

## Background

**Non-obstructive hepatic sinusoidal dilatation (SD) is enlargement of the hepatic capillaries without venous outflow obstruction.**

Radiographically, it is a “mosaic pattern” of mottled and reticular enhancement of the liver.<sup>1</sup>

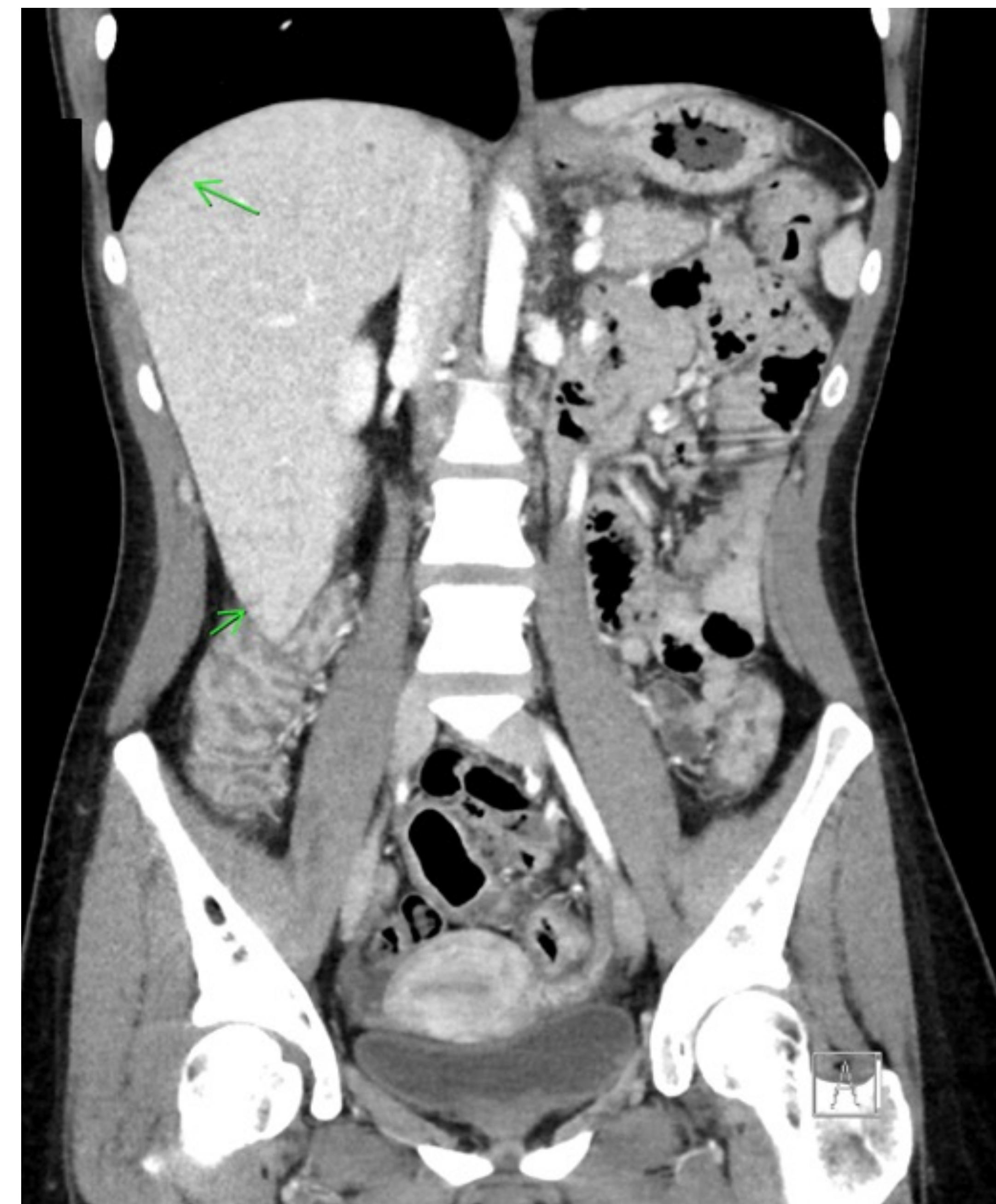
Unknown etiology, but found in patients with:

- inflammatory conditions
- active malignancy
- certain medications (i.e., estrogen, oxaliplatin, thioguanine)

