

Infectious Mimic of Suspected SMA Syndrome: Preventing Diagnostic Anchoring

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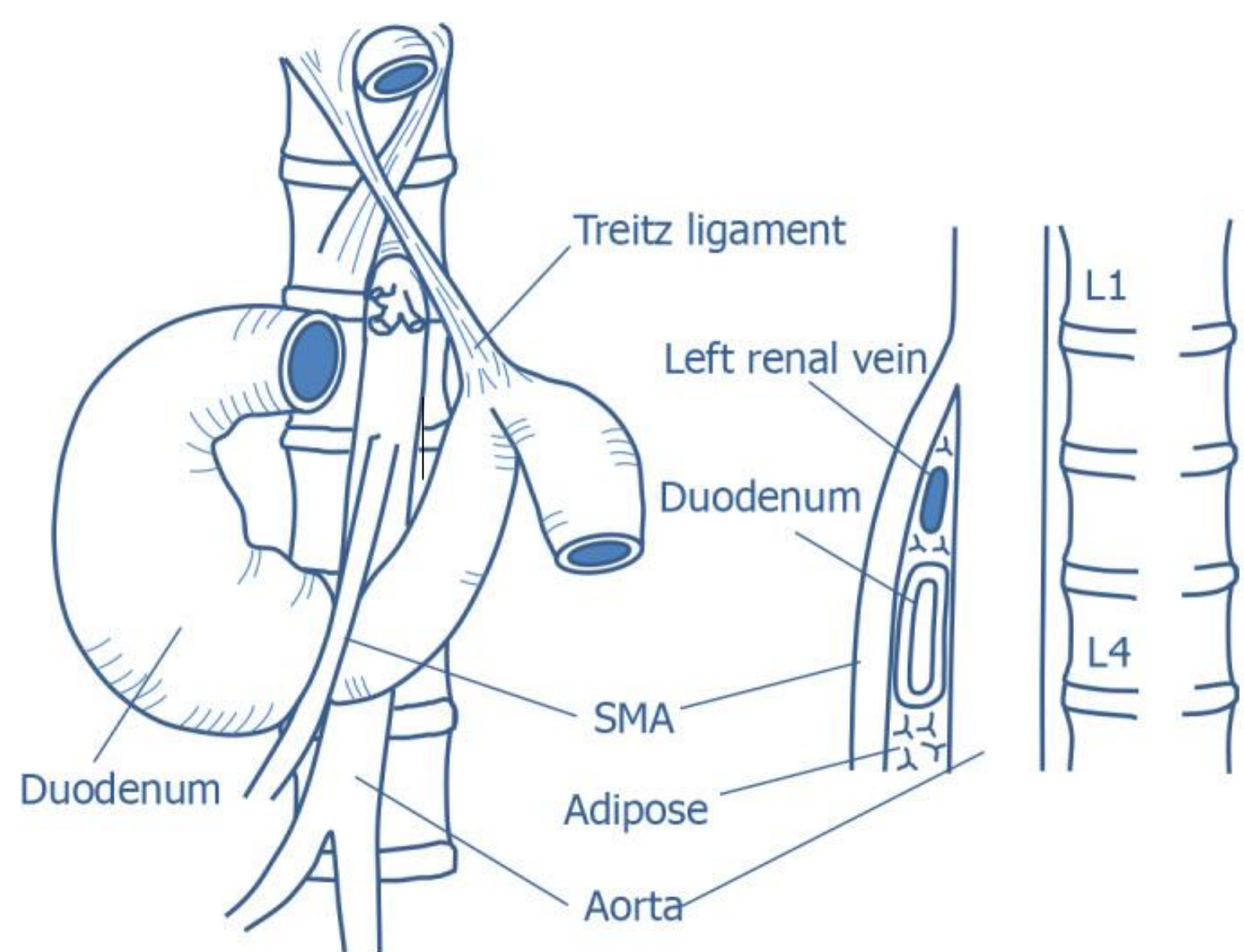
BACKGROUND

Superior mesenteric artery (SMA) syndrome is a rare condition occurring when the (SMA) compresses the third section of the duodenum, causing small bowel obstruction.

Clinical presentation often non-specific, with nausea, vomiting, early satiety, and postprandial abdominal pain. Presentation may be acute and severe or chronic.

CT reveals a narrowed SMA-aortic angle, with distension of the duodenum and stomach proximal to the third portion of the duodenum.

Risk factors include younger age, vascular congenital deformities, structural factors such as scoliosis, and weight loss limiting the fat padding between the SMA and aorta.



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Figure 1. Anatomical Basis of SMA Syndrome.

