

Case Series

A case series of clinical profile in patients with cerebral venous thrombosis

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ABSTRACT

Thrombosis of the venous system in the brain is a cause of cerebral infarction, second only to arterial disease, but is associated with high levels of morbidity and mortality. The clinical picture of cerebral venous thrombosis is highly variable and often presents a source of confusion to physicians. This study aimed to establish the clinical picture of cerebral venous thrombosis in patients in a tertiary healthcare center. We collected and analysed the case records of 23 patients with CVT. The most predominant presenting complaint was headache (47.8%) followed by vomiting (26%). The most common site of involvement was found to be the superior sagittal sinus (34.8%). Multiple sites of involvement were more common than a single site.

Keywords: Cerebral venous thrombosis, Clinical picture, Cerebral infarct

INTRODUCTION

Thrombosis of the venous system in the brain is a cause of cerebral infarction, second only to arterial disease, but is associated with high levels of morbidity and mortality. The clinical picture of cerebral venous thrombosis is highly variable and often presents a source of confusion to physicians. Being a rare but important cause of stroke especially in young adults, all neurologists need to be able to recognize it to treat it at an earlier stage, when the prognosis is relatively good.¹

Current mainstay of treatment includes prompt anticoagulation. Failure of response to this warrants the use of endovascular procedures to restore circulation. Also of importance is the fact that CVT is more often seen in women of child-bearing age and is associated with pregnancy, puerperium and the use of estrogen containing contraceptives. Other risk factors include infections, head injury, inflammation and malignancies.² The clinical presentation depends on the cerebral venous sinus

affected, the most common being the superior sagittal sinus. This presents as a combination of headache, focal neurological defects, paralysis and seizures. The presentation may also involve altered mental status, coma, mastoid pain, gaze palsy, visual impairment, etc. Owing to associated confusions, it becomes essential to understand the array of clinical pictures that could arise with this condition.

CASE SERIES

The present study is a retrospective study conducted in a tertiary care hospital for 3 years. The case sheets and treatment charts of all the patients who were hospitalized with cerebral venous thrombosis were reviewed. All data were analyzed anonymously. The following details were collected from each patient: age, sex, presenting complaints, comorbidities, OCP use, smoking and alcohol use and natal status if female. The following lab investigations were done for all patients included in the study: ESR, CRP, PCV, d-dimer, PT, INR, aPTT,

peripheral smear, APLA and ANA. A total of 23 patients were included in the study of which 39.1% were female. Of these patients the predominant presenting complaint was headache with 47.8% reporting to have had some form of headache as a complaint. This was followed by vomiting which occurred in 26% of patients. Facial palsy and limb weakness were the least commonly reported complaint, with 4% reporting each. Among females, headache still remained the most common presenting complaint (55.5%). Nearly 52% had only one presenting complaint, while the remaining reported a combination of two or more symptoms, the most common being seizures with hemiparesis followed by headache and vomiting with or without febrile episodes.

8% of patients were alcohol users and 8% were smokers. 44.4% females reported to be using OCPs. 43.4% (n=10) had co-morbidities, the most common being hypertension (90%) (Figure 1). The most common site of involvement was the superior sagittal sinus (34.8%). This was followed by the transverse sinus (26.1%) which included either the right/left/bilateral transverse sinuses (Figure 2). It is important to note that most patients had multiple sites of involvement including the SSS, confluence, transverse sinus, dural sinuses and the sigmoid sinus. Of all 23 patients, 17.4% (n=4) underwent recanalization procedures. 17.4% (n=4) were positive for SARS CoV2 Ag testing and 21.7% (n=5) had developed papilledema at the time of examination. Of the 9 females, 33.3% were in their puerperal period.

A total 13% of the patients were ANA positive with one being strongly positive (Figure 3).

Table 1: Presenting complaints in patients with CVT.

Presenting complaints	Percentage (n)
Headache	47.8 (11)
Vomiting	26 (6)
Fever	17.4(4)
Facial palsy	4 (1)
Seizure	26 (6)
Hemiparesis	26 (6)
Limb weakness	4 (1)

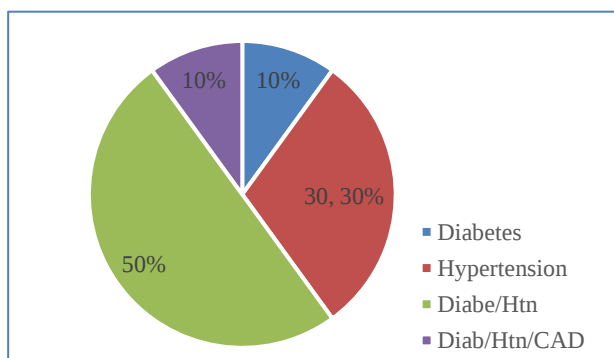


Figure 1: Proportions of comorbidities among CVT patients.

