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EC NEUROLOGY
Case Report

A Rare Case of Left Ventricular Thrombus with Ischemic MCA Stroke in a Lady with Crohn's Disease

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Abstract

We report a rare case of Crohn's disease presenting as thromboembolic MCA stroke due to a left ventricular thrombus in a 50 year old female. The proinflammatory and procoagulant state seen in CD seems to be responsible for this. The patient was managed conservatively but later, died. So, aggressive control of disease activity with disease modifying drugs should be done even in those with mild disease.

Keywords: *Crohn's Disease (CD); Inflammatory Bowel Disease (IBD); Left Ventricular Thrombus; Thromboembolism; Prothrombotic State; Disease-Modifying Drugs; Middle Cerebral Artery (MCA); Infarct*

Abbreviations

CD: Crohn's Disease; MCA: Middle Cerebral Artery; IBD: Inflammatory Bowel Disease; NIHSS: National Institute of Health Stroke Scale; NCCT: Non Contrast Computerised Tomography; GCS: Glasgow Coma Scale; CVS: Cardiovascular System; AHA: American Heart Association; ESO: European Stroke Organisation

Introduction

Crohn's disease presenting as a thromboembolic stroke is uncommon and there is a paucity of literature on this association. It is considered that CD is a prothrombotic state and it leads to a heightened risk of venous thromboembolism but embolic stroke with left ventricular thrombus has rarely been reported. The exact pathophysiology of stroke in inflammatory bowel disease is still not clear [1]. We report an unusual case of left ventricular thrombus with stroke in a patient with Crohn's disease.

Case Report

A 53-year-old female came to ER in the window period with sudden onset left hemiparesis and speech impairment with NIHSS of 11. NCCT Head did not show evidence of intracranial hemorrhage so we planned her for thrombolysis but could not be given thrombolysis as she underwent ileal resection with jejunoileal anastomosis 14 days ago for subacute intestinal obstruction. Patient was of thin built with anaemia so mechanical thrombectomy could be risky. Still patient was given option for mechanical thrombectomy but patient attendant was unable to afford it at this time so refused. Past history of right hypochondrium pain probably due to cholecystitis which got relieved on conservative treatment five years back. On examination, she was conscious but drowsy with GCS of 14. General examination revealed

thin built, emaciated with pallor and colostomy bag in the right iliac region. On CVS examination, a pansystolic murmur with hyperdynamic low volume pulse in left radial artery with a blood pressure of 130/90 mm Hg. On neurological examination, she had upper motor neuron facial weakness with dysarthria. Motor power was grade 0 in the left upper limb and grade 2 in the left lower limb and 5/5 on the right side. MRI brain with contrast showed acute infarct in the right middle cerebral artery territory (Figure 1). ECG showed sinus tachycardia and frequent ventricular premature contractions and there was left ventricular thrombus, 40% ejection fraction, regional wall motion abnormality with severe diastolic dysfunction on echocardiography. Other relevant investigations showed microcytic, hypochromic anemia with elevated erythrocyte sedimentation rate and C reactive protein and low vitamin B12 and hyperhomocysteinemia. Prothrombotic workup was negative. CECT abdomen revealed stricture with intestinal obstruction, enterolith with no significant mesenteric lymphadenopathy (Figure 2). The grossly resected ileal sample showed thick intestinal wall, creeping fat, stricture, sharply demarcated from uninvolved bowel, shortened mesentery, focal ulceration with enterolith. On histopathology, there was transmural involvement, non-caseating, non-confluent granulomas, deep fissuring into muscularis propria with strictures, cryptitis and crypt abscess, serosal vascular congestion, and acute fibrinous exudates. Above mentioned findings were suggestive of CD. She was treated with antiplatelets, B12 with folinic acid supplements, and oral anticoagulant and gastroenterology opinion was taken for immunomodulatory therapy with nutritional rehabilitation. She died at her home after few days of hospital discharge. Any investigations about the time of patient death are not available, as they have not been performed. Cause of death could be due to massive thromboembolism especially to vital structures from left ventricular thrombus. The patient's son gives history of reddish spots appearing over her legs near time of death.

