Outcomes of Acute Mesenteric Vein Thrombosis

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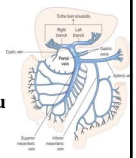

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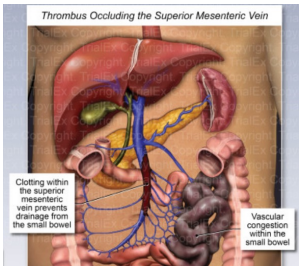
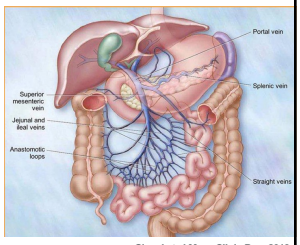
Disclosures

- No financial disclosures



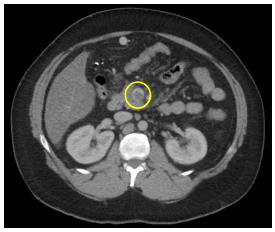
Mesenteric Venous Thrombosis (MVT)

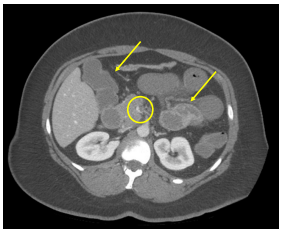
- 6-9% of all cases of acute mesenteric ischemia
- Factors predisposing to MVT are well described
  - Prothrombotic states
  - Local vessel wall injury
  - Venous stasis



Singal et al Mayo Clinic Proc 2013

Background

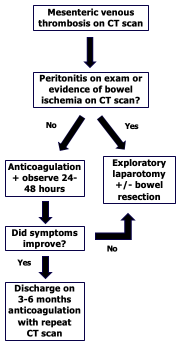




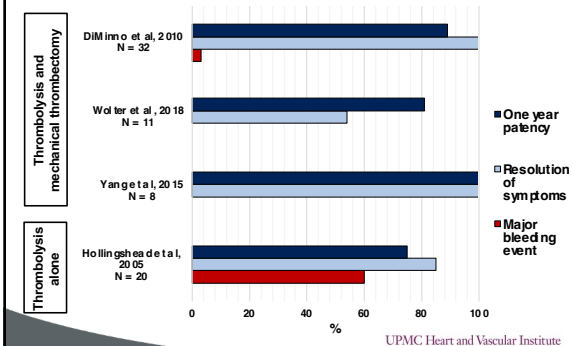
Anticoagulation

Anticoagulation + Bowel Resection

Background – Treatment



Background – Endovascular Recanalization



UPMC Experience

From the Society for Vascular Surgery

Acute superior mesenteric venous thrombosis results in high rates of readmission and morbidity

Elizabeth Andraska, MD, MS, Lindsey Haga, MD, Katherine Reitz, MD, Xiaoyi Li, MD, Rafael Ramos, MD, Efthymios Avgerinos, MD, PhD, MS, Michael Singh, MD, Mohammad Eslami, MD, MPH, Michel Makaroun, MD, and Rabih Chaer, MD, Pittsburgh, Pa

ABSTRACT

Objective: Superior mesenteric venous thrombosis (MVT) is a poorly understood clinical entity, and as such, outcomes are poorly described. This study aimed to identify predictors of bowel ischemia after MVT and to compare outcomes for patients treated medically (group 1) with those for patients treated with bowel resection (group 2).

Methods: This was a retrospective, single-institution study capturing all patients diagnosed with symptomatic acute MVT on computed tomography imaging from 2006 to 2018. Demographics, comorbidities, imaging, laboratory values, and treatment were included. Predictors of bowel resection were analyzed by univariate and multivariate statistics. Outcomes including mortality, readmissions for abdominal pain, and chronic mesenteric venous congestion were compared using χ^2 test.

Results: There were 121 patients included in the study. 96 patients were treated medically (group 1). 19 patients were treated with bowel resection (group 2), and 4 patients were treated with endovascular recanalization (group 3). Group 1 and group 2 were compared directly. Patients requiring bowel resection tended to have higher body mass index ($P = .03$) and a hypercoagulable disorder ($P = .003$). Patients who required bowel resection were more likely to present with lactic acidosis ($P < .001$) and leukocytosis ($P < .001$) with bowel wall thickening on scan ($P < .001$). On multivariable

Describe our experience with managing MVT exclusively with anticoagulation or with anticoagulation and intervention

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Methods

Inclusion:

- Acute abdominal pain & CT confirmed SMV thrombus (1/2008 –11/2018)

Variables:

- Demographics, comorbidities, imaging, labs, and treatment

Groups:

1. Anticoagulation vs. Anticoagulation + bowel resection
2. Endovascular recanalization

Methods

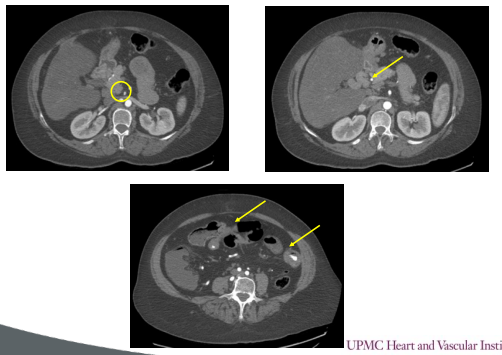
Outcomes:

