Original Article

Cerebral venous sinus thrombosis in young alcoholic males

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Abstract

Although a rare cause of stroke, cerebral venous sinus thrombosis (CVT) is associated with significant morbidity and can be a diagnostic challenge. We present a report of four such patients who presented to our department with complaints of headache and were diagnosed with CVT after extensive workup. All four patients were males, known alcoholics, between 20-50 years of age group. All had complaints of headache, nausea and confusion at the time of presentation. Three had complains of vomiting and fever. On neurological examination, all four had positive Babinski's sign, bilaterally equally reactive to light pupils, signs of dehydration and Glasgow Coma Scale score less than 13/15. Kernig's sign was seen only in one patient and none had any cranial nerve involvement. Coagulation profile of all patients was normal. Computed Tomography of head and Magnetic Resonance Imaging of brain revealed signs of thrombosis in varied anatomical locations. This case series concludes that young alcoholic males are prone to CVT and dehydration is associated with these patients. Transverse sinus was the most common sinus involved in our patients. Future studies should focus on understanding the correlation between alcoholism and CVT.

Key Words: Alcoholism, dehydration, stroke, thrombosis.

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INTRODUCTION

Cerebral veinous sinus thrombosis (CVT) may be a less common cause of stroke but it can be more challenging to diagnose. It accounts for less than 1% of ischemic strokes and typically affects younger people.[1] Depending upon the location of the thrombosis, the clinical presentation can be variable. Because of the significant associated morbidity cerebral venous sinus thrombosis (CVT) is an important consideration in the differential diagnosis for headache in patients with suggestive signs and symptoms. In this case review, we present four alcoholic male patients who presented to our hospital with complaints of headache, and were eventually diagnosed with CVT.

CASE REPORTS

We present four male patients of CVT which presented to Department of Medicine, DY Patil Hospital and Research Center, Navi Mumbai from November 2014 till July 2016. A 27 year of male (Patient A) presented with headache, nausea and confusion at the time of admission. He had a history of seizures. He did not complain of vomiting, fever, weakness of lower limbs or neck stiffness. On examining, Babinski's sign was positive bilaterally, pupils were bilaterally equally reactive to light (BERL) and Glasgow Coma Scale (GCS) score was 12/15. Magnetic Resonance Imaging (MRI) brain revealed signs of sinus thrombisis of left transverse sinus with hemorrhagic venous infarct involving left temporal lobe. Another patient, 29 year old male (Patient B) presented with complains of headache, nausea, vomiting, fever, confusion and neck stiffness. Patient's examination revealed bilaterally positive Babinski's sign, BERL pupils, positive Kernig's sign, papilloedema, GCS score of 13/15 and signs of dehydration. Computed Tomography (CT) head revealed non opacification of right transverse, sigmoid sinus and jugular bulb suggestive of thrombosis. Intraparenchymal hemorrhage in the right occipito-temporal lobe and 4.2mm shift in midline to left was reported as well. Third patient in this

case review was a 55 year old male (Patient C), who presented with complains of headache, nausea, vomiting, fever, confusion and weakness of lower limbs. On neurological examination, this patient had positive Babinski's sign, BERL pupils, 12/15 GCS score and papilloedema. MRI brain revealed non-visualisation of the flow related signalling the middle and posterior third of superior sagittal sinus, right transverse sinus, sigmoid sinus suggestive of thrombosis. CT head showed the anterior one third, upper and posterior portions of superior saggital sinus, right transverse and sigmoid sinuses to be distended, which are suggestive of dural venous and cortical vein thrombosis. Last patient in this case report was a 30 year old male (Patient D), who presented to our hospital with complaints of headache, nausea, vomiting, confusion and weakness of lower limbs. He did not complain of fever or neck stiffness. Similar to patient C, he had positive Babinski's sign, BERL pupils, 12/15 GCS score and papilloedema. MRI brain showed patchy thrombosis of middle third of superior sagittal sinus, entire right transverse sinus, sigmoid sinus and internal jugular vein. CT head of this patient showed non enhancing filling defect noted in right transverse sinus, sigmoid sinus and internal jugular vein, which are suggestive of thrombosis.

