Case Report

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An Unusual Case of Headache: Joining the Dots in the Emergency Room

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Abstract

Headache is one of the commonest presenting complaints in the Emergency Room. In the young population with no significant history of any medical condition or trauma, it seldom raises suspicion of an ominous etiology. In this case report we present an unusual case of a young unmarried female presenting to the ED with acute onset headache and vomiting. After initiation of primary treatment, the patient was subjected to MRA and MRV of the brain which was suggestive of thrombosed mid part of Superior Sagittal Sinus, right Sigmoid and right Transverse sinus. On eliciting the SAMPLE history of the patient, the risk factor of polycystic ovarian syndrome and intake of Norethisterone for Abnormal Uterine Bleeding was known. Provisional diagnosis of Norethisterone induced Cerebral Venous Sinus Thrombosis was considered and patient was initiated on treatment with Enoxaparin (Low Molecular weight Heparin) followed by long term NOAC and lifetime avoidance of Norethisterone and other prothrombotic drugs.

Keywords: Headache; Cerebral Venous Sinus Thrombosis; Norethisterone acetate; Enoxaparin; Rivaroxaban.

INTRODUCTION

Headache is one of the commonest presenting complaints in the Emergency Department (ED). Around 8.4-16% of patients present to the ED with complaints of headache.[1] Primary headaches such as migraine represent the vast majority, but chances of secondary headache having life threatening potential makes it crucial and imperative for Emergency Physicians to detect and treat them adequately, with appropriate laboratory and imaging studies. In an unsuspecting young female of reproductive age group, it should particularly raise a red flag when there are associated symptoms of vomiting, seizure, altered mental status and limb weakness. Cerebral Venous Sinus Thrombosis (CVST) is a rare type of cerebrovascular disease with incidence as low as 0.5% of all accounted strokes.[2] Due to its life-threatening potential, it warrants rapid diagnosis and urgent initiation of treatment. With the advent of advanced imaging technologies of the likes of CT and MRI, the diagnosis of CVST has been increased manifold. The risk factors associated with CVST are acquired/genetic prothrombotic states such as SLE, Behcet, Polycythemia Vera, use of OCP, infections (Otitis, Meningitis), leukemia etc.[3] The

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association between CVST following intake of Progestin Only Pills (POP) used for the treatment of menstrual disorders has been reported very rarely. Ramya T *et al* had documented a case of CVST in a young married women who had been taking Norethisterone Acetate tablets for menorrhagia secondary to polycystic ovarian syndrome (PCOS).[4] Studies have been done to document the use of POP and Combined Oral Contraceptive Pills (COC) at risk for Venous Thromboembolism due to their prothrombotic nature.

Case Presentation:

A 31 year old unmarried woman, presented with a mild headache since last 2 days with progressive worsening with one episode of vomiting. There was no history of seizures, head trauma, loss of consciousness, chest pain, limb ataxia, limb weakness, diplopia, facial asymmetry, or sensory loss.

She was a known case of polycystic ovarian syndrome with irregular menstrual cycle and intermittent episodes of heavy bleeding since menarche for which she sought gynecological opinion and was on Tablet Norethisterone Acetate 5 mg since 2 months.

She was unmarried and had no obstetric history. There was no history of any other medical illness-Hypertension, Diabetes, CAD, IHD, or stroke.

On Primary Survey

Airway: patent

Breathing

Respiratory Rate: 20/min

SpO_2: 99% in Room Air

Circulation:

Pulse Rate: 86/min

Blood Pressure: 120/90mmHg

Temperature: 98^{O} F

RBS: 110mg/dl

Pupils: 3mm equally reacting to light.

On Systemic Examination, cardiovascular, respiratory and per abdominal examination were unremarkable.

CNS: Glasgow Coma Score: E4V5M6, No neck stiffness, Deep Tendon Reflex: Normal

Plantar: Bilateral Flexor

Sample history:

No allergy to any food or medications.

Medication: Tab. Norethisterone Acetate 5mg for PCOS/ AUB since 2 months.

Last dose taken one day prior to ER presentation.

