



TO STUDY THE CLINICAL PROFILE OF CEREBRAL VENOUS THROMBOSIS WITH REFERENCE TO COAGULATION PROFILE & PROGNOSTIC FACTORS

General Medicine

Dr. Mohd Saud Shaikh* Post Graduate Resident, Department of Medicine, LTMMC, Sion, Mumbai.
*Corresponding Author

Dr. Naman Tulshan Post Graduate Resident, Department of Medicine, LTMMC, SION, MUMBAI.

Dr. Swati Chavan Professor and HOU, Department of Medicine, LTMMC, SION, MUMBAI.

Dr. Rupal N. Padhiyar Associate Professor, Department of medicine, LTMMC, SION, MUMBAI.

Dr. Dharendra Yadav Assistant Professor, Department of medicine, LTMMC, SION, MUMBAI.

Dr Manish Dhadke Senior Resident, Department of Medicine, LTMMC, SION.

ABSTRACT

Introduction: Cerebral venous thrombosis (CVT) is a rare cerebrovascular disease which accounts for 0.5% of all strokes. Risk factors for CVT include cancer, obesity, genetic thrombophilia, trauma, infection, and prior neurosurgery. Most common acquired risk factors for CVT are oral contraceptive use and pregnancy. A meta-analysis of studies found that heparin was safer and more efficacious in treating CVT compared with placebo.⁵ **Aims and objectives:** To study clinical features, correlation of coagulation profile and prognostic factors of CVT. **Methodology:** A Prospective cross-sectional observational study was conducted on 50 cases of CVT more than 14 years of age admitted in the tertiary teaching hospital. **Results:** Puerperal cause was reported among 44% study subjects, headache(42%) was commonest presenting complain followed by altered sensorium(32%), motor deficit(26%), seizure(24%). **Conclusion:** Most common etiological factor was puerperium and most common Thrombophilic state was systemic lupus erythematosus. In hospital mortality rate is low

KEYWORDS

Cerebral venous thrombosis (CVT), Puerperal, headache

INTRODUCTION

Cerebral venous thrombosis (CVT) is a rare cerebrovascular disease that affects about 5 in 1 million people each year and accounts for 0.5% of all strokes¹ Although local and systemic infections are still prominent risk factors in its development, CVT is now primarily recognized as a nonseptic disease with a wide spectrum of clinical presentations.

Cerebral venous thrombosis causes reduced outflow of blood and cerebrospinal fluid, which in half of affected patients leads to significant venous infarct. As opposed to arterial infarctions, CVT mainly affects children and young adults; it is an important cause of stroke in the younger population.² There is significant overlap of the many risk factors for CVT and those for venous thromboembolism (VTE): cancer, obesity, genetic thrombophilia, trauma, infection, and prior neurosurgery. However, the most common acquired risk factors for CVT are oral contraceptive use and pregnancy, which explains why CVT is 3 times more likely to occur in young and middle-aged women³

A meta-analysis of studies found that heparin was safer and more efficacious in treating CVT compared with placebo.⁵ Furthermore, several small randomized trials found treatment with unfractionated heparin (UFH) or low molecular-weight heparin (LMWH) was not associated with higher risk of haemorrhagic stroke in these patients.⁶⁻⁸ Despite improvements in imaging modalities, in many cases diagnosis is delayed, as most patients with CVT have a wide spectrum of presentations with nonspecific symptoms, such as headache, seizure, focal sensorimotor deficits, and papilledema.⁹

Cavernous sinus thrombosis most commonly produces generalized headaches, orbital pain, proptosis, and diplopia, whereas cortical vein thrombosis often produces seizures and focal sensorimotor deficits. Aphasia may be present in patients with isolated left transverse sinus thrombosis. In the presence of deep cerebral venous occlusion, patients can present in coma or with severe cognitive deficits and widespread paresis.¹⁰ According to the literature, noncontrast CT is not sensitive (25%–56%) in detecting CVT, and findings are normal in up to 26% of patients, rarely providing a specific diagnosis. Furthermore, visualization on MRI can be difficult during the acute phase of CVT, as the thrombus initially appears isointense on T1-weighted images and gradually becomes hyperintense over the course of the disease process. These difficulties with the usual first-choice imaging examinations often result in a delay in diagnosing CVT.¹⁰

AIMS AND OBJECTIVE

- To study clinical features of Cerebral Venous Thrombosis
- To study the correlation of coagulation profile with CVT.
- To study the prognostic factors and determine the outcome of the treatment given.

Methodology:

The present prospective observational study included 50 cases of CVST which were admitted to the Department of Internal Medicine, Tertiary Care Centre, India spanned over a period of 18 months.

Inclusion Criteria:

- Age > 14 yr
- Clinically & Radiologically confirmed cases.
- PNC Females

Exclusion Criteria:

- ANC Females
- Coagulopathy due to DM

All the patients underwent computerised tomography (CT) scan or magnetic resonance imaging (MRI) of the brain and were reviewed by trained radiologists. The diagnosis was based on established radiological criteria. Demographical, clinical, laboratory, and radiological data were recorded. The functional status was recorded on a modified Rankin scale (mRS) at admission and on 12 weeks follow up and the outcome was dichotomized as good (score of 0–2) or poor (score ≥3).

