

PREGNANCY RELATED CORTICAL VEINS AND SINUS THROMBOSIS**Dr. Rachna Chaudhary***, Dr.Amit Maheshwari, Dr.Renu Gupta Dr. Deepmala

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Abstract

Background The syndrome of intracranial venous and sinus thrombosis termed as cerebral venous thrombosis (CVT) was recognized in early part of the 18 century when Ribes (1825) described it . By imaging it has been shown that the prevalence of CVT is more common than reported previously and carries a less serious prognosis.(Bianchi D et al,1998)¹

Objectives The syndrome of intracranial venous and sinus thrombosis termed as cerebral venous thrombosis is more common than reported previously and carries a less serious prognosis. It has been estimated that the prevalence rate in developing countries is approximately ten times more than in developed countries.

Material and method The present study is based on our observations in 10 patients of cerebral venous thrombosis over a period of two years. In addition to usual hematological ,biochemical and radiological investigations, contrast enhanced CT(CECT) scans MRI with MRV scanning were done in all patients.

Results The clinical profile usually comprised of a young female , who within 6 – 20 days after delivery presented with symptoms of CVT .Headache was the most frequent and often the earliest symptom and was encountered in 100% of our cases. Superior sagittal sinus was most frequently involved. IV heparin treatment followed by oral anticoagulants for 3 to 6 months results in favorable prognosis.

Introduction

Pregnancy and puerperium have long been recognized as periods of increased susceptibility for cerebral venous thrombosis ; the underlying pathogenic factor being hypercoagulability.(Matinelli et al,1998).² Cortical sinuses most commonly affected include the superior sagittal sinus (72%) and the transverse sinuses (70%). Sometimes both sinuses and cerebral or cerebellar veins are involved.(Nagaraja et al,2000)³

In Indian subcontinent , post puerperal CVT being the commonest , clinical picture usually comprises a young female ,who 7 -10 days after normal delivery presents with severe headache, low grade fever,seizures and neurologic deficit of various magnitude and severity.

Material and method

The present study is based on our observations in 10 patients of cerebral venous thrombosis attending the Department of Medicine and/or Department of Obstetrics & Gynaecology, Medical College, Meerut over a period of two years.

The INCLUSION CRITERIA were young postpartum females presenting within 3 weeks of delivery .The clinical features were suggestive of venous thrombosis (severe headache, fever, unifocal or multifocal seizures ,neurologic deficit of various magnitude and severity). MRI with MRV / CTscan suggestive of sinus thrombosis

Diagnostic criteria

We used the diagnostic criteria given by Nagaraja et al,1999

- Acute onset of headache ,convulsion and /or focal neurological deficit within one month of delivery or abortion.
- Absence of past history of cerebrovascular disease or cardiac disease
- CT scan showing direct signs of CVT or evidence of bilateral infarction not confirming to any known arterial territory and/or bilateral cerebral edema.
- Confirmation of diagnosis by trans –femoral angiogram in doubtful CT lesions.

Neuroimaging modality of choice in CVT is MRI with MR venogram (MRV). CT Scan may be normal in 15 -30 % cases but MRI with MRV is almost 100 % diagnostic.(Wang AM ,1997).10

Basic data pertaining to 9 patients of CVT and 1 patient of puerperal hemorrhage is summarized in Table1

Table 1 Group analysis of 9 cases of CVT and 1 case of Puerperal Hemorrhage

Features	1	2	3	4	5	6	7	8	9	10
Age Sex	22/F	25/F	36/F	35/F	26/F	28/F	20/F	28/F	23/F	22/F
Duration of illness (days)	14	10	21	12	20	7	6	7	6	5

Symptoms

Headache	+	+	+	+	+	+	+	+	+	+
Fever	-	+	-	+	+	-	-	-	-	-
Seizures	-	+	+	+	+	+	-	-	-	-
Neurological deficit	-	-	+	-	-	+	-	-	-	+
Unconsciousness	-	+	-	+	-	-	-	-	-	+
Vomiting	+	+	-	+	-	+	+	+	+	-
Difficulty of vision	+	-	-	-	-	-	+	-	-	-
Delivery of baby prior to illness (days)	10	4	7	2	1	1	9	5	6	5
Cause and Outcome	I	E	I	E	I	I	I	I	I	I

