Cerebral Hemorrhage Caused by Venous Thrombosis Due to Newly Diagnosed Severe Ulcerative Colitis

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Abstract

Ulcerative colitis (UC) is a chronic inflammatory bowel disease characterized by recurrent episodes of inflammation and ulceration in the colon. Patients with UC are at an increased risk for thromboembolic events, including pulmonary thromboembolism and venous thrombosis, as extraintestinal complications. However, cerebral thrombosis is uncommon in these patients. We report a rare case of cerebral hemorrhagic venous infarction in a patient with severe UC who was receiving prophylactic heparin therapy. CT scans revealed a hypodense lesion with hyperdense hemorrhagic foci in the lobulated, contoured left parieto-occipital area, confirming the diagnosis of cerebral hemorrhagic venous infarction. Despite negative results from additional thrombotic and immunological tests, the patient passed away 10 days later from multi-organ dysfunction syndrome secondary to brain injury. This case underscores the critical need to consider cerebral hemorrhagic venous infarction, even in patients with severe UC who are on prophylactic heparin, particularly when presenting with headaches and visual disturbances.

Keywords: Inflammatory bowel diseases intracranial hemorrhage, neurologic complications, ulcerative colitis

INTRODUCTION

Ulcerative colitis (UC) is frequently associated with pulmonary thromboembolism and venous thrombosis as extraintestinal manifestations.[1-2] However, cerebral thrombosis remains a rare occurrence.[3-4] We present a rare case of cerebral hemorrhagic venous infarction in a patient with severe UC who was on prophylactic heparin. Diagnosed with cerebral hemorrhagic venous infarction, CT imaging revealed a hypodense lesion with hyperdense hemorrhagic foci in the lobulated, contoured left parieto-occipital area. Unfortunately, 10 days after diagnosis, the patient passed away, despite negative results from additional immunological and thrombotic testing. Notably, this case was exceptionally rare as there was no family history of thromboembolic or cerebrovascular events. This underscores the importance of considering cerebral hemorrhagic venous infarction in patients with severe UC who are experiencing headaches and visual abnormalities, even when they are receiving heparin treatment.

CASE REPORT

An 18-year-old patient presented to the hospital with episodes of bloody diarrhea occurring up to twenty times a day. She had no history of smoking, comorbidities, or a predisposition to thrombosis. Active UC was confirmed by colonoscopy and biopsy, and intestinal ultrasonography revealed widespread thickening and inflamed bowel loops in the left colon.

Her blood tests at the time of admission showed 5,570 white blood cells/μL (normal range: 3.9-10.2), 9 g/dL hemoglobin (normal range: 12-15.6), 27.7% hematocrit (normal range: 35.5-45.5), 238,000 platelets/μL (normal range: 150-400), 26 g/L albumin (normal range: 32-48), and 91.7 mg/L C-reactive protein (normal range: 0-5). She was started on prophylactic low-molecular-weight heparin and intravenous methylprednisolone (60 mg/day). Despite a significant reduction in her bloody diarrhea within eight days, she experienced a sudden headache and blurred vision on the eighth day of hospitalization. Upon examination, the rectal mucosa was found to be granular, with the submucosal vascular network having disappeared and exhibiting spontaneous fragility. The EAI score was 8, with a MAYO score of 2.

CT scans revealed a hypodense lesion measuring 50x35 mm with hyperdense hemorrhagic foci in the lobulated, contoured left parieto-occipital area (Figure 1A), indicating cerebral hemorrhagic venous infarction. A follow-up cranial MRI confirmed the presence of hemorrhagic foci in the same region (Figure 1B). Despite negative results from immunological and thrombotic tests, except for a positive p-ANCA at 1:32 (2+), the patient tragically passed away 10 days later due to multi-organ dysfunction syndrome secondary to brain damage.

