

ORIGINAL ARTICLE

A review analysis on Awareness of Cavernous Sinus ThrombosisZEESHAN YOUSAF¹, MUHAMMAD UMAIR ASIF², TUSNEEM HAIDER³, HINA ANWER⁴, SAMAN FATIMA⁵¹Lahore Medical and Dental College²Aziz Fatimah Medical and Dental College³Azra Naheed Medical College⁴King Edward Medical University⁵Bakhtawar amin medical and dental collegeCorrespondence to: Zeeshan Yousaf, Email: mb1735484@gmail.com**ABSTRACT**

Cerebral venous thrombosis (CVT) frequently goes unnoticed in individuals with acute or slow-progressing neurological deficits. It was first discovered through autopsy more than a century ago, and as a result, it was always considered to be lethal. In contrast to arterial thrombosis, cardiovascular thrombosis (CVT) is less common, but if left untreated, it can have disastrous consequences or even be deadly. The primary goal of this review research is to determine how much the public is aware of cavernous sinus thrombosis (CST). From June 2020 to November 2020, the Lahore Medical and Dental College carried out this study. Google Scholar, PubMed, and the Web of Science were used to acquire the information. All the information was gathered to learn more about how CST manifests in patients. The data was gathered and fully analysed possible. Chemosis, proptosis, and severe ophthalmoplegia are all hallmarks of classic acute instances of cavernous sinus thrombosis. These symptoms might be unilateral at first but can progressively become bilateral. It has been established that early detection of CST necessitates the careful speculation of an experienced and goal-oriented clinical practitioner.

Keywords: Patients, CST, CVT, Pain, Acute.**INTRODUCTION**

It's easy to miss people who have CVST because of how many ways they might present with the condition in the first stages. Ninety percent of patients just have a migraine-like headache, leaving them open to a wrong diagnosis. The patient's condition may deteriorate and make treatment more difficult because of the delay in diagnosis [1, 2]. Cerebral venous thrombosis frequently goes unnoticed in individuals with acute or slow-progressing neurological deficits (CVT). It was first discovered through autopsy more than a century ago, and as a result, it was always considered to be lethal. While CVT is less common than arterial thrombosis, it can have disastrous consequences or even be deadly in the event of a delayed diagnosis or treatment [2]. Patients with cerebral venous sinus thrombosis (CVST) might present in a variety of ways in the early stages of the disease; 90% of them may just have a migraine-like headache, putting them open to misdiagnosis. The longer it takes to diagnose and treat a patient, the more likely it is that their health will deteriorate [3].

Vasospasm is the most prevalent cause of CVT, which is characterised by thrombosis of the cerebral veins as the primary pathophysiology. The superficial cerebral venous system includes the cortical veins, anastomotic veins, and the superficial middle cerebral vein. The superior sagittal sinus, the transverse sinus (Labbe), and the cavernous sinus each drain into the cortical and Trolard sinuses, with the latter draining into the brain stem. Three major venous drainage systems, including the Rosenthal vein, Galen's vein and the trans cerebral venous system, are responsible for this. The Rosenthal's vein, Galen's vein, and trans cerebral venous system comprise the inferior sagittal sinus and straight sinus.

A thrombus in the cerebral or cortical veins may impede major draining veins if it expands to the point of occlusion. As a result, the venous system experiences physiological back pressure, which can lead to cerebral oedema, infarction, or haemorrhage. Dural sinus

thromboses have been hypothesised to impede cerebrospinal fluid absorption, therefore increasing intracranial pressure [5]. (ICP). Pre-mortem diagnosis of CVT is becoming the norm, because to advances in neuroimaging technology and increased medical skill. The goal of CVT therapy is to recognise and prevent thrombus development and its detrimental consequences as early as possible [6]. There has been some heterogeneity in the treatment of CVT in the United Kingdom, however current best practises and guidelines must be followed. As many as 80% of patients will be able to return to their pre-injury condition. One-third (33%) had a negative outcome, such as death or a severe disability [7].

Objectives: The main objective of this review study is to analyse the awareness of cavernous sinus thrombosis (CST).

MATERIAL AND METHODS

The research for this study was conducted by the Lahore Medical and Dental College between June and November of 2020. In addition to Google Scholar and PubMed, we also consulted Web of Science and Google Scholar. CST's clinical manifestations have been thoroughly documented. All the data was obtained and analysed carefully.

