

# Idiopathic Myointimal Hyperplasia of Mesenteric Veins: A Systematic Review and Individual Patient Data Regression Analysis

Raquel Rozner, MD<sup>1</sup>; Savannah Gisriel, MD<sup>2</sup>; John Damianos, MD<sup>3</sup>; Alyssa A. Grimshaw MSLIS<sup>4</sup>; Rabia Rizwan, MD<sup>3</sup>; Ahmad Nawaz, MD<sup>3</sup>; Kevin Chan, MD<sup>5</sup>; David Wan, MD<sup>6</sup>; Haddon Pantel, MD<sup>7</sup>; Abdul Q. Bhutta, MD<sup>8</sup>;

Marc Fenster, MD<sup>9</sup>; Lawrence Brandt, MD<sup>9</sup>; Andrea Barbieri, MD<sup>2</sup>; Marie E. Robert, MD<sup>2</sup>; Paul Feuerstadt, MD<sup>10</sup>; Darrick K. Li, MD PhD<sup>1</sup>

<sup>1</sup>Section of Digestive Diseases, Yale School of Medicine, New Haven, CT; <sup>2</sup>Department of Pathology, Yale School of Medicine, New Haven, CT; <sup>3</sup>Department of Medicine, Yale School of Medicine, New Haven, CT; <sup>4</sup>Harvey Cushing/John Hay Medical Library, Yale University, New Haven, CT; <sup>5</sup>Department of Medicine, Weill Cornell Medicine, New York-Presbyterian Hospital, New York, NY; <sup>6</sup>Department of Gastroenterology/Hepatology, Weill Cornell Medicine, New York-Presbyterian Hospital, New York, NY; <sup>7</sup>Department of Medicine, Yale School of Medicine, New Haven, CT; <sup>8</sup>Division of Gastroenterology, Section of Medicine, SUNY Upstate Medical University, Syracuse, NY; <sup>9</sup>Division of Gastroenterology, Department of Medicine, Montefiore Medical Center, Bronx, NY; <sup>10</sup>PACT-Gastroenterology Center, Hamden, CT



## Background and Aims

- Idiopathic myointimal hyperplasia of the mesenteric veins (IMHMV) is an uncommon cause of colonic ischemia for which surgical resection is curative.
- We aimed to describe clinical, radiologic and endoscopic findings in IMHMV patients to provide clinicians with a framework for pre-surgical identification of this rare disease.

## Methods

- Systematic review of seven databases for cases of IMHMV and added three additional cases from Yale New Haven Hospital records.
- To identify features specifically associated with IMHMV colonic ischemia, we performed multivariate logistic regression analysis incorporating data from a large cohort of biopsy-proven ischemic colitis (Table 3).

## Results

- A total of 124 patients with IMHMV were identified (80% male, mean age 53, 56% Caucasian). The most common symptoms are listed in Table 1. The most affected areas are listed in Table 2.
- Endoscopic and pathologic features are shown in Figure 1.
- 29% of patients suffered complications related to diagnostic delay
- Anatomic vascular abnormalities including non-opacification of the inferior mesenteric vein were observed in 35% of patients.
- 97% of patients underwent curative surgical resection.
- Compared to non-IMHMV colonic ischemia, IMHMV was significantly associated with younger age, male sex, rectal involvement on endoscopy and absence of rectal bleeding on presentation.

## Conclusions

- IMHMV is a rare, underreported cause of colonic ischemia that predominantly involves the distal colon.
- Our findings suggest **younger age, rectal involvement, and absence of rectal bleeding** as clinical features to help identify select patients presenting with colonic ischemia as having higher likelihood of IMHMV and therefore **consideration of upfront surgical management**.
- See Figure 2 for our proposed algorithm to expedite surgical management when there is suspicion for IMHMV.