DISCUSSION

Heavy alcohol consumption is associated with stroke, the mechanisms of which are unclear.[2] Some studies point towards dehydration and resultant hyperviscosity of blood induced by heavy alcohol consumption as a possible mechanism for thrombosis. CVT has a highly variable clinical presentation. Headache was present in all four cases. Headache caused by intracranial hypertension from CVT is typically characterized by severe, dull, generalized head pain that worsens with Valsalva maneuvers and with recumbency. Altered sensorium is usually associated with severe disease, which was infact present in three of our cases. Because of non specific presentations, CVT can be a diagnostic challenge. For confirming the diagnosis in patients with clinically suspected CVT, it is very important to demonstrate the absence of flow and presence of intraluminal venous thrombus by CT or MRI.[3] Numerous normal anatomic variants may mimic sinus thrombosis, including sinus atresia, sinus hypoplasia, asymmetric sinus drainage, and normal sinus filling defects associated with arachnoid granulations or intrasinus septa. CT head, although being the first investigation to be performed, can be normal in around 30% of CVT cases.[6] MRI in combination with magnetic resonance (MR) venography is the most sensitive imaging method for demonstrating the thrombus and the occluded dural sinus or vein.[5] Characteristics of MRI signal change with age of the thrombus. Contrast-enhanced MR venography can provide better visualization of cerebral venous channels, and gradient echo or susceptibility-weighted sequences will show normal signal in a hypoplastic sinus and abnormally low signal in the presence of thrombus. Agreement between observers for the diagnosis of CVT with MRI varies with the location of sinus or vein thrombosis. It is good or very good for most of the occluded sinus and veins; moderate to very good for the left lateral sinus and straight sinus; and poor to good for the cortical veins.[6] Transcranial Doppler ultrasonography and transcranial power or color Doppler imaging, with or without the use of contrast, are noninvasive techniques that have potential utility for the diagnosis of CVT and for follow-up. Current guidelines from the American Heart Association/American Stroke Association recommend obtaining routine blood studies consisting of a complete blood count, chemistry panel, prothrombin time, and activated partial thromboplastin time for patients with suspected CVT. Similarly, lumbar puncture is useful for excluding meningitis and searching for a thrombophilic state, either genetic or acquired, should be done in all patients. CVT is associated with good outcome in majority of patients. Anticoagulation with low molecualar weight heparin (LMWH) and warfarin is used for patients who are clinically stable. For CVT patients who develop progressive neurologic worsening despite adequate anticoagulation with subcutaneous LMWH or intravenous heparin, endovascular thrombolysis or mechanical thrombectomy at centers experienced with these methods are treatment options.

Table 1: Characteristics of patients included

Variable	Patient A	Patient B	Patient C	Patient D
Age	27	29	55	30
Headache	+	+	+	+
Nausea	+	+	+	+
Vomiting	-	+	+	+
Fever	-	+	+	+
Confusion	+	+	+	+
Seizures	+	-	-	-
Focal weakness	-	-	+	+

Earache/Giddiness	-/-	-/+	-/+	-/+
Neck stiffness	-	+	-	-
Babinski's sign	Bilaterally +	Bilaterally +	Bilaterally +	Bilaterally +
Papilledema	-	+	+	+
Glasgow Coma Scale	12/15	13/15	12/15	12/15
Pupils	BERL*	BERL	BERL	BERL
Cranial nerve	-	-	-	-
Kernig sign	-	+	-	-
Signs of dehydration	+	+	+	+

*BERL = bilaterally equally reactive to light

Table 2: Investigations in Cerebral Venous Sinus Thrombsis patients

Investigation	Patient A	Patient B	Patient C	Patient D
Computed Tomography Head	--	Non-opacification of right transverse, sigmoid sinus and jugular bulb s/o thrombosis. intraparenchymal hemorrhage in the right occipito-temporal lobe and 4.2mm shift in midline to left.	the anterior 1/3, upper and post. portions of superior saggital sinus, right transverse and sigmoid sinuses are distended s/o dural venous and cortical vein thrombosis	non enhancing filling defect noted in right transverse sinus, sigmoid sinus and internal jugular vein, s/o thrombosis
Magnetic Resonance Imaging of brain	S/0 sinus thrombosis of left transverse sinus. hemorrhagic venous infarct involving left temporal lobe	--	non-visualization of the flow related signaling the middle and posterior third of superior sagittal sinus, right transverse sinus, sigmoid sinus s/o thrombosis	Patchy thrombosis of middle third of superior sagittal sinus, entire right transverse sinus, sigmoid sinus and internal jugular vein. Right mastoiditis
Coagulation profile	Normal	Normal	Normal	Normal
Lumbar puncture	--	--	--	--

CONCLUSION

Varied presentation of CVT makes it a diagnostic challenge. Our case report presents four alcoholic males of 20-50 years of age group. Their coagulation profiles were normal, but showed signs of dehydration. Imaging with CT head of MRI brain confirmed the diagnosis of CVT. Timely diagnosis is associated with complete recovery with no long term complications.

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