

# SUPERIOR MESENTERIC ARTERY THROMBOSIS AND INTESTINAL ISCHEMIA AS A CONSEQUENCE OF SARS-COV-2 INFECTION

MedStar Health

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## Introduction

We present a patient with devastating thrombosis of the superior mesentery artery associated with SARS-CoV-2

## Case Description

A 47 yo man with a PMH of obesity and hypothyroidism presented with malaise, fever, chills, diarrhea, productive cough, and dyspnea for 9 days.

### On presentation:

**Vitals:** febrile, tachycardiac with a SpO2 of 87% on RA.

**Physical examination:** distant breath sounds

### Labs:

-mildly elevated Creatinine and D-dimer

-positive SARS-CoV-2 PCR.

### Imaging:

-CXR: hazy patchy, bilateral opacities.

### Hospital course:

- Started on dexamethasone, nebulizer treatment and prophylactic enoxaparin.

-Was on BIPAP and baricitinib in ICU.

-Later, developed mild abdominal discomfort with abdominal X-ray showing an overall paucity of bowel gas with thickened folds in a partially distended loop of bowel. → Required intubation with mechanical ventilation and a vasopressor.

-Repeat D-dimer was markedly elevated (21,380), with lactate 2.2 mmol/L.

-NCCT: **mildly prominent fluid-filled small and colonic loops**, **mesenteric edema and interloop ascites**.

-CTA: **Complete occlusion of SMA at its origin in the aorta** →He was taken to OR with operative finding of : gangrene of SMA at its origin, with no evidence of atherosclerotic disease, edematous bowel from ligament of Treitz to mid transverse colon

-Revascularization of SMA and/or excision of vast majority of patient's bowel was deemed futile. He expired the next morning.

### References

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- 5.Vulliamy P, Jacob S, Davenport RA. Acute aorto-iliac and mesenteric arterial thromboses as presenting features of COVID-19. British journal of haematology. 2020 Jun 1.