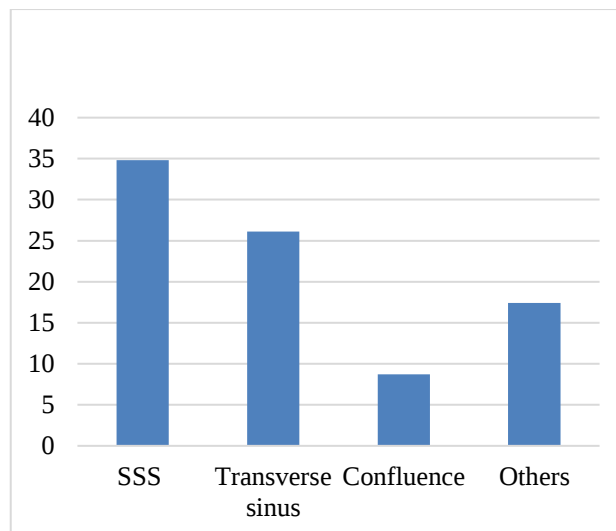


Figure 2: Site of involvement.

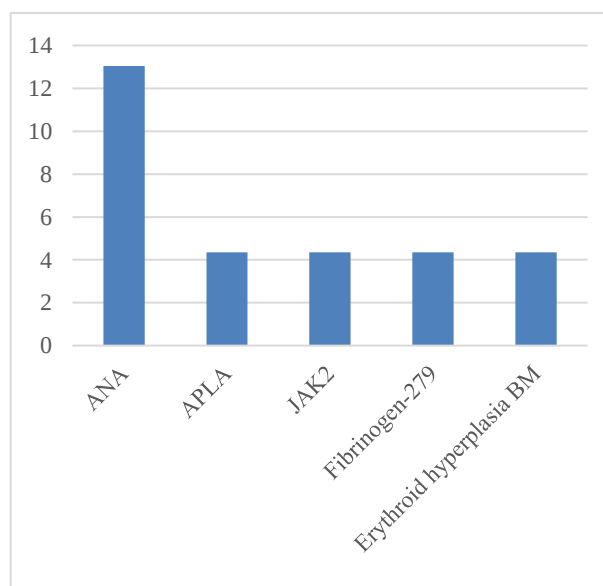


Figure 3: Special investigations in CVT patients.

DISCUSSION

CVT is a condition of paramount importance because if detected early, the prognosis is good. However, the wide range of confusing clinical symptomatology complicates its diagnosis, and in this study, we have attempted to describe this variability. CVT accounts for 10-20% of strokes in young adults in India and 0.5-1% of all strokes.³ The etiology is multifactorial and is three times more common in women of child-bearing age group. This is owed to the transient prothrombotic state in pregnancy and puerperium.⁴

According to our study, males were more commonly affected by CVT than females. The mean age of all patients was 41.95 years which seems to acknowledge the increased prevalence in relatively younger patients.

The most common presenting complaint was headache in accordance with a study by Wassay et al.⁵ This can be explained by the fact that venous occlusion would lead to secondary raised intracranial pressure resulting in headaches. This would also explain vomiting episodes, which was the second most common presenting complaint according to our study. We also found that the superior sagittal sinus was the most common site involved, which could also explain the predominance of headache and vomiting as complaints. Features of focal neurological deficit were also found presenting as right/left hemiparesis, which was most commonly associated with seizure episodes.⁶ These sites of involvement were confirmed with an MRI/MRV as per standard guidelines.⁷ Patients with CVT require urgent neuroimaging with CT or MRI/MRV. Though there are no exclusive laboratory tests to confirm CVT, there are some accessory tests that can be done to identify the etiopathogenesis once the diagnosis has been established. These include tests for autoantibodies and a thorough coagulation work-up.⁸

The current first line of treatment for CVT is anticoagulation, the preferred anticoagulant is low molecular weight heparin given in two divided doses as per the ESO guidelines.⁹ Initial anticoagulation is followed by an attempt to prevent future thrombosis as the risk of recurrence of CVT is around 2-7% per year. The target INR for this purpose is said to be 2.0-3.0. Direct oral anticoagulants are ideal for this purpose. However, the optimal duration of anticoagulant therapy is still uncertain.^{10,11}

Our study addresses the need for caution and vigilance in diagnosing CVT, owing to its variable clinical picture.¹² However, the limitation of our study include the smaller sample size and non-availability of certain data, which open up areas for future research.

CONCLUSION

Our study has described the clinical picture of CVT with focus on the presenting symptoms and laboratory investigations. Since this is a simple condition with complex features, it is advisable that treating physicians practice utmost caution when ruling out CVT, taking into account all possible etiologies, so the patient is treated at an earlier stage when the prognosis is good.

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