Symptom	n (%)
Any symptoms	123 (99%)
Abdominal pain	106 (86%)
Diarrhea	84 (68%)
Hematochezia	66 (53%)
Weight loss	20 (16%)
Constipation	18 (15%)
Tenesmus	16 (13%)
Abdominal distension	14 (11%)
Nausea/ Vomiting	7 (6%)

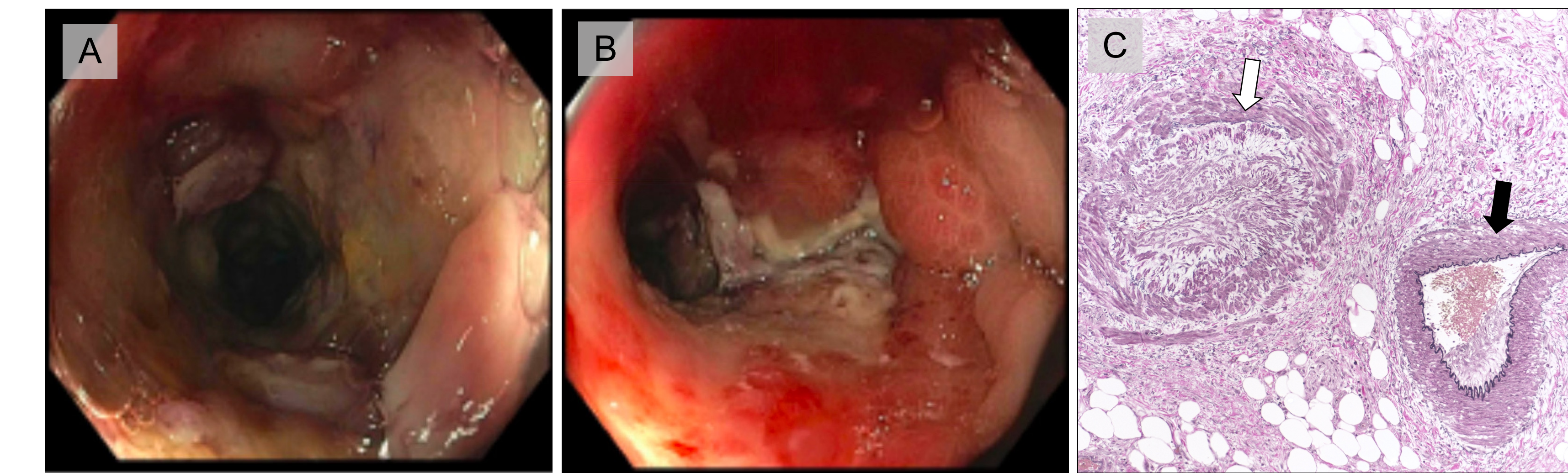
**Table 1: Presenting symptoms in 124 IMHMV patients.** Categorical variables are provided as n (%).

Area of involvement	n (%)
Any colonic involvement	99 (95%)
Cecum	5 (5%)
Ascending Colon	6 (6%)
Transverse Colon	9 (9%)
Descending Colon	54 (52%)
Sigmoid Colon	95 (91%)
Rectum	63 (61%)
Left-sided only	92 (88%)
Right-sided only	4 (4%)
Pancolonic	3 (3%)
Any small bowel involvement	11 (11%)
Small bowel involvement only	5 (5%)

