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Gastroenterology I

Severe Thromboembolic Events in Inflammatory Bowel Disease: A Retrospective Case Series from A Moroccan Tertiary Military Hospital

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Abstract **Original Research Article**

Introduction: Inflammatory bowel disease (IBD) is a chronic immune-mediated intestinal disorder associated with systemic inflammation and a clinically relevant risk of thromboembolic events. Although venous thromboembolism is increasingly recognized as an extra-intestinal complication of IBD, it remains insufficiently anticipated in daily practice, particularly during disease flares. ***Aim:*** This retrospective case series aimed to determine the prevalence and clinical profile of severe thromboembolic events among patients with IBD managed in a tertiary gastroenterology department. ***Methods:*** We reviewed electronic medical records of all patients aged 16 years or older followed for confirmed Crohn's disease or ulcerative colitis at the Department of Gastroenterology I, Mohammed V Military Teaching Hospital, Rabat, between January 2024 and January 2025. Only imaging-confirmed venous or arterial thromboembolic events were included. ***Results:*** Among 125 patients with IBD, 4 developed thromboembolic events, corresponding to a prevalence of 3.2%. The mean age was 42 years (range: 27-63), and the series included three men and one woman. Two patients had Crohn's disease and two had ulcerative colitis. All events occurred during active IBD. The main presentations were lower-limb pain, dyspnea with chest pain, and neurological symptoms. The events included lower-limb deep vein thrombosis in three patients, associated pulmonary embolism in one patient, and cerebral venous thrombosis in one patient. Systemic corticosteroid exposure was present in all cases, and smoking was noted in two patients. All patients received anticoagulant therapy. ***Conclusion:*** These findings support systematic thromboembolic risk assessment and early thromboprophylaxis during active IBD, especially in hospitalized or corticosteroid-treated patients.

Keywords: Inflammatory bowel disease, Crohn's disease, Ulcerative colitis, Venous thromboembolism, Deep vein thrombosis, Pulmonary embolism, Cerebral venous thrombosis, Anticoagulation, Case series.

INTRODUCTION

Inflammatory bowel disease (IBD), mainly Crohn's disease and ulcerative colitis, is no longer considered a condition limited to the intestinal tract. It is a systemic inflammatory disorder in which immune dysregulation, endothelial activation, altered haemostasis, nutritional impairment and treatment-related factors may interact to produce extra-intestinal complications. Among these complications, thromboembolic events are particularly important because they may be clinically silent at onset, rapidly life-threatening, and partly preventable.

The association between IBD and venous thromboembolism has been consistently reported in population studies and meta-analyses. The estimated relative risk is generally close to two-fold, although it varies according to disease activity, hospitalization, age, surgery, infection, corticosteroid exposure and other conventional risk factors [1,2,3]. Active disease appears to be the most powerful clinical trigger: inflammation promotes tissue factor expression, platelet activation, impaired fibrinolysis, endothelial dysfunction and changes in circulating coagulation factors. This creates a prothrombotic state that may involve usual sites such as the deep veins of the lower limbs and pulmonary arteries, but also unusual sites including cerebral venous sinuses or splanchnic veins.

Despite the availability of pharmacological thromboprophylaxis, thromboembolic complications in IBD remain under-recognized. Fear of gastrointestinal bleeding may lead to underuse of prophylactic anticoagulation, particularly during severe flares, even though uncontrolled inflammation itself increases both thrombotic and bleeding risks. Local case series are useful because they describe the real-world clinical phenotype of thromboembolic events, identify recurrent

warning profiles and help adapt preventive strategies to specific care settings.

The present retrospective case series describes severe thromboembolic manifestations observed among patients with IBD managed at a Moroccan tertiary military hospital over one year. The primary objective was to estimate the prevalence of documented thromboembolic events in this IBD cohort. Secondary objectives were to describe the clinical presentation, type of thrombosis, associated risk factors, treatment and short-term clinical course, and to interpret these findings in the context of the existing literature.

MATERIALS AND METHODS

Study design and setting

We conducted a retrospective descriptive case series at the Department of Gastroenterology I, Mohammed V Military Teaching Hospital, Rabat, Morocco. The department uses electronic medical records, allowing access to clinical notes, laboratory results, imaging reports, hospitalization records and therapeutic data.

Study period and population

The study covered the period from January 2024 to January 2025. The source population comprised all patients followed or hospitalized for confirmed IBD during this period. Eligible patients were aged 16 years or older and had a confirmed diagnosis of Crohn's disease or ulcerative colitis according to clinical, endoscopic, histological and radiological criteria when available.

