

Left middle cerebral artery and sigmoid sinuses thrombosis in a female patient with Crohn's disease

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Abstract

Introduction: Neurologic manifestations in patients with inflammatory bowel disease (IBD) appear to be more common than in the past. However, vascular events in IBD are still a rare presentation and were reported in few cases.

Case presentation: A 48-year-old female patient known case of Crohn's disease presented with sudden onset aphasia, headache, blurring of vision, and decreased level of consciousness for 2 hours. The patient looked ill, confused, agitated, and aphasic. Neurologic examination shows dysarthria and 0/5 power of the right upper and lower extremity. A brain CT without contrast was ordered and showed acute ischemic stroke. The patient received tPA (alteplase) immediately in the intensive care unit and was under observation. On admission, brain CT angiography, MRI, and MRV were performed, which showed middle cerebral artery and sigmoid sinuses thrombosis. The patient has undergone cerebral catheterization, and an MCA stent was inserted. Post catheterization, the patient's right-sided extremity power was improved to 3/5. She was discharged from the hospital after 13 days in good general condition except for her expressive aphasia.

Conclusion: To the best of our knowledge, here we report the first case presented with both; cerebral venous sinus thrombosis and cerebral arteries thrombosis in a patient with IBD. Clinicians must be considered ischemic stroke in any patients with IBD presented with acute neurological manifestation, and an urgent interventional approach must be performed.

Keyword: Middle Cerebral Artery Thrombosis; Sigmoid Sinuses Thrombosis; Crohn's Disease; Inflammatory Bowel Disease; Case Report; Ischemic Stroke

1. Introduction

Neurologic manifestations related to Crohn's disease and ulcerative colitis appear to be more common than in the past. Multiple studies showed an increased incidence of cerebrovascular events in patients with inflammatory bowel disease (IBD) by an estimated rate of (1.3% - 6.4%) in adult patients and (3.3%) in children.¹ The incidence of stroke in patients with Crohn's disease is very low, with an estimated rate of 0.3% in patients under 40 years of age and 1.8% in patients over 40 years.¹

Crohn's disease is associated with an increased tendency to develop blood clots (hypercoagulable state) that could be related to disease activity. However, the exact mechanism for this association is unclear.² The most neurological

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manifestation in IBD patients with ischemic stroke is hemiparesis, and the most common site of arterial thrombosis is the middle cerebral artery.³

Cerebral venous sinus thrombosis (CVST) is unusual to be present in a patient with Crohn's disease and will have an undesirable prognosis if CVST diagnoses are delayed.⁴ The most common thrombosed sinus observed in IBD patients is the superior sagittal sinus (71.4%). The sigmoid sinus is an uncommon site of thrombosis, and less than half of patients with sigmoid sinus thrombosis in association with IBD had CD.⁴

To the best of our knowledge, here we report the first case presented with both; cerebral venous sinus thrombosis and cerebral arteries thrombosis in a patient with inflammatory bowel disease.

Highlight

- Multiple studies showed an increased incidence of cerebrovascular events in patients with inflammatory bowel disease (IBD)
- Cerebral venous sinus thrombosis (CVST) is unusual to be present in a patient with Crohn's disease and will have an undesirable prognosis if CVST diagnoses are delayed.

2. Case presentation

A 48-year-old female patient known case of ischemic heart disease (IHD) and Crohn's disease for 2 years presented with sudden onset aphasia, headache, blurring of vision, and decreased level of consciousness for 2 hours ago.

On examination, Vital signs were blood pressure: 145/99, pulse:107 bpm sinus rhythm, and oxygen saturation: 96% on room air. The patient was ill, confused, agitated, and aphasic. Neurologic examination shows dysarthria and 0/5 power of the right upper and lower extremity. An electrocardiogram demonstrated normal sinus rhythm.

