Prevalence of perfusion defects on V/Q SPECT in patients with ulcerative colitis requiring hospitalization for a flare within the past 24 months

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Introduction

Ulcerative colitis (UC) is associated with a **2–3-fold increased risk of venous thromboembolic events (VTE)** [1]. This risk is particularly elevated during **disease flares**. In addition, the risk of **chronic thromboembolic pulmonary disease or chronic thromboembolic pulmonary hypertension** is also increased [2]. However, there is a lack of studies systematically investigating these complications and identifying additional risk factors in patients with inflammatory bowel disease (IBD).

Methods

- The aim of this **prospective cohort study** was to evaluate the occurrence of **perfusion defects on ventilation–perfusion (V/Q) SPECT** in patients with UC who required **hospitalization for a UC flare within the previous 24 months**.
- Patients were recruited from a **single tertiary IBD center** between **January 2023 and February 2025**.
- V/Q SPECT was performed in all patients after hospital discharge.
- During hospitalization, all patients received **prophylactic anticoagulation only**.
- If a **perfusion defect suspected of embolic origin** was detected, **therapeutic anticoagulation** was initiated and **follow-up V/Q SPECT** was performed. **Relevant clinical risk factors and treatment** were also evaluated.

Results

- A total of **53 patients** were included. None of the patients had **clinical symptoms of pulmonary embolism**.
- **The baseline characteristics are resented in Table 1. Clinically relevant thromboembolic risk factors and treatments are presented in Table 2.**
- The **mean time between the last hospitalization due to UC flare and V/Q SPECT** was **8.02 months.**
- **Segmental perfusion defects** on V/Q SPECT were detected in **8 patients (Fig 1)**.
- Follow-up V/Q SPECT was performed in all eight patients with initially positive findings after a mean of **8.18 months**.
- **Complete reperfusion** was observed in **4 patients, 4 patients had persistent perfusion defects**

Table 1
Baseline characteristics

Parameter	Statistics	All patients (N = 53)	Perfusion defects on the first scintigraphy		P - value
			Yes (N=8)	No (N=44)	
Age (years)	Mean (±SD)	36.17 (±13.073)	32.00 (±14.755)	36.84 (±12.931)	0.1479
Sex (women)	n (%)	24 (45.3 %)	4 (50.0 %)	20 (45.5 %)	1.0000
Body mass index (BMI)	Mean (±SD)	23.76 (±4.276)	22.30 (±4.143)	24.13 (±4.279)	0.1915
Duratiion of UC (years)	Mean (±SD)	7.2 (±7.09)	11.0 (±10.07)	6.6 (±6.41)	0.1325
Disease activity FCP [ug/g]	Mean (±SD)	199.9 (±313.36)	56.3 (±61.97)	225.4 (±336.14)	0.2781
Disease aktivity (pMayo)					
0	n (%)	38 (71.7 %)	7 (87.5 %)	31 (70.5 %)	1.0000
1	n (%)	5 (9.4 %)	1 (12.5 %)	4 (9.1 %)	
2	n (%)	5 (9.4 %)		4 (9.1 %)	
3	n (%)	1 (1.9 %)		1 (2.3 %)	
4	n (%)	1 (1.9 %)		1 (2.3 %)	
5	n (%)	3 (5.7 %)		3 (6.8 %)	
Disease extent					
E2	n (%)	14 (26.4 %)	2 (25.0 %)	12 (27.3 %)	1.0000
E3	n (%)	39 (73.6 %)	6 (75.0 %)	32 (72.7 %)	1.0000

Fig 1
Prevalence of perfusion defects before and after anticoagulation

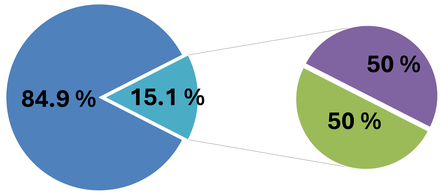

Table 2
Clinically relevant thromboembolic risk factors and treatments

Parameter	Statistics	All patients (N = 53)	Perfusion defects		P - value
			Yes (N=8)	No (N=44)	
Hormonal contraception	n (%)	2 (3.8 %)	0 (0%)	2 (4.5 %)	1.0000
Malignancy	n (%)	2 (5.7 %)	0 (0%)	2 (4.5 %)	1.0000
Lupus anticoagulant (LA)	n (%)	1 (2.1 %)	0 (0%)	1 (2.4 %)	0.2136
Lupus antibodies	n (%)	3 (6.4 %)	0 (0%)	3 (7.3 %)	1.0000
F VIII [50-150 %]	Mean (±SD)	11.0 (±38.53)	24.2 (±55.76)	9.2 (±36.33)	0.8194
Time from the last relapse to the 1st scintigraphy [months]	Mean (±SD)	8.02 (±7.128)	7.36 (±7.382)	7.98 (±7.161)	0.7705
Active bilogic therapy	n (%)	46 (86.8 %)	6 (75 %)	39 (88.6)	0.0992
JAK inhibitors	n (%)	34 (64.2 %)	5 (62.5 %)	28 (63.6 %)	1.0000
Oral corticosteroids	n (%)	24 (45.3 %)	4 (50.0 %)	20 (45.5 %)	1.0000
PICC catheter	n (%)	3 (5.7 %)	0 (0%)	3 (6.8 %)	1.0000
Colon resection	n (%)	8 (15.1 %)	2 (25.0 %)	6 (11.4 %)	0.2915
Intestinal complication	n (%)	3 (5.7 %)	0 (0%)	2 (4.5 %)	1.0000
Extraintestinal complication	n (%)	14 (26.4 %)	2 (25.0 %)	11 (25.0 %)	1.0000
Associated intestinal infections	n (%)	18 (34.0 %)	4 (50.0 %)	14 (31.8 %)	0.4248
Thrombosis history	n (%)	3 (5.7 %)	0 (0%)	3 (6.8 %)	1.0000

Conclusions

- In this cohort, **8 (15.1%) of patients** who had experienced a **severe UC flare requiring hospitalization within the previous two years** demonstrated **segmental perfusion defects on V/Q SPECT**, despite the absence of clinical symptoms of pulmonary embolism.
- In **four of these eight patients**, perfusion defects **persisted after at least three months of anticoagulant therapy**, suggesting the possibility of **persistent or chronic thromboembolic changes**.
- **No significant statistical difference** was found in risk factors and treatment between patients without and with perfusion defects.

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Literature:

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