

Case Report

Cerebral venous thrombosis with a catch

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ABSTRACT

Background: Cerebral venous thrombosis (CVT) is a rare entity typically occurring in patients in hypercoagulable states. They can also occur in cases of trauma. The symptoms are nonspecific.

Case Description: A 28-year-old male presented to the emergency department with a head injury. During the necessary imaging, it was found that he had a depressed skull fracture and other signs of traumatic brain injury. Unbeknownst to the patient and the patient party, it was also revealed that the patient only had one kidney. Wound debridement and excision of the depressed fracture were performed. A postoperative MRI revealed that the patient had CVT.

Conclusion: There should be a high index of suspicion for CVT in case of traumatic head injuries. The surgeon should plan management according to the patient's comorbidities.

Keywords: Cerebral venous thrombosis, Communication, LMWH, Solitary functioning kidney, Trauma

INTRODUCTION

Cerebral venous thrombosis (CVT) accounts for approximately 0.5-3% of all strokes. CVT usually occurs at a lower age than arterial strokes.^[1] Improper drainage of blood through the veins can increase the intravascular pressure leading to a hemorrhagic infarct. The variable presentation associated with CVT can lead to a delayed diagnosis.^[1] We present a patient who sustained a traumatic head injury, underwent appropriate surgical management and was later diagnosed with CVT after undergoing a postoperative MRI. We also provide a focus on how to relay unexpected news to the patient and the patient party.

CASE DESCRIPTION

A 28-year-old male presented on a Sunday morning to the emergency department with an alleged history of a road traffic accident after losing control of his two-wheeler. This accident led to an immediate loss of consciousness and headache with vomiting. The patient had a watery discharge from his left ear. There was no history of any bleed or leakage from the nose or history of seizures. He had a Glasgow Coma Scale score of 13/15 (E3V4M6). On examination, there were two linear lacerations present over his left parieto-occipital region [Figure 1]. He also had features consistent with left lower motor neuron facial palsy.

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A non-contrast CT brain revealed a left parieto-occipital depressed comminuted fracture with a contusion, hemorrhage, and cephalhematoma. Air pockets were also noted in the left transverse sinus and internal jugular vein, suggestive of traumatic dural venous sinus air. The cerebrospinal fluid otorrhea was attributed to a fracture of the left temporal bone extending to involve the tegmen tympani and the anterior wall of the left external auditory canal. As part of the trauma protocol, a non-contrast abdominal CT was performed, and it showed no internal bleeding but revealed an atrophic left kidney [Figure 2]. The patient and the patient party were not aware of this beforehand. The results of his renal function tests were within normal limits throughout the hospital stay. An emergency wound

debridement was performed along with excision of the depressed fracture. The patient was then shifted to the ICU. A postoperative contrast MRI revealed a venous infarct with a hemorrhagic transformation involving the left parieto-occipital temporal lobes due to venous thrombosis of the left transverse and sigmoid sinus and proximal 2 cm of the left internal jugular vein [Figures 3 and 4]. The patient was subsequently started on low molecular weight heparin (LMWH). He was discharged after a couple of days of observation.

DISCUSSION

The incidence of CVT is approximately 3–4/1,000,000.^[7] It is commonly seen in women due to the hypercoagulable states of



Figure 1: Two deep linear lacerations were present over the left parieto-occipital region. The belly of the temporalis muscle can be visualized in the larger wound. The patient's history and presentation did not align. It was more probable that the wounds were due to an ax as opposed to a road traffic accident.



Figure 3: A T2-TSE image showing acute infarct with hemorrhagic transformation in the left parieto-occipito-temporal lobes, predominantly involving the cortex and adjacent grey-white matter junction.