## Images

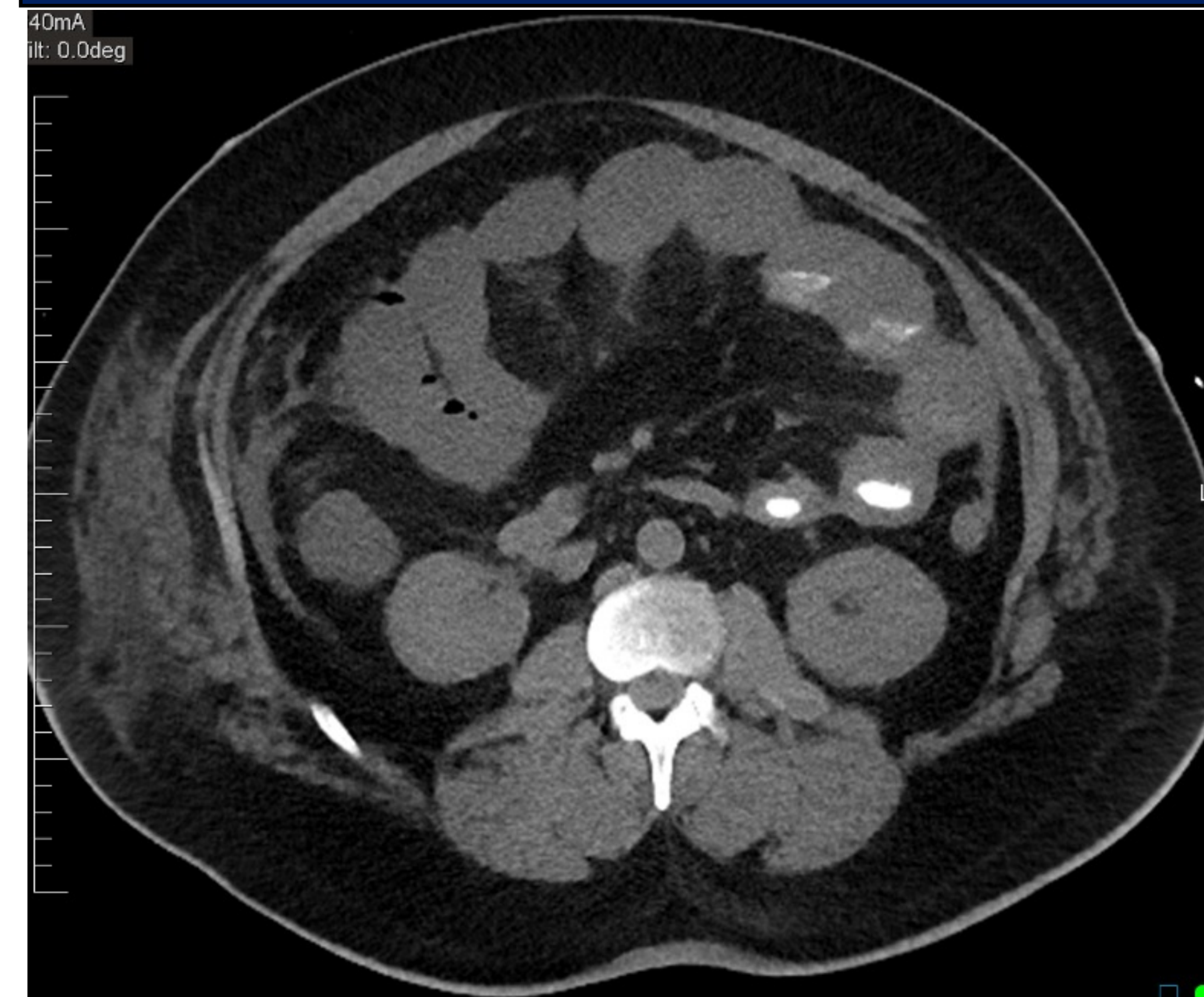


Fig 2: NCCT of abdomen: mildly prominent fluid filled small bowel and colonic loops starting with cutoff at splenic flexure, mesenteric edema and interloop ascites

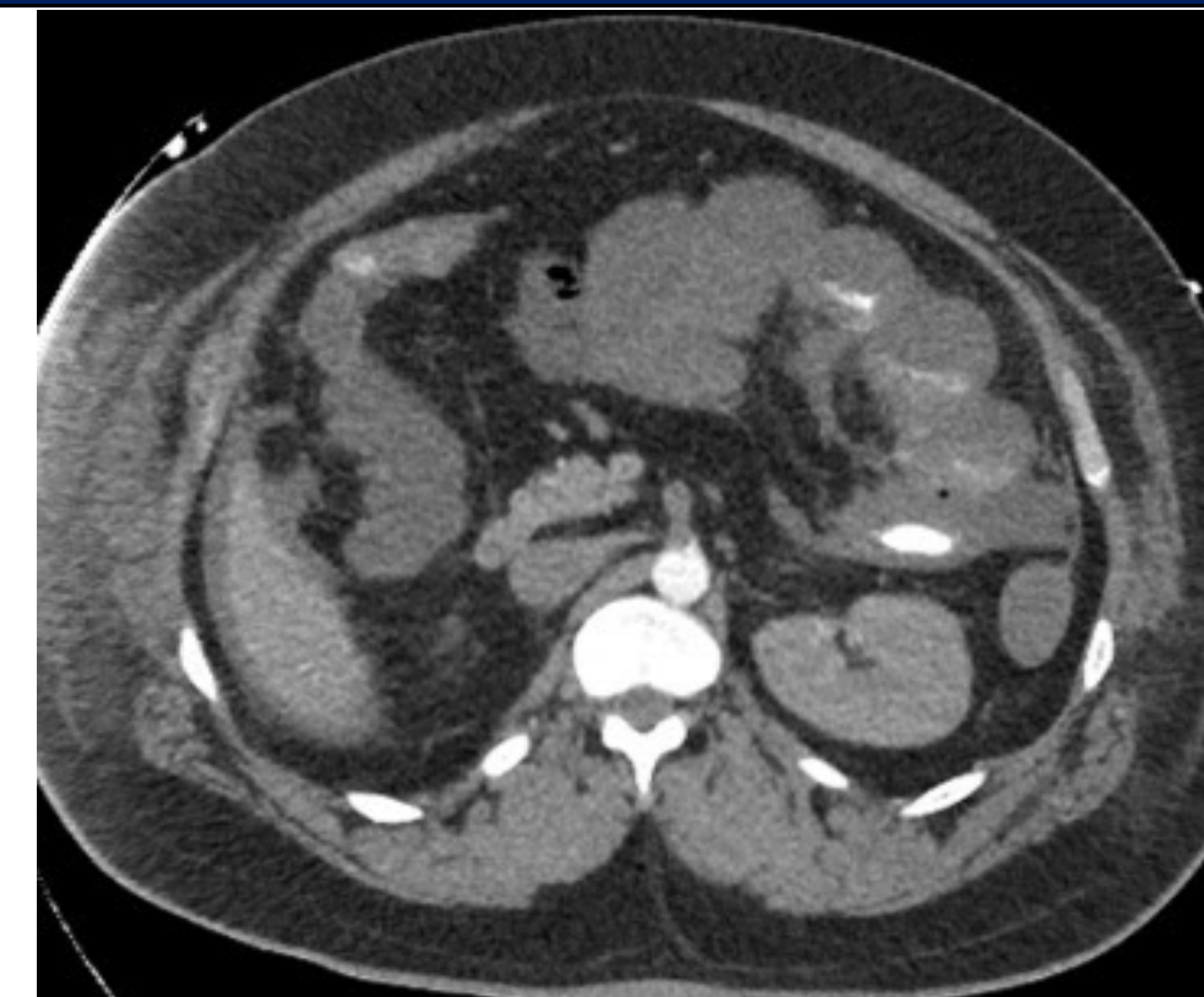


Fig 1: CTA of abdomen: thrombus with complete occlusion of superior mesenteric artery at its origin.