Pathogenesis of CST: Chemosis, proptosis, and severe ophthalmoplegia are all symptoms of cavernous sinus thrombosis, which is initially unilateral but frequently turns bilateral in classic acute cases. A significant mortality rate is also connected to cavernous sinus thrombosis (CST). Many significant outcomes have been recorded, including aneurysms in the extracavernous portion of the internal carotid arteries (associated with mycotic aneurysms in one case). On the other hand, a severe case of cavernous sinus thrombosis is rare. Patients may have a solitary abducens nerve palsy with relatively minor chemosis and proptosis, which is difficult to identify. This disease can also manifest slowly (either spontaneously or due to the masking effect of an inadequate antibiotic regimen).

The superior sagittal sinus, lateral (transverse and sigmoid) and cavernous sinuses are the most impacted, whereas the straight sinus and Galen's vein are less usually affected. The thrombus in the bigger sinuses may have dissipated by the time the patient seeks medical assistance, or the thrombus in the smaller cortical veins may be the predominant cause. This is one of the reasons why CT and MRI scans might misdiagnose. Extrinsic compression and/or thrombus in these veins cause occlusion of venous sinuses and cortical veins [9].

Risk factors of CST: Congestion in the veins around the cavernous sinus, as well as cranial nerve dysfunction, is the most common clinical reason. A debilitating headache is the most prevalent symptom. The ophthalmic and maxillary branches of the trigeminal nerve innervate most of the head, therefore it is not uncommon for a headache to start out mild and gradually worsen [10]. A sinus infection or a midface infection, such as a furuncle, are both possible. Not everyone has periorbital edema in the first stages. In cases when therapy is ineffective, symptoms begin in the opposite eye and spread to the cavernous sinus through the veins that link the two. The inter cavernous sinuses, which are positioned between the iris and the pupil, allow the enlargement of one eye to spread to the other within 24 to 48 hours [11].

An acronym known as CVT is used to refer to any clot that develops within the cerebral venous system. As opposed to superficial and Dural venous sinuses, deep venous sinuses are distinct. CVST is one of the rarest types of VTE. Approximately 0.5 to 3% of all strokes are the result of this. Thrombosis can be found in the sigmoid and transverse sinuses in 90% of these stroke cases. It was formerly thought to affect 2 to 5 persons out of every million people each year. The incidence, on the other hand, is much higher, with 13 cases per million persons per year [3]. With an estimated incidence of 3 to 4 per million in adults and 7 per million in children, it is more common in young individuals than in older people. CVST is more prevalent in women than in men, with a female to male ratio of 3:1 among those who have undergone CVST. CVST patients are overwhelmingly female (75% of all patients are female).

Treatment of CST: Septic CST should be treated as promptly as possible with antibiotics. Broad-spectrum antibiotics should be given as soon as feasible, even if *S aureus* is the most common cause, until culture tests are completed. The empiric antibiotic treatment should include a penicillinase-resistant penicillin and a third or fourth generation cephalosporin. Whenever there is a suspicion of dental or other bacterial illness in the patient's mouth, anaerobic coverage should be added. For 3-4 weeks, intravenous antibiotics are recommended. Anticoagulants, such as heparin, should be tested to prevent future thrombosis and reduce the frequency of septic emboli [8].

DISCUSSION

MRI with contrast is the preferred method for verifying the presence of CST and separating it from other illnesses such as ocular cellulitis, which may present with a similar clinical presentation and necessitate a different therapy. Using a simple CT scan without contrast, only 25% of patients had a thrombus of high density in the cavernous

sinuses. Contrast CT images show an irregular filling defect in the cavernous sinus with a non-fat density. It's possible to notice an absence flow void on MRI images (T1 and T2). No of how long the thrombus has been there, the signals will be abnormal. Since the organising thrombus could raise the contrast, the presence or lack of contrast enhancement is not a valid indicator. A venogram [14] is a frequent diagnostic tool. Digital subtraction carotid angiography is seldom used since MRI may detect narrowing of the cavernous sinus part of the internal carotid artery. Paediatricians with extremely small statures can be diagnosed via ultrasound [15].

CONCLUSION

An experienced clinician's careful supposition is required for an appropriate early diagnosis of CST, according to the findings. There is a wide range of clinical aspects of CST that are variable in their outcomes. Unless the physician takes a determined effort to identify these disorders as soon as they are identified, it is difficult to accurately diagnose them. Having a headache after missing a CST is probably a common occurrence.

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