Investigations were done, including CBC, Electrolytes, kidney function test, liver function test, coagulation profile, lactic acid, and troponin I, and all were within normal ranges. **(Error! Reference source not found.)** A transthoracic echocardiogram (TTE) showed good biventricular function EF 55%, anthropical and septic-apical hypokinesia, and estimated SPAP was 55 mmHg at rest.

Table 1 Laboratory test results of our patient

Test	Result	Norma range
Troponin I	42.2	Less than 30 ng/l
CRP	2.6	Less than 6 mg/l
ESR	65	0-20 mm/hour
Complete blood count:		
White blood cells	7.04	5-10 * 10 ³
Hemoglobin	10.02	
MCV	75.79	82-92 um ³
MCHC	28.3	32-36%
MCH	21.38	27-31 pg/ml
PLTS	349	150-400 *10 ³ /ul
Coagulation profile:		
PT	12.1	
INR	0.95	

A Brain CT angiography scan was done, which showed cut off of the M2 segment of the left middle cerebral artery (MCA), indicating a complete occlusion, bilateral diffuse atherosclerosis of both internal carotid arteries causing mild to

moderate stenosis, and hypodense filling defects of both transverse sinuses. Brain MRI showed acute infarction involving the left fronto-parietal and insular cortex. (**Error! Reference source not found.**) After that, she was admitted to the intensive care unit (ICU), and tPA (alteplase) was started and followed up with brain CT which showed no hemorrhagic transformation, so TPA continued.

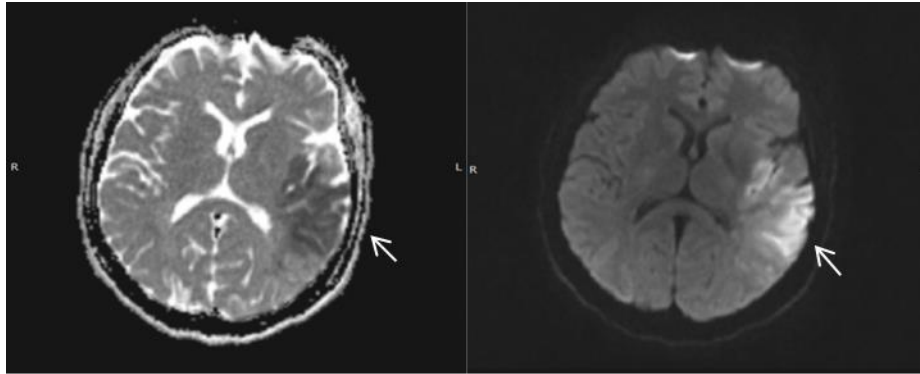


Figure 1 Brain MRI, axial view, show acute infarction involving the left fronto-parietal and insular cortex. It appears bright on DWI with ADC hyperintensity and restricted diffusion.

The patient had undergone cerebral catheterization, which confirms left MCA (M3) 2 branches occlusion. In order, F5 Sofia was inserted to left MCA and stent retrieval 4*20 mm using rebar 18 and synchro wire 14, the first pass opening part of one branch, and the second pass opening the second branch. (**Error! Reference source not found.**)

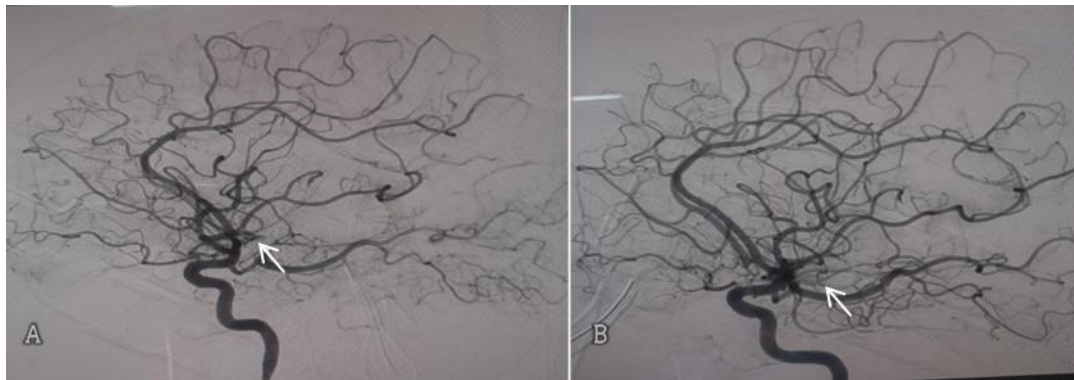


Figure 2 Left MCA (M2_3) occlusion (A), complete Recanalization of M2_3 done by stent retrieval and aspiration (B).