Statistical Analysis:

Data entry and data analysis carried out using MS Excel and epi info version 7. Frequency distribution, measure central tendency and variability along with correlation coefficient and coefficient of variation were calculated.

RESULTS:

Table 1: Clinical Presentation

Clinical presentation	Number of subjects	Percentage
Altered sensorium	16	32
Headache	21	42
Motor deficit	13	26

Seizure	12	24
Delirium	4	8

Table 2: Etiology

Etiology	Number of subjects	Percentage
Puerperal	22	44
Dehydration	6	12
OCP	4	8
SLE	3	6
Antithrombin 3 deficiency	2	4
APLA	2	4
Hyperhomocysteinemia	2	4
Factor V Leiden mutation	1	2
Protein C deficiency	1	2
Protein S	1	2
No	6	12

Table 3: CT Brain

CT Brain findings	Number of subjects	Percentage
Normal study	15	30
Non hemorrhagic infarct	8	16
SAH	8	16
Hemorrhagic infarct	27	54
Cerebral edema	16	32

Table 4: Modified Rankin Scale

Modified Rankin scale	on admission		On follow up	
	Number of subjects	Percentage	Number of subjects	Percentage
0	21	42	37	74
1	9	18	8	16
2	8	16	2	4
3	7	14	2	4
4	3	6	1	2
5	2	4	0	0
Total	50	100	50	100

DISCUSSION

Cerebral sinus venous thrombosis is a multifactorial condition with gender-related specific causes, with a wide clinical presentation, the leading causes differ between developed and developing countries, converting CSVT in a condition characterized by a highly variable clinical spectra, difficult diagnosis, variable etiologies and prognosis that requires fine medical skills and a high suspicious index. Majority of the study subjects had age group 41 to 50 years (42%), followed by 31 to 40 years. Majority of the study subjects were females (56%), and 44% were males.

In the present study we assessed Duration of symptoms among the study subjects. We observed Acute symptoms among 26% study subjects, Subacute Acute symptoms among 58% study subjects, Chronic Acute symptoms among 16% study subjects.

We observed Altered sensorium among 32% study subjects, Headache among 42% study subjects, Motor deficit among 26% study subjects, Seizure among 24% study subjects, Delirium among 8% study subjects. Generalised seizures were reported among 66.66% study subjects, Focal seizures were reported among 25% study subjects, Status epilepticus was reported among 8.33% study subjects.

We observed that papilledema was noted among 48% study subjects, Motor deficit was noted among 26% study subjects, Cranial nerve palsy was noted among 24% study subjects, Stupor was noted among 16% study subjects, Coma was noted among 4% study subjects. CN III palsy was reported among 2% study subjects, CN V palsy was reported among 2% study subjects, CN VI palsy was reported among 8% study subjects, CN VII palsy was reported among 12% study subjects. Hyperhomocysteinemia was reported among 4% study subjects, Factor V Leiden mutation was reported among 2% study subjects, Protein C deficiency was reported among 2% study subjects, Protein S deficiency was reported among 2% study subjects. In the present study we assessed Aetiology among the study subjects. We observed that Puerperal cause was reported among 44% study subjects, Dehydration was reported among 12% study subjects, OCP was reported among 8% study subjects, SLE was reported among 6% study subjects, Antithrombin 3 deficiency was reported among 4% study subjects, APLA was reported among 4% study subjects, In the present study we assessed CT Brain findings among the study subjects. We observed

that Non-haemorrhagic infarct was noted among 16% study subjects, SAH was noted among 16% study subjects, Haemorrhagic infarct was noted among 54% study subjects, Cerebral edema was noted among 32% study subjects.

SSS sinus was involved among 42% study subjects, Transverse sinus was involved among 26% study subjects, SSS & Transverse sinus was involved among 16% study subjects, Sigmoid sinus was involved among 10% study subjects, Straight sinus was involved among 6% study subjects.

LMWH was given among 50% and UFH was administered among 50% study subjects. Dabigatran was administered among 4% and Nicoumalone was administered among 96% study subjects.

We observed that mean Duration of Hospital Stay was 12.22 ± 3.97 days. We observed mortality among 8% study subjects, while 92% were discharged. In the present study we assessed Modified Rankin scale readings among the study subjects. We observed that on admission 10% subjects had score more than 4, whereas on follow up the score improved, and only 2% the MRS score more than 4.

CONCLUSION:

Females were more affected than male, most common presenting symptom was headache followed by altered sensorium. CT-scan of brain could be normal, which was the case in 30% of our patients who later underwent MR- Venography of the brain, in view of high clinical suspicion, which confirmed the diagnosis. Most common etiological factor in our study was the puerperium and the most common thrombophilic state causing CVST in our study was SLE (Systemic Lupus Erythematosus). Patients were treated with intravenous heparin (unfractionated heparin/ LMWH) followed by an oral anticoagulant (nicoumalone/DOAC). Prognosis is good as in-hospital mortality is low as opposed to discharge rate and Modified Rankin Scale score improves on follow up.

Conflict Of Interest

The Authors have no conflicts of interest that are directly relevant to the content of this clinic-pathological case.

Financial Resources

There are no financial resources to fund this study.

Informed Consent

Informed Consent was obtained from the patient.

Author's Contribution

All the authors contributed equally to the case report.

Data And Materials Availability

All data associated with this study done at LTMMC, SION hospital are present in the paper

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