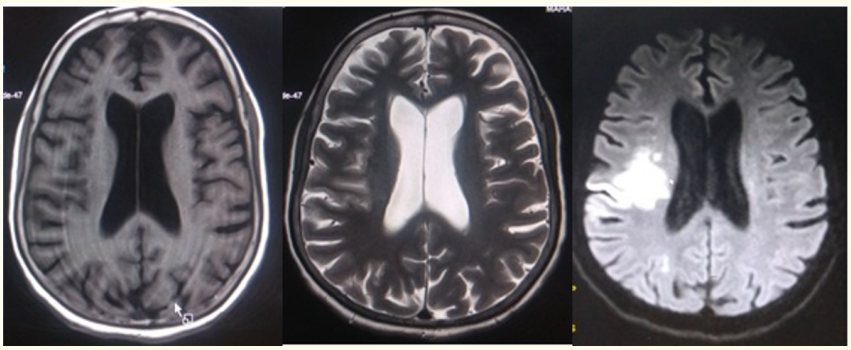

Figure 1: *Images of MRI Brain of the patient with T1, T2 and DWI sequences. DWI showing acute infarct in right middle cerebral artery territory.*

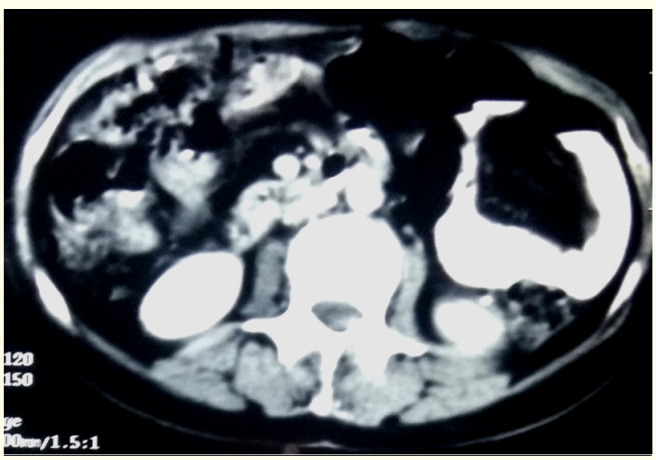

Figure 2: *Images of Contrast CT Abdomen showing thick edematous bowel loops.*

Discussion

Venous sinus thrombosis is the more common type of stroke in inflammatory bowel disease as compared to arterial stroke as observed in a study of 7199 patients with IBD with just 7 cases of cerebrovascular disease [2]. Among cases of stroke in CD, the risk is threefold in those below 50 years as compared to elderly [3]. The age at onset of stroke in our patient was at a younger age [4] thus underscoring the fact that CD may be an important yet underrecognized cause of stroke in the young. A study found that the risk of stroke in patients with CD was twice that of controls [1] and more common in women. Our patient developed a stroke in the right anterior circulation on the 15th post-operative day. The postoperative state is a condition of heightened inflammatory response. Most arterial thromboembolic phenomena have been reported in the postoperative period [3]. Other risk factors for arterial stroke as shown in various studies an active disease, vitamin B6 deficiency leading to hyperhomocysteinemia [4] and iron deficiency anemia [4-6]. While active disease occurs in more than half of CD patients with stroke [4], iron deficiency anemia is seen in one-third of this population [6]. Prevalence of hyperhomocysteinemia is three times more common in IBD patients vs. controls [4]. In our patient, an active disease with pancolitis was present as evident with a history of preceding surgery, raised ESR and CRP, as well as hyperhomocysteinemia with anemia. Dehydration may have aggravated a hypercoagulable state. Importantly, stroke is unique to IBD in that other inflammatory diseases like rheumatoid arthritis or coeliac disease do not show an increased risk of thromboembolism [7]. All parts of the coagulation cascade are thought to be involved in the hypercoagulable state in IBD. Fibrinolysis is inhibited by inflammation during active disease which is a potent prothrombotic stimulus. Platelet leukocyte aggregates (PLAs) are increased in IBD patients compared to healthy and inflammatory controls. PLAs cause microinfarction and exacerbate thrombus formation by enhancing the production of tissue factor [7-9]. It is very difficult to manage for example, in our case there was active disease leading to intestinal obstruction which precluded thrombolysis. On top of that, there are no standard guidelines for the management of stroke in IBD. According to the AHA and AHA and ESO guidelines, patients should be treated with aspirin within the first 24 to 48 hours of stroke onset and this should be continued for up to 9 months. And that urgent anticoagulation in moderate to severe stroke is not recommended due to high intracranial bleeding risk. Anticoagulants need to be given for a minimum of 3 months in those with confirmed cardioembolism, aortic atheroma, fusiform aneurysms of the basilar artery, and cervical dissection [11]. Although case reports on stroke in Crohn's disease [7] and recurrent left ventricular thrombi exist [10], there are no case reports in which stroke co-existed with left ventricular thrombus. Stroke in ulcerative colitis due to left ventricular thrombus and normal ejection fraction has been reported [11].

