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# A CASE OF ULCERATIVE COLITIS PRESENTING WITH CEREBRAL VENOUS THROMBOSIS

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## ABSTRACT
Ulcerative Colitis is an autoimmune inflammatory bowel disease causing abdominal pain, bloody diarrhea and malnutrition and is associated with intestinal and extra intestinal complications. The clinical course has remissions and flare ups. Thromboembolism is a known risk associated with ulcerative colitis. Here we present a case of a young man who presented with a flare up of ulcerative colitis and developed neurological deficits that were diagnosed as due to cerebral venous thrombosis. Cerebral venous thrombosis is a rare complication of ulcerative colitis and can be missed without proper work up and consideration of diagnosis.

**KEY WORDS:** Cerebral venous sinus thrombosis, Ulcerative colitis, Magnetic resonance venography, Inflammatory bowel disease.

## INTRODUCTION
Inflammatory bowel disease (IBD) includes ulcerative colitis and Crohn disease. These are systemic diseases with major gastrointestinal tract involvement but can involve other organ systems too. Ulcerative colitis involves causes bloody diarrhea abdominal pain and is associated with multiple extra intestinal manifestations. Active inflammation in chronic IBD is a risk for thromboembolic phenomenon.[1] This risk is further increased during flare ups of ulcerative colitis due to systemic inflammatory response.[2] Cerebral venous thrombosis is an uncommon thromboembolic complication of IBD which can be potentially fatal. Cerebral venous thrombosis can present with headache, vomiting seizures, focal neurological signs in some cases leading to loss of consciousness and coma.[3] Its prompt recognition and treatment can greatly improve the morbidity and mortality.

## CASE REPORT
A 30 years old man presented to gastroenterology with flare up of his ulcerative colitis with fever, abdominal pain and bloody diarrhea. He was diagnosed two years ago with ulcerative colitis when he had similar symptoms and diagnosis was confirmed on base of colonoscopy and colonic biopsy. He was on oral steroids (Prednisolone) and immunosuppressant (azathioprine) until the recent relapse. On current admission he underwent workup to rule out other causes of bloody diarrhea and C. difficile infection which were all cleared. Patient was being treated with hydration and IV steroids. His labs showed evidence of hypoalbuminemia and Iron deficiency anemia with raised inflammatory markers. During hospital course patient developed headache that was generalized in character with occasional nausea but no other features. followed by decreasing conscious and new onset generalized tonic clonic seizures. On examination he had GCS of 11/15 with right side hemiparesis and a positive Babinski sign on right. His Direct Fundoscopic examination showed bilateral papilledema.

An urgent CT scan brain showed large hemorrhagic infarct in left frontal-parietal lobe with mass effect (Figure 1). With the awareness that IBD, especially the flare ups, are prothrombotic condition, a diagnosis of cerebral venous thrombosis was suspected. An MRI with MRV of brain was ordered and patient was treated with hydration and mannitol to reduce ICP and antiepileptic drug levetiracetam 500 mg IV three times a day for seizures. MRI and MRV of brain confirmed the diagnosis and showed a hemorrhagic infarct with MRV showing thrombosis of superior sagittal sinus (Figure 2). Patient was started on therapeutic anticoagulation with enoxaparin 60 mg subcutaneous two times a day, along with rest of treatment. Patient made a gradual recovery and on discharge was fully conscious with a GCS of 15/15 and alert. A close liaison was maintained with gastroenterology department and patient flare up was managed. The bloody diarrhea stopped and his

inflammatory markers and white cell counts improved. Patient was discharged on direct acting oral anticoagulant Rivaroxaban 15mg Twice a day for three weeks followed by 30 mg once daily for 3 months and antiepileptic levetiracetam 750mg twice a day in addition to therapy for ulcerative colitis and iron deficiency anemia.

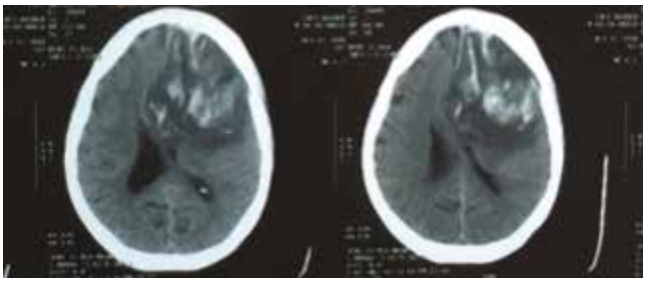

**Figure 1 Hemorrhagic infarct in left frontal-parietal lobe with mass effect**

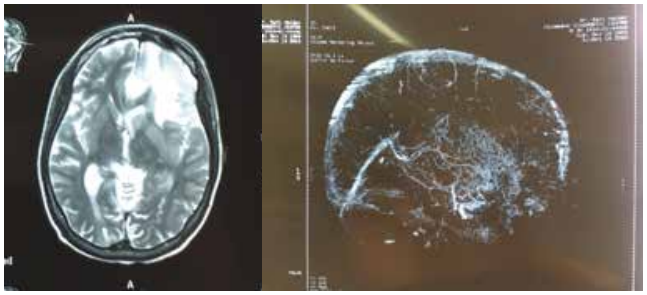

**Figure 2 MRI/MRV showing thrombosis of superior sagittal sinus**

## DISCUSSION

Inflammatory bowel diseases including ulcerative colitis and Crohn disease are known to be prothrombotic states with increased with venous thromboembolic episodes this has been reported in multiple studies in case reports. [1-5] Cerebral venous thrombosis is an uncommon cause of stroke with age group less than 50 years old more effected than those over the age of 50. Cerebral venous thrombosis (CVT) is a rare complication of IBD and is noted be more common in ulcerative colitis than Crohn disease and is more common during fare ups of disease. [5,6] A flare up of systemic inflammatory response and presence of anemia significantly increase the risk of CVT.[6,7]

CVT can present in myriad ways and the rare nature of this diagnosis further decreases the odds of early and correct diagnosis. But an awareness of the possibility of this diagnosis among physicians can greatly help the patient. Headache is the most common manifestation of CVT, focal neurologic signs when present can indicate the development of a venous infarct which are mostly hemorrhagic infarcts. [3,8]

A non-contrast CT scan of brain is most often the first investigation; it has a low sensitivity for diagnosing CVT but can show hemorrhagic infarcts and any associated mass effects. MRI with MRV of brain are investigations of choice for CVT. They can confirm the presence of infarcts and rule out other causes of focal signs. Superior sagittal sinus is the most commonly involved sinus but others can be involved either alone or in combination. [9]

Therapeutic anticoagulation is the treatment of choice and causes the extension of thrombus to stop and increases canalization of thrombus and lowers the mortality associated with CVT.[10] Patients with IBD and CVT who do not receive anticoagulation have worse outcomes than those who do.[11] Our patient was treated with enoxaparin (a low molecular weight heparin), then continued on rivaroxaban on discharge. Flare up of IBD was managed with steroids and he made a full recovery, although large hemorrhagic infarctions due to CVT have high mortality.[8]

## CONCLUSION

CVT is a rare but serious complication of IBD and the presence of new onset headache and or focal neurological signs should be investigated with MRI and MRV of brain. Once CVT is diagnosed, early treatment is of paramount importance to improve morbidity and mortality.

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