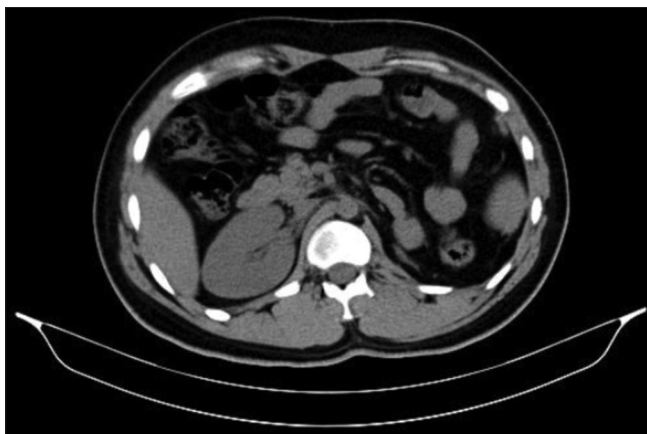


Figure 2: A non-contrast CT abdomen showed a shrunken left kidney with an evident vascular pedicle in the left lumbar area with a tiny focus of calcification suggestive of atrophy.

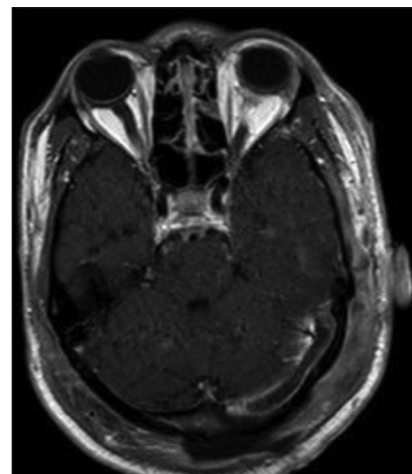


Figure 4: A T1W contrast-enhanced image showing a long segment filling defect in the left transverse sinus, sigmoid sinus, and proximal 2 cm of the left internal jugular vein.

pregnancy and oral contraceptive pill use, but it is also possible to develop CVT after a head injury.^[7] Making the diagnosis of a CVT requires a high level of suspicion as the presenting features are non-specific.^[3] The spectrum of symptoms extends from headache, the most common presenting feature, to psychosis.^[1] A non-contrast CT finding of traumatic dural venous sinus air is highly associated with the development of CVT. It is suggested that air localizes to the sinus involved by the fracture.^[6] MRI imaging of the thrombus within the first five days makes it appear isointense or hypointense on T1-weighted imaging, T2-weighted imaging, and FLAIR.^[2] The appearance at this stage is due to the presence of deoxyhemoglobin.^[2] The presence of a solitary functioning kidney (SFK) in our patient did not sway our decision to perform an MRI study with contrast since there has been no significant difference recorded in the chances of inducing acute kidney injury between those with one kidney versus those with two.^[5]

The mortality of CVT during the acute stage is 15%.^[2] The mainstay of treatment is LMWH. Although eliminated by the kidneys, LMWHs are still used at a reduced dose in those with CVT and severe renal impairment.^[8] When we informed the patient party of the SFK, they were shocked. They did not know which order to process the situation before them. Conveying unexpected news may cause intense emotions to overwhelm the patient leading to an inability to process further information.^[9] During negative disclosures, patients remember less than half of what their provider tells them.^[9] A technique known as “forecasting” may be effectively utilized when having to deliver bad news.^[4] More detailed counseling regarding SFK and its future health implications was done later in the course of the hospital stay. Although this was a relatively minor issue in the neurosurgical management of the patient, surgeons should not overlook the emotional impact of disclosing major and minor details to the patient and the patient party. This case provides an example of managing two co-existing, albeit independent, pathologies while being cognizant of methods to communicate bad news.

CONCLUSION

Intense trauma to the head should necessitate adequate surveillance for CVT. Further research should be carried out to see if there is merit in prophylactically initiating LMWH in patients that have sustained traumatic head injuries in order to reduce the mortality surrounding CVT. Management of the patient should be guided by what is identified throughout the hospital stay. Awareness of the emotions of both the patient and the patient party should be given precedence

over the severity of what is being disclosed. This analysis should guide the manner in providing information.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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