In a patient with an active disease like in our case who first came to attention after surgery and not started on disease-modifying drugs, the pre-existing procoagulant and proinflammatory state can get accelerated leading to thrombosis with resulting thromboembolism which is very challenging to manage.

A patient with Crohn's disease undergone a major surgery presenting with acute stroke can undergo mechanical thrombectomy with a high risk consent. However, the periprocedural period needs close monitoring for intracranial hemorrhage, thromboembolic events with proper use of anticoagulants and disease modifying agents individualised on a case to case basis.

The use of disease modifiers in Crohn's disease in the perioperative period needs to be patient-centric as surgery carries the risk of infectious complications [12].

Conclusion

- This case report highlights few important points.
- Newly diagnosed CD may present with extraintestinal manifestations which include vascular events.

- It is important to assess homocysteine and vitamin levels with aggressive control of disease activity even in those with mild disease.
- Finally, caution is advised in cases with focal neurologic deficit to assess for thromboembolism and the rare possibility of left ventricular thrombus must always be kept in mind.

Author Contributions

Vasudev S. Parashar wrote and edited the manuscript. Manamita Mandal also helped in the manuscript writing and provided the figures in the article.

Disclosures and Sources of Funding

None.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Ethical Compliance Statement

The authors confirm that the approval of an institutional review board was not required for this work. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines.

Bibliography

1. Keller Joseph Jordan., *et al*. "Increased risk of stroke among patients with Crohn's disease: a population-based matched cohort study". *International Journal of Colorectal Disease* 30.5 (2015): 645-653.
2. R W Talbot., *et al*. "Vascular complications of inflammatory bowel disease". *Mayo Clinic Proceedings* 61.2 (1986): 140-145.
3. Frank Andersohn., *et al*. "Risk of ischemic stroke in patients with Crohn's disease: A population-based nested case-control study". *Inflammatory Bowel Diseases* 16.8 (2010): 1387-1392.
4. Katsanos Aristeidis H., *et al*. "Cerebral arterial infarction in inflammatory bowel diseases". *European Journal of Internal Medicine* 25.1 (2014): 37-44.
5. Mhenni S Younes., *et al*. "Large-artery stroke in a young patient with Crohn's disease. Role of vitamin B6 deficiency-induced hyperhomocysteinemia". *Journal of the Neurological Sciences* 221.1-2(2004): 113-115.
6. Dubyk Melanie D., *et al*. "Iron deficiency anemia prevalence at first stroke or transient ischemic attack". *Canadian Journal of Neurological Sciences* 39.2 (2012): 189-195.
7. Joshi Deepak., *et al*. "Stroke in inflammatory bowel disease: a report of two cases and review of the literature". *Thrombosis Journal* 6 (2008): 2.

8. Simmons B Brent., *et al*. "Current guidelines on antiplatelet agents for secondary prevention of noncardiogenic stroke: an evidence-based review". *Postgraduate Medicine* 122.2 (2010): 49-53.

9. Pak Stella., *et al*. "Spontaneous ventricular thrombosis in patients with inflammatory bowel disease". *Cardiology in the Young* 28.3 (2018): 351-353.

10. Iyer Anand., *et al*. "Recurrent left ventricular thrombus in Crohn's disease: A rare presentation". *Asian Cardiovascular and Thoracic Annals* 22.1 (2014): 86-88.

11. Saleh T. "Left Ventricular Thrombosis in Ulcerative Colitis". *Case Reports in Gastroenterology* 4.2 (2010): 220-223.

12. Nickerson Paul T., *et al*. "Perioperative Considerations in Crohn Disease and Ulcerative Colitis". *Clinics in Colon and Rectal Surgery* 29.2 (2016): 80-84.

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