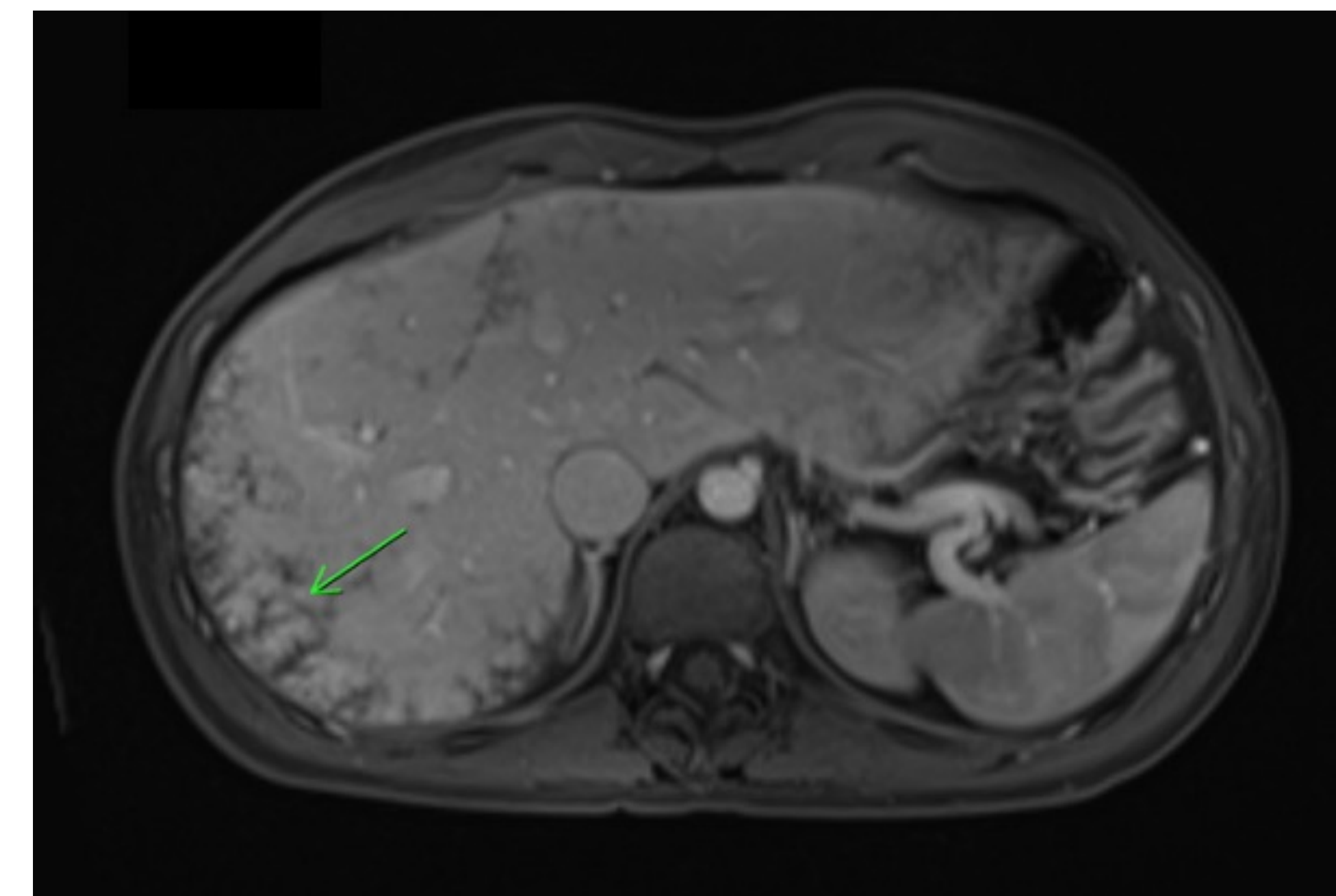
## Case Presentation

- 27-year-old female with newly diagnosed Crohn's disease and a two-month history of abdominal cramping, hematochezia, tenesmus, and diarrhea – presenting to the ED with worsening symptoms
- Distant family history of colitis
- Recent colonoscopy demonstrated inflammation from the anus to the cecum, with endoscopic and histologic sparing in the sigmoid colon, **consistent with a diagnosis of Crohn's disease**
- CT of the abdomen and pelvis, as well as MRI/MRCP demonstrated **NOSD with abnormal reticular pattern and heterogeneous attenuation of the liver**
- Liver chemistries revealed no hepatocellular or cholestatic abnormalities
- Patient's GI symptoms improved with glucocorticoids and adalimumab

