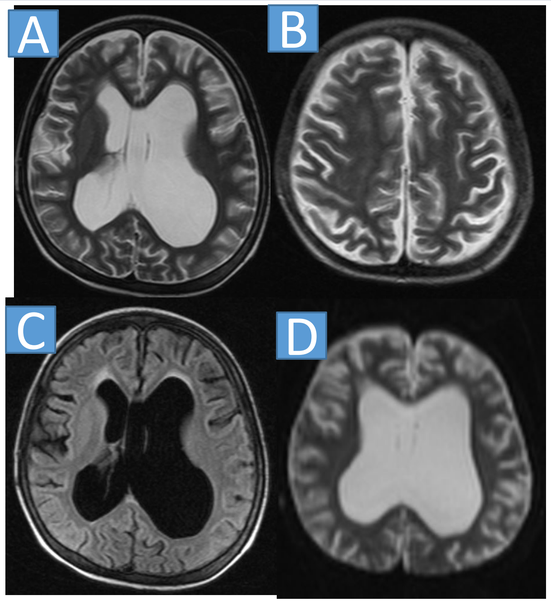
INTRODUCTION

- ✓ Posterior Reversible Encephalopathy Syndrome (PRES) is a clinico-radiological entity
- ✓ Characterized by headache, seizures, altered sensorium, impaired vision
- ✓ Mostly accompanied by hypertension.
- ✓ PRES is often diagnosed on neuroimaging showing vasogenic edema predominantly involving the posterior region of the brain.
- ✓ Vis a Vis adult cases, childhood PRES has a wider clinical and neuroradiological spectrum
- ✓ Pediatric PRES high propensity atypical MRI findings.
- ✓ We report a case of childhood PRES who did not have any PRES defined radiological correlate

NEUROIMAGING: MRI BRAIN AFTER 24 HRS OF ICTUS



A,B: T2WI AXIAL, C: FLAIR AXIAL,D: ADC MAP

MATERIALS & METHODS

- ✓ A 12-year-old boy, Chronic Myeloid Leukemia with arrested obstructive hydrocephalus
- ✓ Admitted in blast crisis and was being managed with chemotherapy as per BFM protocol.
- ✓ During the third month of therapy child developed hypertension which persisted despite the appropriate anti-hypertensive medications and rose to stage-II hypertension within 24 hours.
- ✓ Child slipped into progressive encephalopathy after an episode of Right focal seizure & Right hemiparesis.
- ✓ Among the drugs as causative of PRES Dasitinib 4 weeks back along with other chemotherapeutic drugs.
- ✓ Nitroglycerine infusion was started for BP control and seizure was managed with parenteral Levetiracetam.
- ✓ The metabolic work-up: Normal
  - ✓ Serum electrolytes,
  - ✓ Serum ammonia
- ✓ Urgent NCCT head was non-contributory.
- ✓ MRI Brain & MR venography was suggestive of old findings of exvacuo dilation of lateral ventricles and cerebral atrophy
- ✓ EEG was done to rule out nonconvulsive status as the cause of encephalopathy
  - ✓ non-contributory
  - ✓ except generalised slowing suggesting encephalopathic record
- ✓ BP was controlled by titrating the anti-hypertensives in next 48 hrs,
- ✓ Nitroglycerin infusion was stopped after 60 hours and switched to oral amlodipine.

RESULTS

- ✓ Neurologically child improved gradually over a week with improvement in sensorium as well as complete recovery of hemiparesis.
- ✓ Clinically: PRES as seizure/hemiparesis/ encephalopathy improved after BP control.
- ✓ MRI Brain: No pathognomonic features of PRES or cerebral venous sinous thrombosis.

DISCUSSION

- ✓ Conditions triggering PRES in childhood :
  - ✓ Renal insufficiency of various etiologies
  - ✓ Hematologic diseases and related therapies, Chemotherapy (for malignancy or immune suppression)
  - ✓ Drugs:Calcineurin inhibitors/ VEGF inhibitors
- ✓ Seizures are most common, can be of any type, but they usually start focally and subsequently generalise.
- ✓ Encephalopathy is the 2nd most common
- ✓ Others:
  - ✓ Visual disturbances,
  - ✓ Headache
  - ✓ Focal neurological deficits
- ✓ Brain imaging is particularly helpful to exclude alternative diagnoses
- ✓ Many cases of hypertensive encephalopathy presents with all the clinical features of PRES, but with no acute changes on brain MRI
- ✓ Usualy in acute setting NCCT is usually normal in most instances.
- ✓ In a pooled review of paediatric patients treated for cancer, PRES was associated with hypertension in 49 (88%) of 56 of children.
- ✓ Despite the absence of characteristic neuroimaging changes the diagnosis of PRES was made on clinical grounds in view of the presence of neurological signs after ruling out other causes of encephalopathy
- ✓ Underlying drug Dasaitinib was incriminated & is described as predisposing factor for PRES.

FINAL DIAGNOSIS

1. Chronic myeloid leukemia with arrested obstructive hydrocephalus

2. Posterior Reversible Encephalopathy Syndrome (PRES) –Post dasitinib chemotherapy

CONCLUSIONS

- ✓ PRES can be also be diagnosed in the presence of normal brain imaging after ruling out alternative diagnosis.
- ✓ Hypertensive encephalopathy may present with clinical features of PRES, without acute changes on MRI brain .
- ✓ Our case highlights the need to keep PRES as a clinical differential in appropriate clinical setting even in absence of characteristic radiologic features.
- ✓ Atypical features of PRES may in future lead to adopt an alternative terminology to encompass larger perspective.

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