- One year mortality, readmission for abdominal pain, chronic mesenteric congestion

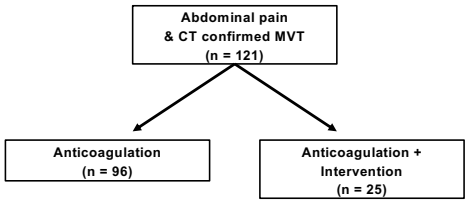
Analysis:

- Univariate statistics and multivariable logistic regression

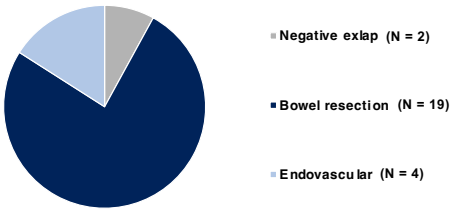
Methods



Results



Interventions



Results

Anticoagulation vs.
Anticoagulation + bowel resection

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Results

	Anticoagulation (n = 98) N (%)	Anticoagulation + Bowel resection (n = 19) N (%)	P value
Age, years (SD)	50.75 (14.94)	50.37 (14.05)	.92
Sex (Female)	40 (40.8)	12 (63.2)	.07
Obesity	29 (29.6)	10 (52.6)	.05
Diabetes	16 (16.3)	2 (10.5)	.52
Smoker	36 (36.7)	5 (26.3)	.38
Thrombophilia	20 (20.4)	10 (52.6)	< .01
Cirrhosis	24 (24.5)	3 (15.8)	.41
Active cancer	20 (20.4)	2 (10.5)	.31
IBD	14 (14.3)	1 (5.3)	.28
Recent abdominal surgery	18 (18.4)	1 (5.3)	.16
Pancreatitis	13 (13.3)	1 (5.3)	.33
History of bowel resection	20 (20.4)	1 (5.3)	.12

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Results

	Anticoagulation (n = 98) N (%)	Anticoagulation + Bowel resection (n = 19) N (%)	P value
Bowel wall thickening	43 (43.9)	18 (94.8)	<.01
Lactic acidosis	11 (11.2)	9 (47.4)	<.01
Leukocytosis	34 (34.7)	17 (89.5)	<.01
Portal vein	50 (51.0)	8 (42.1)	.48
Hepatic vein	11 (11.2)	1 (5.3)	.43
Splenic vein	21 (21.4)	0 (0.0)	.03
> 2 vessels	27 (27.6)	3 (15.8)	.39

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Multivariable Model. Bowel Ischemia

Variable	OR (95% CI)	P value
Lactate	6.48 (1.89, 22.15)	.003
Female	2.92 (0.89, 9.60)	.077
Obesity	2.44 (0.73, 8.09)	.146
Thrombophilia	3.81 (1.12, 12.37)	.026
Recent abdominal surgery	0.19 (0.01, 2.61)	.212
History of SBR	0.04 (0.02, 1.87)	.158

AOC = 0.82

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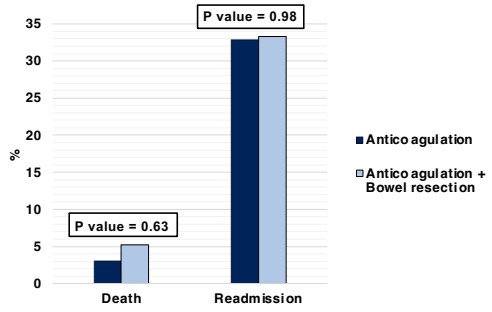
Results



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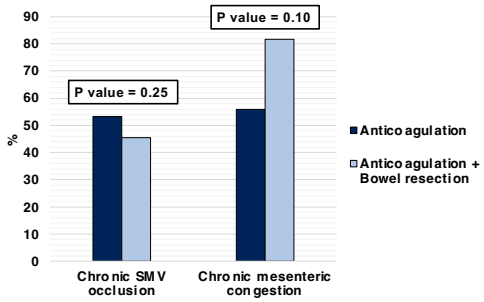
Results



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Results

Endovascular Recanalization

Endovascular Approach (N=4)

- Treatment
  - Angiojet
    - Venoplasty (1)
    - Stent (1)
    - Overnight lysis (1)
- Access
  - Transhepatic (2)
  - Transplenic (2)
- Lytic
  - 6-10mg tPA

Endovascular Outcomes

Complete resolution of symptoms.	Persistent abdominal pain, negative exlap 3 days later (benign pneumatosis). No further admissions.	Recurrent admissions for abdominal pain, negative exlap one year later (benign pneumatosis).

25% with rethrombosis and chronic mesenteric congestion on follow-up imaging
No 1yr mortality
No bleeding complications

Conclusions

- Largest single institution study describing MVT
- Thrombophilia is a predictor of bowel ischemia (OR =3.81)
  - Other factors such as malignancy, tobacco use, and recent surgery are not associated with bowel resection
- Distribution of thrombus was not associated with bowel resection

Conclusions

- For those treated with anticoagulation +/- bowel resection, outcomes are morbid
  - The majority of patients will develop chronic mesenteric congestion
  - Readmission rates approach 35%
- Endovascular recanalization may improve patency and clinical outcome
- Open or suction thrombectomy in patients undergoing bowel resection?

THANK YOU

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