Narrowing of the SMA-aortic angle causes a structural blockage proximal to the third portion of the duodenum.²

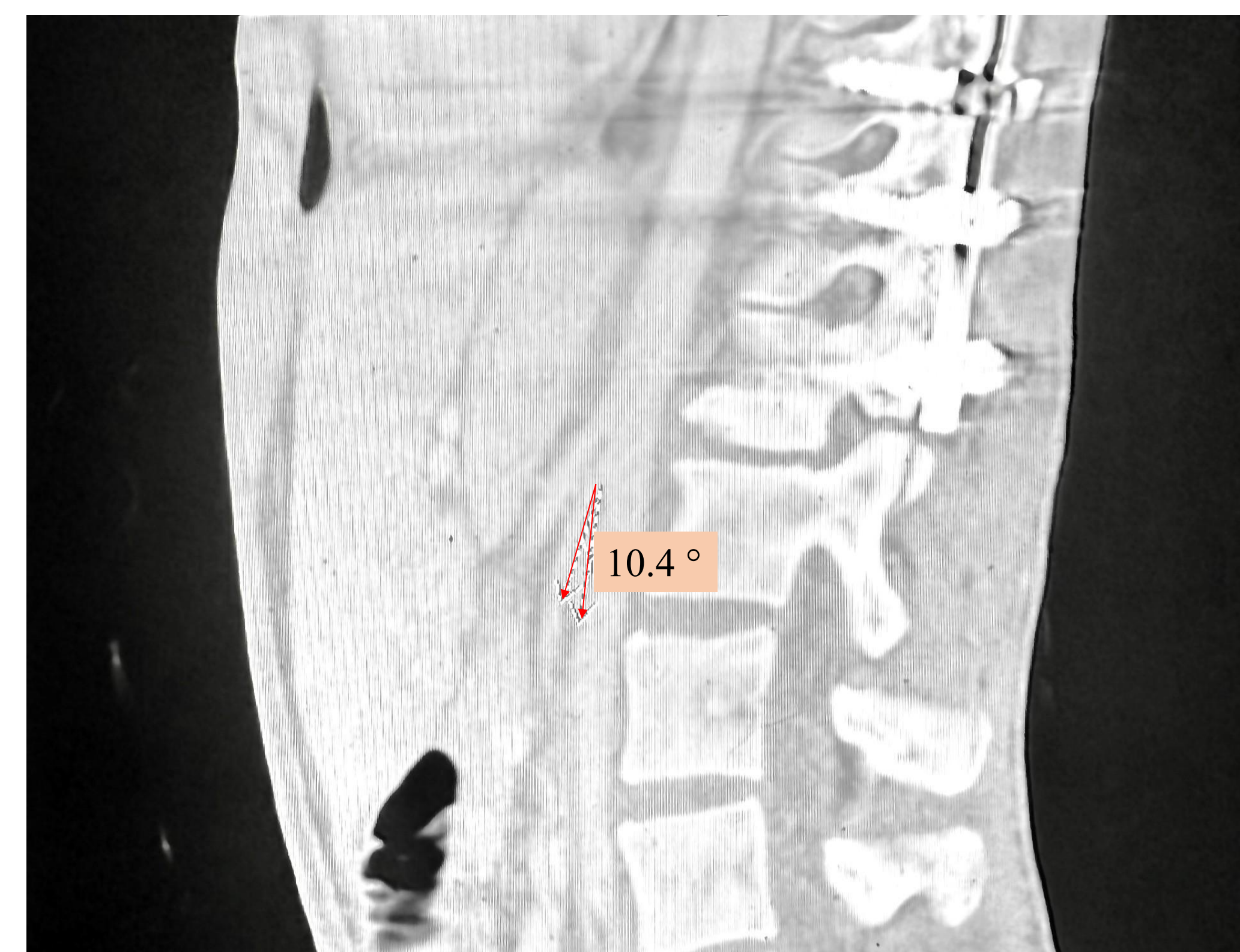


Figure 2. CT Scan of Patient. Greatly narrowed SMA angle observed on imaging.

PATIENT PRESENTATION

An adolescent patient with a rare genetic condition associated with scoliosis presented with acute onset abdominal pain nausea and vomiting.

The patient was febrile to Tmax 38.2 and tachycardic, with WBC of 27 and lactate 4.7. Diffuse abdominal tenderness noted with abdominal distension.

Grossly distended stomach and narrowing of SMA-aortic angle to 10.4 degrees observed on CT with IV contrast.

Initial suspicion of SMA syndrome based on presentation and imaging findings with consideration of underlying risk factors including scoliosis and low BMI.

More comprehensive history not initially elicited due to patient discomfort.

INTERVENTION/TREATMENT

The patient was admitted to the hospital, and an NG tube was placed for gastric decompression.

The patient was started on ondansetron and prochlorperazine, given fluid bolus of 2.5 L in ER and 1 L after admission to the hospital to limit dehydration.

Trauma and acute care surgery consulted, monitored patient for possible surgical intervention.

RESULTS

Further history revealed recent family food poisoning and diarrhea occurring at symptom onset.