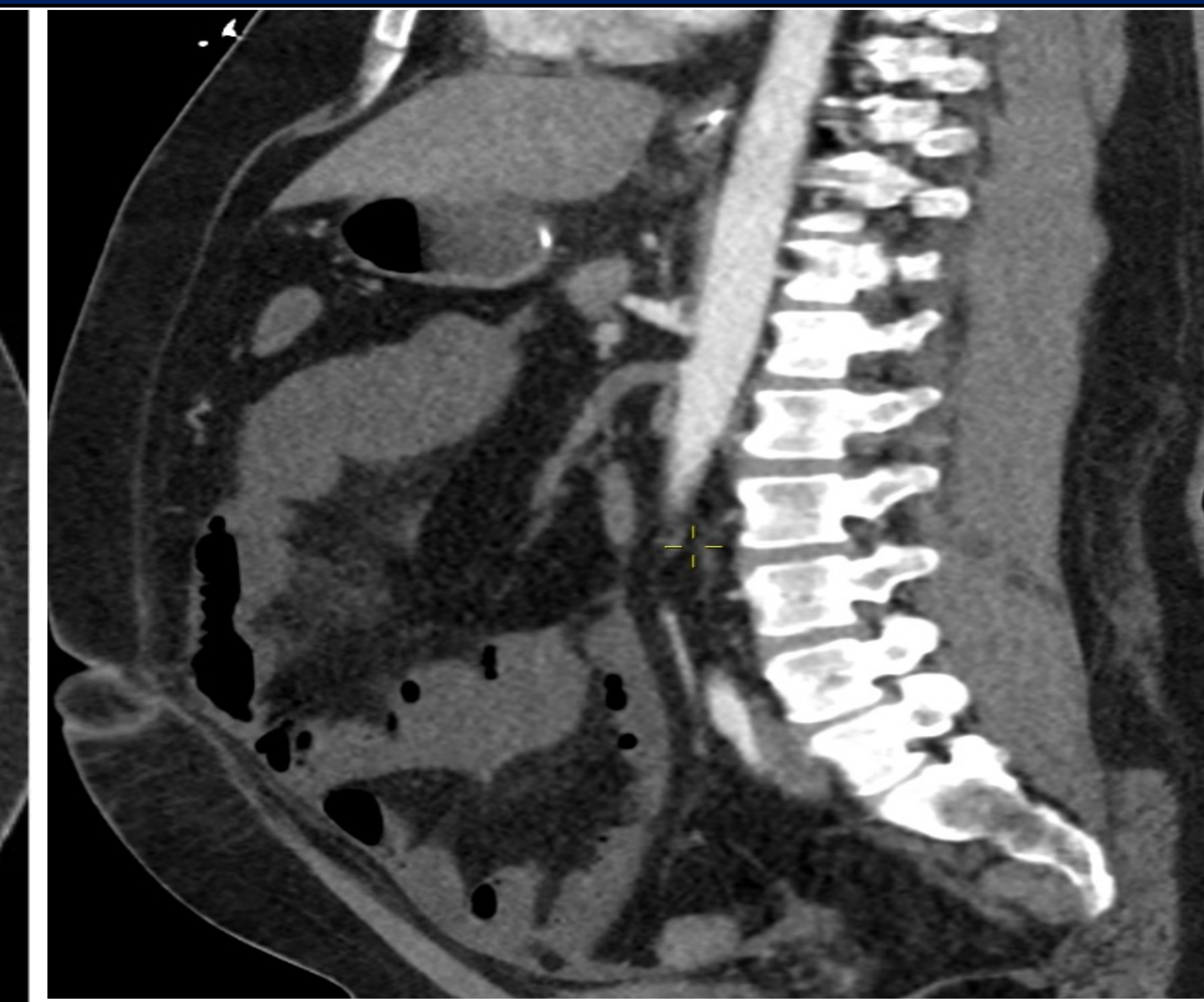


Fig 3: Sagittal images of CTA of abdomen shows thrombus with complete occlusion of the superior mesenteric artery at its origin.

## Discussion

Thrombosis in COVID-19 may be due to inflammation; endothelial injury by a viral affinity for ACE2 receptors in the respiratory tract, heart, GI tract, and distal vasculature; activation of tissue factor pathway; excessive thrombin generation; increased fibrin formation; and polymerization with fibrinolysis shutdown. Hypoxia in severe COVID-19 may stimulate thrombosis by increasing blood viscosity and a hypoxia-inducible transcription factor-dependent signaling pathway. The management approach is different from center to center with some institutes having anticoagulation protocol based on D- dimer levels and others doing pharmacological thromboprophylaxis, preferably with iv UFH or LMWH.

## Conclusion

Health care providers should have a high index of suspicion regarding this life-threatening complication of COVID-19 so that timely intervention can be done. Also, Future research is needed to better understand the role of coagulopathy and anticoagulation treatment in managing patients with COVID-19 infection.