Inflammatory bowel disease and Ventricular thrombus: A Systematic Review of Published Case Reports.

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Introduction

Inflammatory bowel disease (IBD) causes hypercoagulability by the virtue of its autoimmune and inflammatory state. Studies with IBD and venous thromboembolism have been reported widely. Ventricular thrombi in the absence of cardiac pathology are rare. This paucity of data led us to perform a systematic review of case reports of ventricular thrombi in IBD patients.

Methods and Materials

A systematic literature search was performed using PubMed, Scopus, Embase and Google Scholar until June 2022 to identify cases of IBD complicated by ventricular thrombi. Data pertaining to patient demographics, clinical presentation, diagnostic interventions, treatments and outcomes were analyzed using descriptive analysis.

Author	Age (years)	Sex	Admitting history	Type of IBD	Disease status at the time of thrombus diagnosis	Right/left thrombus	Therapy after diagnosis
Kochar (2021)	38	M	Increasing abdominal pain, bloody diarrhea, shock	UC	Active	Left	Anticoagulation
Grewal (2021)	23	F	Persistent diarrhea, 3 weeks later weakness on right side of the body with aphasia	UC	Remission	Left	Surgical thrombectomy and anticoagulation
Abel (2020)	55	F	Bloody vaginal discharge, rectal pain	Not specified	Active	Right	Anticoagulation
Parollo (2020)	26	F	Diarrhea, abdominal pain	CD	Active	Right	Anticoagulation
Kakkar (2019)	40	F	Dyspnea, neuropathy in bilateral feet	CD	Remission	Right	Not Specified
Shankar (2019)	24	M	Right lower limb swelling, intermittent, colicky lower abdominal pain with increased frequency of stools, weight loss. PMH: acute-onset headache associated with dys-arthria, forgetfulness, inability to recognize faces 5 months ago	CD	Active	Right	Anticoagulation
Pokhrel (2018)	33	M	Pleuritic chest pain, dyspnea, fever	UC	Remission	Left	Anticoagulation
Muhling(2016)	18	F	Bloody diarrhea, accompanied by fever, malaise, neurologic symptoms- increasing headaches, double vision, and an unsteady gait	UC	Active	Right	Anticoagulation
Willner (2015)	21	F	Abdominal pain and diarrhea	UC	Active	Left	Anticoagulation
Rasalinga, 1 (2015)	42	F	Abdominal pain, diarrhea	CD	Active	Left	Thrombectomy
Rasalinga, 2 (2015)	18	M	chest heaviness, fevers, hypotension	CD	Remission	Left	Surgical thrombectomy
Ennezat (2013)	38	F	Shortness of breath	CD	Remission	Left	not specified
Koneru (2013)	28	F	Headache, fatigue,dizziness, vague constitutional symptoms	UC	Remission	Left	Anticoagulation
Iyer (2012)	40	M	exacerbation of Crohns disease symptoms and symtomatic ileal stricture	CD	Active	Left	Surgical embolectomy and anticoagulation
Kim (2012)	14	F	Dyspnea	UC	Remission	Left	Anticoagulation
Lameris (2011)	36	F	Bloody diarrhea, right-sided weakness	UC	Active	Right	Thrombectomy
Thatikonda (2011)	52	M	Confusion, multiple loose bowel movements	UC	Active	Left	Anticoagulation and Surgical thrombectomy
Springston (2010)	42	F	Abdominal pain, bloody diarrhea, fever, oral mucosal ulcers	CD	Active	Left	Anticoagulation
Saleh (2010)	39	M	Nausea, vomiting, abdominal pain, bloody diarrhea. On the second day of admission, transient episode of dysarthria, slurred speech, right mouth drooping, right-sided weakness	UC	Active	Left	Anticoagulation
Urgesi (2010)	38	F	abdominal pain, bloody diarrhea , PMH: weight loss in the last 3 months, increasing exertional dyspnea	UC	Active	Right	Anticoagulation
Lutz (2007)	34	M	Fever of unknown origin	UC	Remission	Left	Surgical thrombectomy
Mutlu (2002)	28	F	Chest pain for 24 h, passing five to seven bloody stools for 1 week	UC	Active	Left	Anticoagulation
Chin (1988)	30	M	Bloody diarrhea	UC	Active	Left	Anticoagulation, thrombectomy

CD - Crohn's disease, UC - Ulcerative colitis, PMH - Past medical history

Results

22 case reports consisting of 23 patients were included in this review predominantly consisting of females (61%) (mean age 32.9±10.6) and the majority were reported from the US. 61% had Ulcerative colitis and 35.8% had Crohn's disease. There was a predilection for left-sided ventricular thrombus formation when compared to the right (69.6% vs 26%). Patients with RV thrombus often had other associated systemic thrombosis compared to LV thrombosis. 65.22% had active disease at the time of thrombus diagnosis and 72.7% of total patients presented within 10 years of IBD diagnosis. Common treatments for IBD included Steroids (75%) and Mesalamine (41%). Diarrhea/bloody diarrhea was the most common presenting symptom (60.87%) and tachycardia was the most common presenting sign. Echocardiography was the principal diagnostic tool. 4/9 patients had T wave inversions and 4/5 patients showed troponin elevations. Elevated platelet count was seen in 75% of the patients and ESR, and CRP were elevated in 81.8% of them. Hypercoagulability workup was positive in 14.3% of the patients and drug abuse was reported in 2 patients. Concurrent thromboembolism was seen in 43.48% of patients. 3/4th of patients were treated with anticoagulation, and 1/4th of patients underwent surgical thrombectomy with or without anticoagulation. 83% of the patients experienced resolution and only 2 studies reported recurrent ventricular thrombi.

Discussion

Patients with IBD are prone for thromboembolic disease given its hypercoagulable state and infrequently present with ventricular thrombi. Keeping a high index of suspicion for thromboembolic disease including cardiac thrombi especially in patients with active disease through echocardiographic screening would help in identifying and curbing complications early.