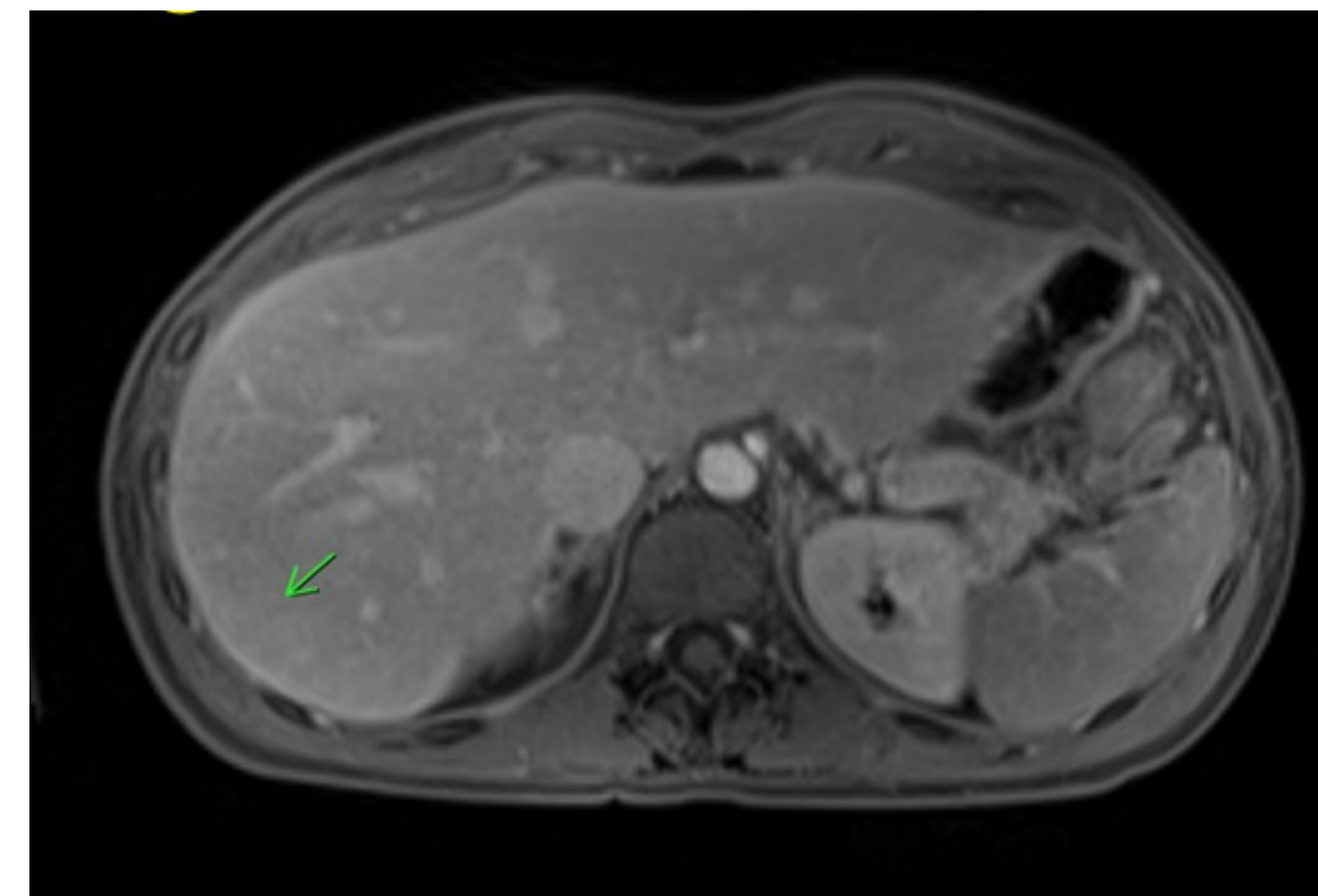
## Radiographic Imaging



**Figure 1:** Contrast enhanced CT coronal image shows peripheral low density reticular pattern of sinusoidal dilatation (demonstrated by arrows).



**Figure 2:** Contrast enhanced T1 weighted axial image during portal venous phase shows peripheral reticular pattern without enhancement of the hepatic sinusoids, indicating sinusoidal dilatation.



**Figure 3:** Contrast enhanced T1 weighted axial image 5 minutes after the portal venous phase shows contrast filling in the hepatic sinusoids, indicating non-obstruction.

## Discussion

### Pathophysiology

- Pre-clinical data on the potential etiology of NOSD:
  - Mice injected with VEGF produce tumors containing massive SD, which reverses with anti-VEGF therapy<sup>2</sup>
  - Transgenic mice expressing IL-6 and soluble IL-6R demonstrate SD and nodular hyperplasia.<sup>2</sup>
- IBD pts have increased levels of VEGF, IL-6, and IL-6R<sup>2</sup>

### Diagnosis

- Exclude treatable causes of sinusoidal obstruction, such as Budd-Chiari syndrome and right-sided heart failure<sup>1</sup>
- Consider NOSD as an early sign of peliosis hepatis<sup>3</sup>, in which blood-filled cavities develop in the liver and in rare cases can lead to fatal intraperitoneal hemorrhage

### Treatment

A histologic study of a Crohn's disease patient found that the degree of NOSD remained unchanged in liver biopsy specimens collected pre-and post-surgical resection of disease.<sup>4</sup> Thus, treatment of underlying IBD may not resolve associated NOSD, unlike estrogen-induced NOSD (in which lab abnormalities reverse upon medication withdrawal).

### Conclusions

The pathophysiology, treatment options, and prognosis of NOSD in IBD patients is not well understood.

NOSD in IBD patients is potentially underdiagnosed or misdiagnosed, as many patients are on hepatotoxic medications and IBD patients may exhibit hepatic manifestations.

## Contact

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## References

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2. Sunjaya DB, Ramos GP, Braga Neto MB, et al. Isolated hepatic non-obstructive SD, 20-year single center experience. *World J Hepatol*. 2018;10(5):417-424.
3. Bruguera M, Aranguibel F, Ros E, & Rodés J. Incidence and clinical significance of sinusoidal dilatation in liver biopsies. *Gastroenterology*. 1978;75(3):474-478.
4. Capron, JP, Lemay, JL, Gontier MF, et al. Hepatic sinusoidal dilatation in Crohn's disease. *Scandinavian journal of gastroenterology*. 1979;14(8):987-992.