1=IMPROVED

E=EXPIRED

Results

There were 10 patients all females, primigravida in the age group of 20-36 years (mean 26.2 years). The duration of illness varied from 5-21 days (mean 10.8 days) with maximum of patients presenting within one week (1-7 days after puerperium) though it varied from as low as 1 day to as long as 15 days (mean 5.1 days). All the patients had headache of which 7 had associated vomiting and 2 patients had papilledema. Five patients (50%) had seizures. Three patients presented in unconscious form out of which two (20%) patient expired. One patient turned out to be a case of pontine bleed and improved on conservative treatment. Brain MRI with MRV was positive in 8 patients which showed poor signal intensity in the concerned sinus.

In our study superior sagittal and transverse sinus was most frequently involved. There was no involvement of straight sinus seen.

Discussion

We diagnosed the patients after detailed history, clinical examination and investigations. The clinical profile usually comprised of a young female, who within 6-20 days after delivery presented with symptoms of CVT. Puerperal CVT is reported to be responsible for around 20-25% of maternal deaths in India.

Observations of puerperal patients in India showed that levels of fibrinogen, platelet adhesive index, platelet adhesive number, levels of serum triglyceride, phospholipids, fatty acids were significantly higher in cases of thrombosis than in normal pregnancy and puerperium. In addition there can be precipitating factors like malnutrition, dehydration, infections, antithrombin III deficiency, antiphospholipid syndrome 2 (Huges et al, 1993)⁴, factor V, and factor II gene mutation may play a role in causation of CVT. Significantly increased risk was associated with caesarean delivery, increased maternal age and the presence of several comorbid conditions including hyperemesis, intercurrent infections and maternal hypertension.

To understand the symptoms and signs of sinus thrombosis, two different mechanisms should be distinguished: thrombosis of cerebral veins, with local effects caused by venous obstruction and thrombosis of the major sinuses, which causes intracranial hypertension. In the majority of patients, these two processes occur simultaneously. In Indian subcontinent, postpuerperal CVT being the commonest, clinical picture usually comprises a young female, who 7-10 days after normal delivery, presents with severe headache which can vary from 75%-90% (Mehta et al 2002)⁵, low grade fever, unifocal or multifocal seizures and neurologic deficit of various magnitude and severity. As arachnoid villi are likely to get blocked due to thrombus developing especially in the posterior segment, papilledema occurs in 40% cases. Sometimes patient may present with severe headache and papilledema without any neurologic deficit simulating a brain tumour pseudo tumor cerebri. (Valerie et al, 1996)⁶

Focal neurological deficit can vary from 43% to 47% (Dutch European study 2001; Mehta et al, 2002)⁷ which comprises hemiparesis usually with facial sparing. Lower limb is severely affected than upper limb. (Wilterdink et al. 1994)⁸ In some cases cortical veins of both sides may be involved resulting in paraparesis or paraplegia (Prakash et al, 1971)⁹. Cortical defects like aphasia, agnosia, apraxia and cortical blindness are not uncommon but are fleeting in nature.

Treatment

Anticoagulation is the cornerstone of treatment in CVT. It is only withheld in patients with septic thrombophlebitis and in large hemorrhagic venous infarcts with significant mass effect. Heparin and low molecular weight heparin have been found to be equally effective. (Einhaupt et al 1998)¹¹ Oral anticoagulants should be overlapped with heparin and the latter discontinued once therapeutic INR of 2-3 is achieved. Oral anticoagulants should be continued for at least 3 to 6 months if no underlying procoagulant state is found or life long if there is an irreversible pro coagulant state.

Early diagnosis, MRI with MRV imaging studies and early institution of therapy especially heparin or thrombolytic therapy followed by oral anticoagulants improved the prognosis of CVT. Factors adversely affecting prognosis are early appearance of the convulsion-paralytic state, impairment of consciousness, and presence of hemorrhagic

infarcts demonstrated by CT or MRI. Usually recovery is either complete or associated with minimal neurological deficit because of recanalisation and dissolution of thrombus.

To conclude, a high index of clinical suspicion is needed to diagnose this uncommon condition so that appropriate treatment can be initiated

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