



## STUDY OF CEREBRAL VENOUS THROMBOSIS IN MALES

## Neurology

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## ABSTRACT

**BACKGROUND:** Cerebral venous thrombosis (CVT), is the thrombosis of the intracranial veins or dural sinuses. It is a relatively rare disorder, affecting about 5 persons per million per year with huge regional variations. It accounts less than 1% of all strokes. It has differential geographic distribution with a higher incidence in the Asian countries. In contrast to arterial stroke, thrombosis of the cerebral venous sinuses and the cerebral cortical veins most often affects children and young adults. **Aim:** To study the etiological risk factors in pathogenesis of cerebral venous thrombosis and the varied clinical presentation in males in a tertiary care hospital for a period of one year. **Methods:** Patients with CVT confirmed by imaging studies enrolled in the Dept. Of Neurology from June 2023 to May 2024 were included in this study. **Results:** The mean age of the patients were 35 years. Headache was seen in all of the patients Smoking and alcohol were present in 82% of the individuals, Seizures were present in 80% of the patients, both generalized and focal seizures were noticed. The most common sinus involved is the superior sagittal sinus 43(72%) out of 60 patients in the study, Two patients died, 8 patients had persistent neurological deficit, rest improved (50=83%). patients had stroke related complications like sepsis, aspiration pneumonitis, deep vein thrombosis and 5 (5.7%) patients died during this study. **Conclusions:** CVT presents with a wide spectrum of symptoms and signs. Smoking and alcoholism are the major risk factors according to this study. Majority of the patients did well. Less than 1/5th of patients had poor outcomes in the form of deficits or mortality. **Keywords:** Intravenous thrombolysis, tissue plasminogen activator(TPA), acute ischemic stroke and The National Institutes of Health Stroke Scale (NIHSS)

## KEYWORDS

Cerebral Venous Thrombosis, Headache, Stroke

## INTRODUCTION

Cerebral venous thrombosis (CVT), is the thrombosis of the intracranial veins or dural sinuses. It is a relatively rare disorder, affecting about 5 persons per million per year with huge regional variations. It accounts for less than 1% of all strokes. It has differential geographic distribution with a higher incidence in the Asian countries. In contrast to arterial stroke, thrombosis of the cerebral venous sinuses and the cerebral cortical veins most often affects children and young adults. Its presentation is highly variable, etiological factors are diverse and more heterogeneous making cerebral cortical venous thrombosis (CVT) a distinctively unique entity.

## METHODS

Patients with CVT confirmed by imaging studies enrolled in the Dept. Of Neurology from Dec 2015 to Dec 2016 were included in this study. During the period of admission, patients were evaluated with demographic profile, detailed history with special importance to risk factors like smoking, alcohol consumption including binge alcohol intake prior to onset of symptoms, substance abuse and clinical examination for various neurological presentations. These patients were evaluated with complete blood count and other blood investigations that are implicated in the pathogenesis of CVT.

## Study Population:

The study population includes male patients who were admitted with CT/MRI/MRV (brain) finding of Cerebral Venous Thrombosis in the Department of Neurology, Government Stanley Hospital, and Chennai.

## Inclusion Criteria:

Patients included in this study were all adult male patients with features of CVT confirmed by CT/MRI/brain

## Exclusion Criteria :

1. All female patients with CVT.
2. All cases of CVT due to Trauma and neoplastic diseases.
3. Children less than 13 years. Informed written consent was obtained

for all patients

## Statistical Analysis

Data was analyzed using SPSS 17.0 Software. Mean for the values were calculated. Variables were compared using Chi-square test a  $p < 0.05$  was considered Statistically Significant.

## RESULTS:

Headache was the most common clinical manifestation noted in our patients. All of our patients (100%) presented with headache Papilledema was present in 80% of the patients. Diplopia was present in 37% of patients. This was due to either lateral rectus weakness due to raised ICT or due to involvement of multiple cranial nerves in cavernous sinus. Seizures were present in 80% of the patients.

Focal motor deficits in the form of hemiparesis or monoparesis was present in 47% of the patients, most of them recovered following treatment, 15% had a residual weakness. Aphasia was one of the presenting feature in 13% of the patients. Motor aphasia was the most common form noticed.