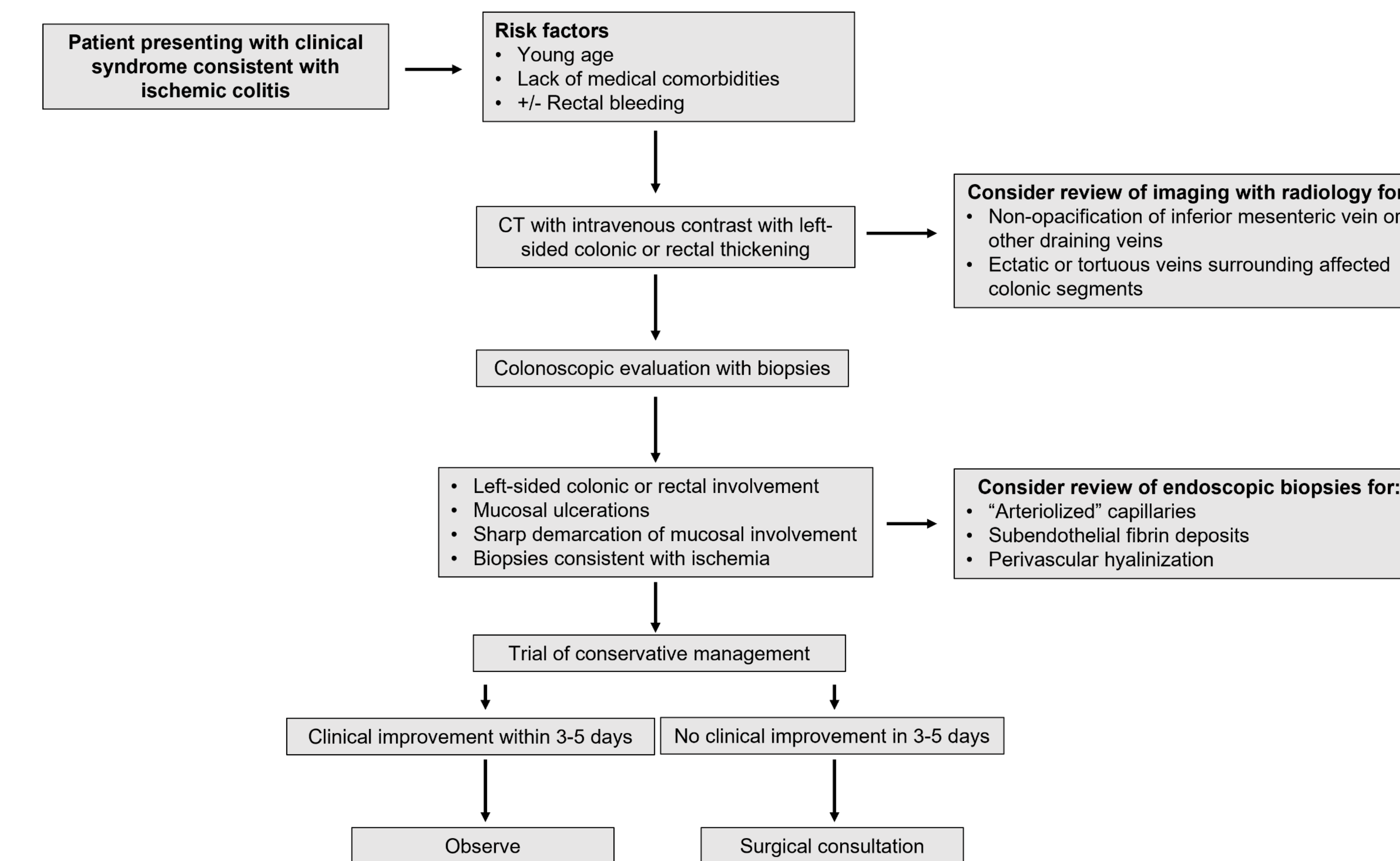
**Table 2: Areas of intestinal involvement in 104 IMHMV patients.** Categorical variables are provided as n (%).

Variable	OR (univariate)	P value	aOR (multivariate)	P value	95% CI (multivariate)
Age, per year	0.94	<0.001	0.94	0.010	0.92-0.96
Sex (Male)	9.24	<0.001	10.10	0.002	4.71-21.67
Rectal Bleeding	0.42	<0.001	0.006	<0.001	0.001-0.025
Pain without bleeding	1.86	0.009	0.23	0.244	0.02-2.75
Non-bloody diarrhea	2.66	<0.001	1.46	0.673	0.60-3.55
Diabetes mellitus	0.35	0.007	0.57	0.494	0.25-1.35
Hypertension	0.09	<0.001	0.07	<0.001	0.01-0.32
Cirrhosis	0.48	0.472	---	---	---
Rectal involvement on imaging	11.69	<0.001	6.71	0.027	2.84-15.85
Isolated left-sided involvement on endoscopy	8.78	<0.001	5.45	0.044	1.00-12.67
Rectal involvement on endoscopy	26.27	<0.001	12.61	0.004	5.22-30.51
Ulcerations on endoscopy	2.03	0.009	4.06	0.049	1.99-8.25

**Table 3: Multivariate regression analysis of clinical features associated with IMHMV-colonic ischemia.** OR = odds ratio; aOR = adjusted odds ratio; 95% CI = 95% confidence interval.



**Figure 1. Endoscopic and pathologic features associated with IMHMV.** (A, B) Endoscopic views of sigmoid colon in a patient with IMHMV. (C) Colon resection specimen with occluded mesenteric vein (on left, white arrow), and adjacent unremarkable mesenteric artery (on right, black arrow). An Elastin van Gieson (EVG) stain highlights the intact elastic lamina in the artery, which is absent in the adjacent thickened vein. (EVG, magnification X 100).



**Figure 2. Algorithm for identification and management of suspected IMHMV that may expedite definitive surgical management**