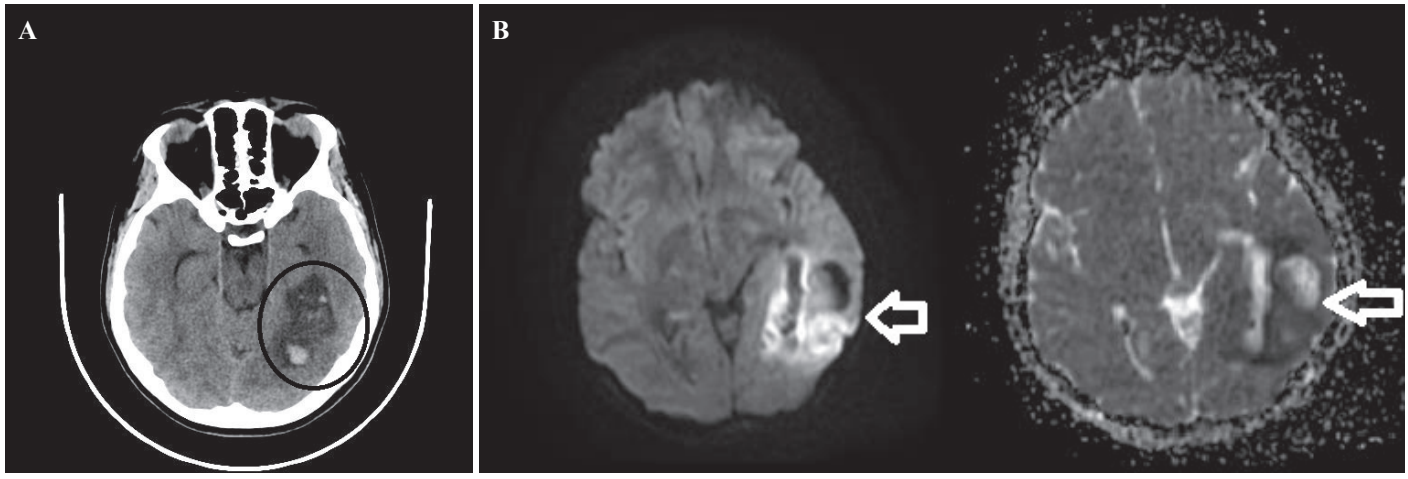

Figure 1. (A) A non-contrast-enhanced CT scan of the patient's brain revealed a large area located in the left parietooccipital region of the brain. A hypodense lesion (black circle) exhibiting hyperdense hemorrhagic foci was detected, indicating hemorrhagic venous infarction. (B) Diffusion MRI examination of the brain was performed at various stages, revealing diffusion restriction (indicated by arrows) that is consistent with the presence of an area of acute infarction in the left parietooccipital region and includes hemorrhagic components.

DISCUSSION

UC is a chronic inflammatory disease often associated with extraintestinal manifestations, such as thromboembolic events. Cerebrovascular thrombosis, leading to neurological symptoms, is infrequently reported in UC patients. It can occur at any age, in both sexes, and generally correlates with disease activity.[5] According to Yanagisawa et al.,[6] cerebral bleeding caused by pre-existing UC is often fatal and primarily occurs in the left parieto-occipital region. In our case, a young patient with no risk factors for cerebral bleeding, who was on heparin prophylaxis, developed a headache followed by visual abnormalities and confusion. A CT scan revealed an intracranial hemorrhage in the left parieto-occipital region, consistent with findings in the existing literature.[7]

Several cases reported in the literature highlight the severe nature of intracranial hemorrhage associated with UC. Wada et al.[8] reported a case of fatal cerebral venous thrombosis in a young UC patient despite anticoagulant treatment, underscoring the aggressive character of these thromboembolic events. Additionally, a review by Koutroubakis and colleagues[9] emphasized the importance of maintaining heightened vigilance regarding cerebrovascular complications in UC patients, even when standard prophylactic measures are in place.

CONCLUSION

Patients with severe ulcerative colitis may develop cerebral hemorrhagic venous infarction, even while receiving heparin prophylaxis. Therefore, medical professionals must maintain a high level of awareness and consider this possibility in patients presenting with symptoms such as headaches and visual disturbances. Early diagnosis and prompt management are crucial for improving patient outcomes. Comparative case studies in the medical literature further confirm the necessity for clinicians to remain vigilant regarding the potential risk of cerebrovascular events in UC patients.

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