Inclusion and exclusion criteria

Patients were included if they had at least one documented thromboembolic event, venous or arterial, confirmed by an appropriate imaging modality or a validated diagnostic investigation. Deep vein thrombosis was confirmed by Doppler ultrasonography, pulmonary embolism by computed tomography pulmonary angiography, cerebral venous thrombosis by cerebral computed tomography or magnetic resonance imaging, and atypical abdominal or pelvic thrombosis by computed tomography or magnetic resonance imaging. Patients were excluded when the diagnosis of IBD was uncertain, the thromboembolic event was not objectively confirmed, or the medical record was insufficient for analysis.

Collected variables

A standardized data extraction sheet was used. The following variables were collected: age, sex, type of IBD, disease duration, disease activity at the time of thrombosis, toxic habits, presenting symptoms, thrombotic site, biological findings, imaging findings, corticosteroid exposure, hospitalization, recent surgery, immobilization, dehydration, hormonal exposure, personal or familial history of thrombosis, comorbid prothrombotic conditions, anticoagulant strategy, complications, recurrence and clinical evolution.

Statistical analysis

Because of the small number of cases, analysis was descriptive. Categorical variables were expressed as counts and percentages. Continuous variables were summarized using mean and range. The prevalence of thromboembolic events was calculated as the number of IBD patients with documented thromboembolism divided by the total number of IBD patients followed during the study period, multiplied by 100.

Ethical considerations

This study was based on retrospective review of existing clinical data. No experimental intervention was performed. Patient anonymity and confidentiality were preserved during data extraction and manuscript preparation. Formal institutional ethics approval or waiver should be stated according to the requirements of the local ethics committee before journal submission.

RESULTS

During the study period, 125 patients were managed for IBD in the department. Four patients developed a documented thromboembolic event, giving a prevalence of 3.2%. The remaining 121 patients had no recorded thromboembolic manifestation during the same period.

The series included three men and one woman, with a male-to-female ratio of 3:1. Age ranged from 27 to 63 years, with a mean age of 42 years. Two patients had Crohn's disease and two had ulcerative colitis, resulting in an equal distribution between the two main IBD phenotypes. Smoking was documented in two of the four patients.

The interval between IBD diagnosis and thromboembolic manifestation was variable. In two patients, thrombosis occurred within the first year after IBD diagnosis. In one patient, the event occurred between one and ten years after diagnosis, and in another patient after more than ten years of disease evolution. All four events occurred during active IBD; no event occurred during remission or in the postoperative setting.

Clinical presentation depended on the thrombotic site. Lower-limb pain was the revealing symptom in two patients. One patient presented with dyspnea and chest pain, leading to the diagnosis of pulmonary embolism associated with lower-limb deep vein thrombosis. One patient presented with neurological symptoms and was diagnosed with cerebral venous thrombosis. Overall, lower-limb deep vein thrombosis was the most frequent event and was identified in three patients; pulmonary embolism was associated in one of these cases, and cerebral venous thrombosis occurred in one patient.

Regarding associated risk factors, systemic corticosteroid therapy was present in all four patients at the time of the event. Smoking was present in two patients. Prolonged hospitalization was identified in one patient. No case was associated with malnutrition or a family history of thromboembolism in the available records. Laboratory testing showed abnormalities in all cases: anemia was present in all patients, C-reactive protein was elevated in all patients, and the haemostasis workup was abnormal in three patients. Hyperleukocytosis was reported in three patients.

All patients received therapeutic anticoagulation according to the thrombotic site and clinical context. The management of the underlying IBD flare was conducted concomitantly. In the original data, a minimum anticoagulant duration of three months was considered, with prolonged treatment up to one year in one case. Clinical evolution was monitored for complications and recurrence.

Table 1: Epidemiological and clinical characteristics of the case series

Variable	Finding
Total IBD patients during study period	125
Patients with thromboembolic event	4 (3.2%)
Sex	3 men, 1 woman
Age	Mean 42 years; range 27-63 years
IBD type	Crohn's disease: 2; ulcerative colitis: 2
Disease activity at event	Active IBD in 4/4 patients
Time from IBD diagnosis to thrombosis	<1 year: 2; 1-10 years: 1; >10 years: 1
Main clinical presentation	Lower-limb pain: 2; dyspnea/chest pain: 1; neurological symptoms: 1
Thrombotic events	Lower-limb DVT: 3; pulmonary embolism associated with DVT: 1; cerebral venous thrombosis: 1
Associated factors	Systemic corticosteroids: 4; smoking: 2; prolonged hospitalization: 1
Laboratory profile	Anemia: 4; elevated CRP: 4; abnormal haemostasis workup: 3; hyperleukocytosis: 3

DISCUSSION

This retrospective case series found a 3.2% prevalence of documented thromboembolic events among patients with IBD managed over one year in a tertiary gastroenterology department. Although the number of events was small, the clinical pattern was consistent: all thromboembolic events occurred during active IBD, all patients had systemic inflammation, and all were exposed to corticosteroids. Lower-limb deep vein thrombosis was the dominant presentation, but the series also included pulmonary embolism and cerebral venous thrombosis, underlining the potential severity and heterogeneity of IBD-associated thrombosis.