TABLE 1

Clinical Manifestations	No. of Patients	%
Headache	60	100%
Papilledema	24	40%

Seizures 48 80%

Cranial Nerve Involvement 22 37%

Motor Deficit 28 47%

Aphasia 8 13%

## LAB PARAMETERS:

ANA was positive in 17% of our patients. Anti Thrombin III was positive in 2% of our patients. Protein C and Protein S deficiency was not present in our study. Lupus anticoagulant was present in 2% of our patients. Anticardiolipin antibody was present in 5% of our patients. Serum Homocysteine levels were elevated in 55% of our patients.

**Table 2: Lab Parameters**

Parameters	Negative		Positive		Total
	n	%	n	%	
	ANA	50	83%	10	
LA	59	98%	1	2%	60
Anti Cardiolipin	57	95%	3	5%	60
Protein C	60	100%	0	0%	60
Protein S	60	100%	0	0%	60
Antithrombin III	58	97%	1	2%	60

Most common sinus involved is superior sagittal sinus 43 (72%) patients, presented either alone or in combination. Out of the 43, 18 SSS involvement alone. 13 had associated transverse sinus involvement also. One patient had involvement of SSS and Sigmoid sinus involvement. Deep vein thrombosis along with SSS was noticed in 2 patients. SSS with TS with SG involvement occurred in 5 patients.

**Table 3: Incidence Of Sinus Involvement**

Parameters	SSS	TS	SG	HE	DEEP	CAV
N	43	26	16	18	9	2
%	72%	42%	23%	30%	15%	3%

## DISCUSSION

Headache and seizures have been the most common manifestation of CVT and in its comparison to previous studies in literature. ANA was positive in 17% of our patients. In other studies, ANA WAS POSITIVE IN 7% of patients in the study by Abdul Kader et al.81, 5% in S.Kumaravelu et al.85,4% in Wasay et al.86.

Anti Thrombin III was positive in 2% of our patients. In the study by Wasay et al.86, it was positive in 1% of his patients. Protein C and Protein S deficiency was not present in our study. Lupus anticoagulant was present in 2% of our patients. Anticardiolipin antibody was present in 5% of our patients. Serum Homocysteine levels were elevated in 55% of our patients. In other studies, it was not so much elevated.

All of our patients were subjected to MRI brain with MRV, MRA, DWI and ADC mapping and gradient echo sequences. The anatomical localization of the sinus involvement is as follows:

The superior sagittal sinus (SSS) was involved along with other sinus in 43 (72%) patients.

SSS was involved alone in 28 patients (46%). SSS was involved along with transverse sinus (TS) in 13 patients (21.6%). SSS was associated with TS and sigmoid sinus (SG) in 6 patients (10%). SSS is present with deep vein thrombosis in 8 (13.33%) SSS was associated with hemorrhage/ hemorrhage infarct in 11 patients (18.3%). Transverse sinus (TS) involvement is present in 26 patients (43.3%) together along with other sinus involvement. Isolated TS thrombosis is present in 4 patients (6.6%). TS is associated with deep venous sinus thrombosis in 3(5%) patients.

Mastoiditis is present in 6 patients (10%). All patients with mastoiditis have associated transverse sinus thrombosis. Sigmoid sinus involvement is present alone in only one patient.

TS+SSS+SG is present in 5 patients. SG thrombosis is present with IJV thrombosis in one patient with metastatic lesion in the jugular foramen.

Cavernous sinus thrombosis is present in 2 of our patients (3.3%) one

patient was associated with sinusitis and in other patient sinusitis could not be documented. But in the second patient hyperhomocysteinemia was a risk factor. Deep vein thrombosis is present in 9 (15%) of patients Hemorrhage is present in a total of 18 (30%) of patients. SAH is not a common manifestation in CVT.

Out of 60 patients in the study, 2 patients died, 8 patients had persistent neurological deficit. The rest improved (50=83%).

From the results obtained in this study, alcoholism, which is very much common in this part of Chennai, seems to be cause for the higher incidence of CVT in males.

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Nil.

## Conflicts Of Interest

There are no conflicts of interest.

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