In follow-up, a brain CT scan showed cerebral venous thrombosis. Brain MRV showed a massive filling defect within the left sigmoid venous sinus, in addition to a smaller one within the right transverse sinus. Consequently, the patient received Enoxaparin 60 mg/kg twice daily.

During admission, the patient developed vaginal bleeding with a drop in hemoglobin from 11 to 6.8. Abdominal ultrasound was done, which showed pelvic free fluid and a heterogenous hyperechoic cervical mass measured about 4*3.8 cm with foci of calcification consisting of uterine fibroid. Tumor markers such as ALFA-FETO, CA125, and CEA were done, which were considered within normal limits (2.54, 15.5, and 1.85, respectively). She received two packed red blood cells, which improved the patient's condition.

Post catheterization, the patient's right-sided extremity power was improved to 3/5. She was discharged from the hospital after 13 days in good general condition except for her expressive aphasia. Her medications on discharge were Enoxaparin 60 mg/kg twice daily for one week and clopidogrel 75 once daily to follow up later.

3. Discussion

Extra-intestinal symptoms are widely-known in IBD (both; Crohn's disease and ulcerative colitis). Although cerebrovascular complications were reported in many cases, vascular events in IBD are still a rare presentation.⁵

We found one literature review including 33 patients with cerebral arterial infarction related to IBD, while only 14 of 33 had CD.³ 72.7% of these patients have active IBD, and (9 /14, 64.3%) of patients with CD had active disease.³ The most neurological symptom reported in these patients was hemiparesis, with an incidence of 84.8%.³ The most common cerebral artery affected by thromboembolism was the middle cerebral artery.³ The internal carotid artery was involved in three patients, and two cases had occlusion of the right common carotid artery.

A literature review of patients with Cerebral Venous Sinus thrombosis showed 7 patients with CD and 27 with UC. 71.4% of patients had superior sagittal sinus thromboses, 40% had transverse sinus thromboses, 42.8% had sigmoid sinus thromboses, and 14.2% had deep cerebral/ cortical vein thromboses.⁴ 65.7% of these patients had more than one site of sinus thrombosis.⁴ Furthermore, only three of them had endovascular treatment (EVT).⁴

In addition to IBD, our patient was diagnosed with uterine fibroids, which could be an additional risk factor for thrombosis besides Crohn's disease.⁶ Some studies demonstrated an association between uterine fibroids and thromboembolism events.⁶ Further study is needed to determine the underlying cause of thrombosis in both; uterine fibroids and IBD patients.

4. Conclusion

Cerebral vessel thrombosis in IBD patients can be lethal. It is essential to be aware of this association between thrombosis and IBD. Clinicians must be considered ischemic stroke in any patients with IBD presented with acute neurological manifestation, and an urgent interventional approach must be performed.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest to declare.

Statement of ethical approval

This study is exempt from ethical approval at our hospital.

Statement of informed consent

Written informed consent was obtained from the patient for reporting this case and its associated images. The consent is available for review on request.

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The study did not receive any funding.

Authors' contributions

- **Data collection:** Aseel Abuhammad, Maen Abu Iram.
- **Writing the manuscript:** Aseel Abuhammad, Maen Abu Iram.
- **Study concept or design:** Aseel Abuhammad, Maen Abu Iram, Mohammed Alkhanafsa
- **Review & editing the manuscript:** Aseel Abuhammad, Maen Abu Iram, Mohammed Alkhanafsa

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