The observed prevalence is compatible with the recognized burden of thromboembolic disease in IBD. Previous epidemiological work has shown that patients with IBD have a higher risk of venous thromboembolism than the general population [1]. Meta-analyses have reported an approximately two-fold increased risk of deep vein thrombosis and pulmonary embolism in IBD [2,3]. Hospital-based series may capture more severe disease and therefore identify patients at particularly high risk, especially during flares requiring corticosteroids or admission.

Disease activity was the central feature in our series. This finding is biologically plausible and clinically important. Active intestinal inflammation amplifies systemic cytokine release, endothelial activation, platelet reactivity and coagulation cascade activation. Tissue factor expression, reduced natural anticoagulant activity, impaired fibrinolysis and acute-phase responses contribute to a hypercoagulable milieu [5,6]. Inflammatory flares also expose patients to dehydration, reduced mobility, hospitalization, infection, central venous access, corticosteroids and nutritional deterioration, all of which may further increase thrombotic risk.

The role of corticosteroids deserves specific attention. In our series, all patients were receiving systemic corticosteroids. This does not prove causality, because corticosteroids are frequently prescribed during severe active disease, which itself is prothrombotic. However, corticosteroid exposure is repeatedly identified as a marker of high-risk inflammatory status and may contribute to thrombotic risk through metabolic, vascular and haemostatic effects. In daily practice, a patient with active IBD requiring systemic steroids should therefore be considered a candidate for formal thromboembolic risk assessment and, when appropriate, pharmacological thromboprophylaxis [6].

Lower-limb deep vein thrombosis was the most common manifestation in our series, with one case complicated by pulmonary embolism. This pattern corresponds to the most frequent form of venous thromboembolism reported in IBD cohorts [7]. However, the presence of cerebral venous thrombosis is a reminder that IBD-associated thrombosis may affect unusual venous territories. Headache, seizures, focal

neurological deficits or unexplained intracranial hypertension in a patient with active IBD should trigger urgent neurovascular imaging. Early diagnosis is essential because anticoagulation is the cornerstone of treatment even in many cases complicated by venous haemorrhagic infarction, provided specialist assessment supports it.

The therapeutic approach in this series was based on anticoagulation while simultaneously controlling intestinal inflammation. Current expert recommendations generally support therapeutic anticoagulation for at least three months after symptomatic venous thromboembolism, with longer duration when thrombosis occurs in the setting of persistent active disease or when the event is unprovoked [6,8]. In IBD, the decision must integrate thrombotic recurrence risk, bleeding risk, disease activity, site of thrombosis and reversibility of provoking factors. The fear of digestive bleeding should not lead to systematic withholding of anticoagulation when a clear indication exists; rather, bleeding risk should be actively evaluated and mitigated.

This study has several strengths. It focuses on objectively confirmed thromboembolic events, uses hospital electronic records, and describes clinically severe events in a real-world Moroccan tertiary-care setting. It also provides a practical message for gastroenterology departments: thrombotic risk is not theoretical during IBD flares, and prevention should be integrated into acute care pathways.

The limitations must be acknowledged. The study was retrospective, monocentric and based on only four thromboembolic cases, which prevents inferential statistics or identification of independent risk factors. Some variables may have been incompletely documented, including thrombophilia testing, exact disease activity indices, anticoagulant duration, bleeding events and long-term recurrence. The study also included hospitalized or department-managed patients, which may not reflect the thrombotic risk of all ambulatory IBD patients. Despite these limitations, the consistency of the findings with the literature supports their clinical relevance.

CONCLUSION

In this retrospective Moroccan case series, thromboembolic events occurred in 3.2% of patients with IBD and were observed exclusively during active disease. Lower-limb deep vein thrombosis was the most frequent presentation, but pulmonary embolism and cerebral venous thrombosis were also identified. Systemic inflammation and corticosteroid exposure were common features. These findings emphasize the need for systematic thromboembolic risk assessment, early recognition of atypical presentations and appropriate thromboprophylaxis during IBD flares, particularly in hospitalized or severely inflamed patients.

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Ethics Approval: This retrospective study used anonymized data extracted from existing medical records. The final manuscript should include the decision of the local ethics committee or institutional review board, including approval number or waiver if applicable.

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