All routine blood investigations, including Complete blood count, liver function test, kidney function test, electrolytes, thyroid function test, HbA1C, FBS, PPBS, Lipid Profile were all within normal limits.

Thrombophilia and Antiphospholipid profile included ANA, Protein C, Protein S, Antithrombin iii were normal too.

Urine routine was normal.

Ultrasound confirmed the diagnosis of Polycystic ovaries.

An MRA scan showed a region of abnormal hyperdensity with diffusion restriction in Left high frontal and parietal sulcus with blooming noted in posterior part of superior sagittal sinus and adjacent cortical veins suggestive of thrombosed venous sinuses. The MRV showed non visualization of Right Transverse, right sigmoid and mid part of superior sagittal sinus suggestive of thrombosis.

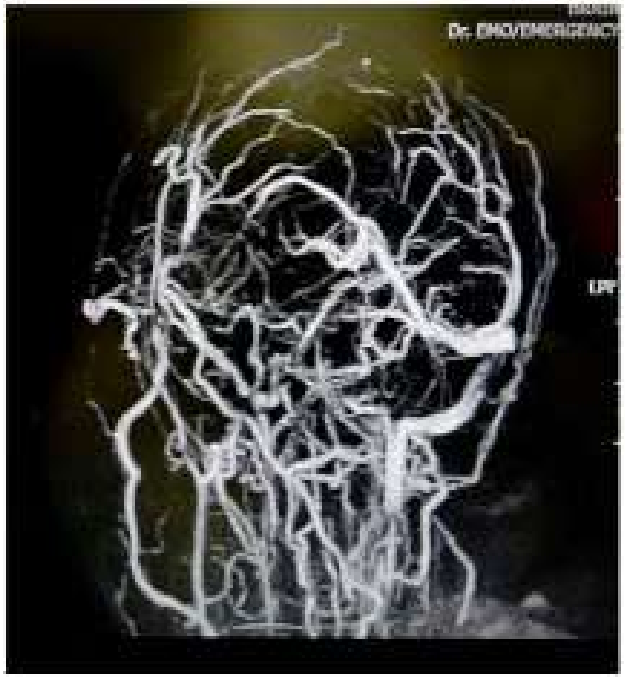

Fig. 1: MRV Brain showing intermittent hypointense foci with non-filling of mid part of Superior Sagital sinus suggestive of thrombosis

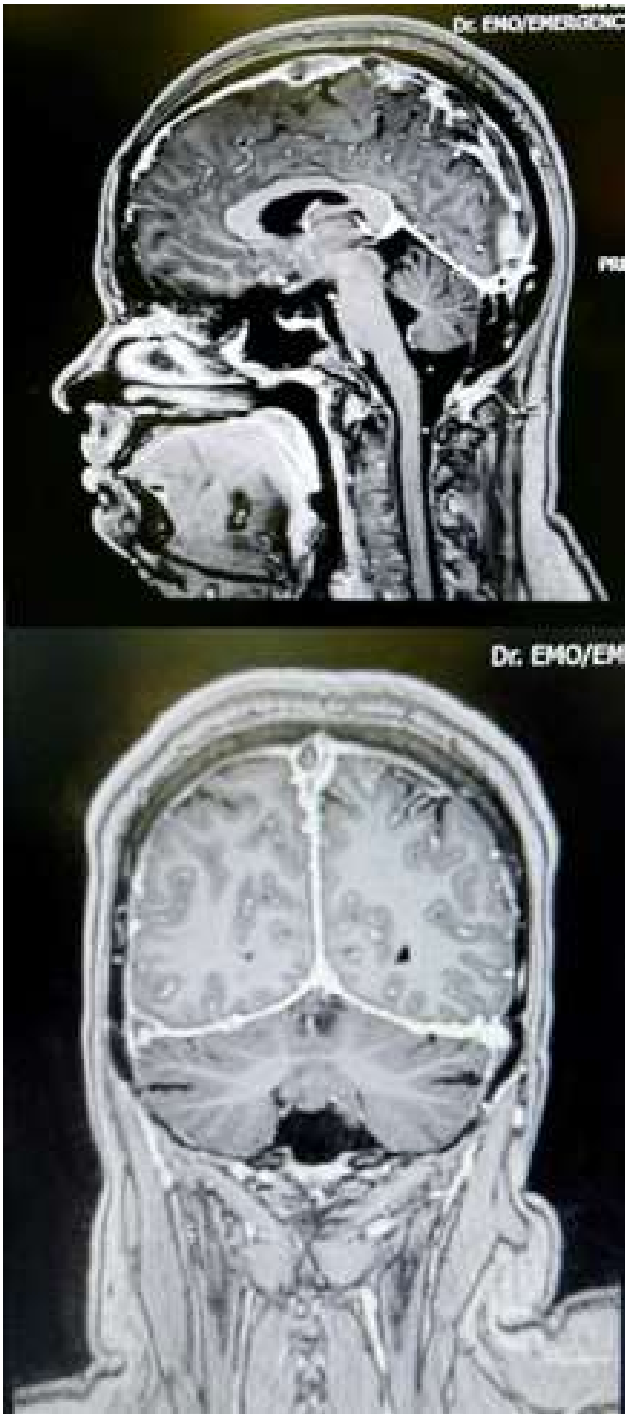

Fig. 2: MRI of Brain with contrast showing Empty Delta sign (equivalent Delta Sign of contrast CT)

A Diagnosis of Norethisterone Acetate induced Cerebral venous sinus thrombosis was considered

Urgent neurological consult was taken. Patient was treated with Low Molecular Weight Heparin (Enoxaparin) followed by NOAC Rivaroxaban on discharge which was continued for 6 months. The headache and vomiting subsided with uneventful recovery while stay in the hospital. She was discharged with oral anticoagulants and multivitamins (Vitamin B12, Vitamin B6, Folic Acid) and she was advised for lifetime avoidance of Norethisterone and other prothrombotic drugs.

On her follow up visit after 1 month at the Neurology OPD, she was completely asymptomatic with no recurrence of headache.

DISCUSSION

Cerebral Venous Sinus Thrombosis can prove to be fatal if not diagnosed and treated on time. Though its presenting complaint is headache but the overwhelming number of patients presenting to ED with headache and CVST being a rare differential makes it a diagnostic challenge. But as in this case, a timely MRA and high index of suspicion not only helped in faster diagnosis but also adequate treatment and uneventful and effective recovery. CVST as a disease is more common among women and mostly in reproductive age groups.[5] In a retrospective cross-sectional study done by Coutinho *et al*, it was revealed that at an overall incidence rate of 1.32 per 100000, it was more common among female patients than male (1.86 vs 0.75) and the common age group of occurrences was 31-50 years with a median age of 41 years. And 52% of the female patients were on oral contraceptives and 18% had a recent antenatal history or current pregnancy.[6]

Though CVST initially presents most commonly with headache, there could be a myriad of clinical symptomatology of CVST nausea, vomiting, seizures, decreased level of consciousness, limb weakness, focal neurological deficit. MRI with venogram remains the gold standard of imaging and anticoagulation remains the mainstay of therapy alongside other methods of recanalization.[7]

Cases of oral contraceptive inducing venous thrombosis were reported as early as 1960s, shortly after COCs were introduced.[8] Association between CVST and COC/POP have since then been studied.[9] Owing to the fact that a large percentage of women of reproductive age group use OCPs, despite of the low incidence of venous thrombosis, the numbers go up to thousands.

CONCLUSION

In a bustling ER with headache being one of the commonest presenting complaints, a sinister etiology of the likes of CVST can easily be missed while ruling out benign causes. But the beauty of

Emergency Medicine lies in the fact that such time ticking diagnoses are often made in the Emergency Room itself leading to timely management and good prognosis. A high index of suspicion is hence the best clinical skill required for such challenging diagnosis. The advent of advanced imaging techniques like CT and MRI proves to be a clinician's best friend and help in timely diagnosis. A careful extraction of SAMPLE history too can guide in narrowing diagnosis as evident in this case.

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