The patient continued to have regular bowel movements at the hospital, making SMA syndrome less likely.

Suspicion for underlying infection prompted stool PCR, positive for *C. diff* and norovirus.

The patient improved rapidly with fluid resuscitation and oral vancomycin, inconsistent with true SMA syndrome.

The patient was discharged two days later.

DISCUSSION

Narrowing of the SMA-aortic angle and distension proximal to the site: SMA syndrome initially plausible.

Episode of diarrhea and continued bowel movements during hospital stay inconsistent with SMA syndrome. Combination with fever and leukocytosis prompted suspicion for infection as the primary cause of obstruction.

SMA syndrome treatment usually follows longer time course of weeks to months to gain weight rather than the acute resolution seen in our patient.³

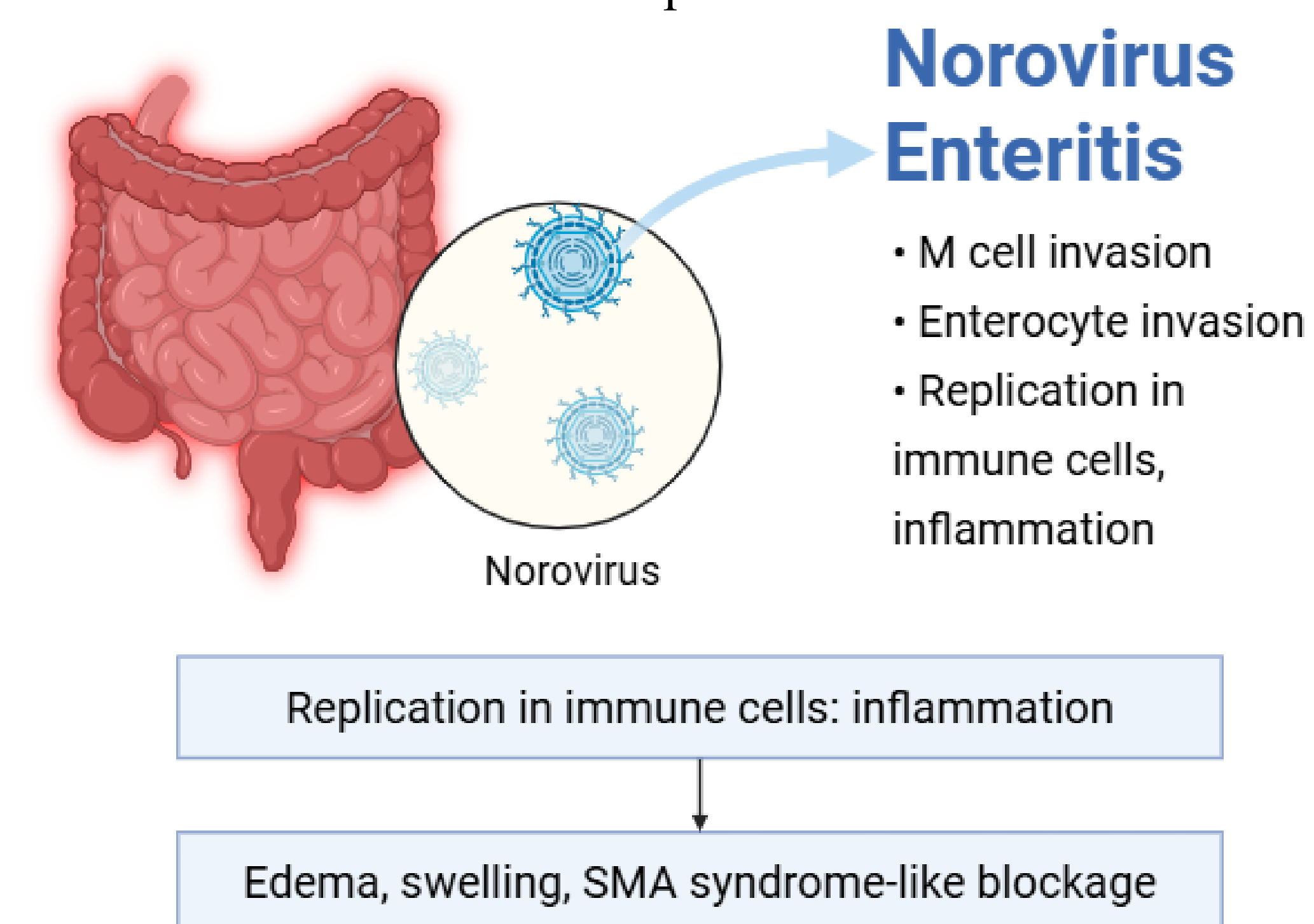


Figure 3. Norovirus Contribution to Enteritis.

Norovirus invasion and replication in immune cells mediates further inflammation. Resulting blockages may mimic SMA syndrome.⁴

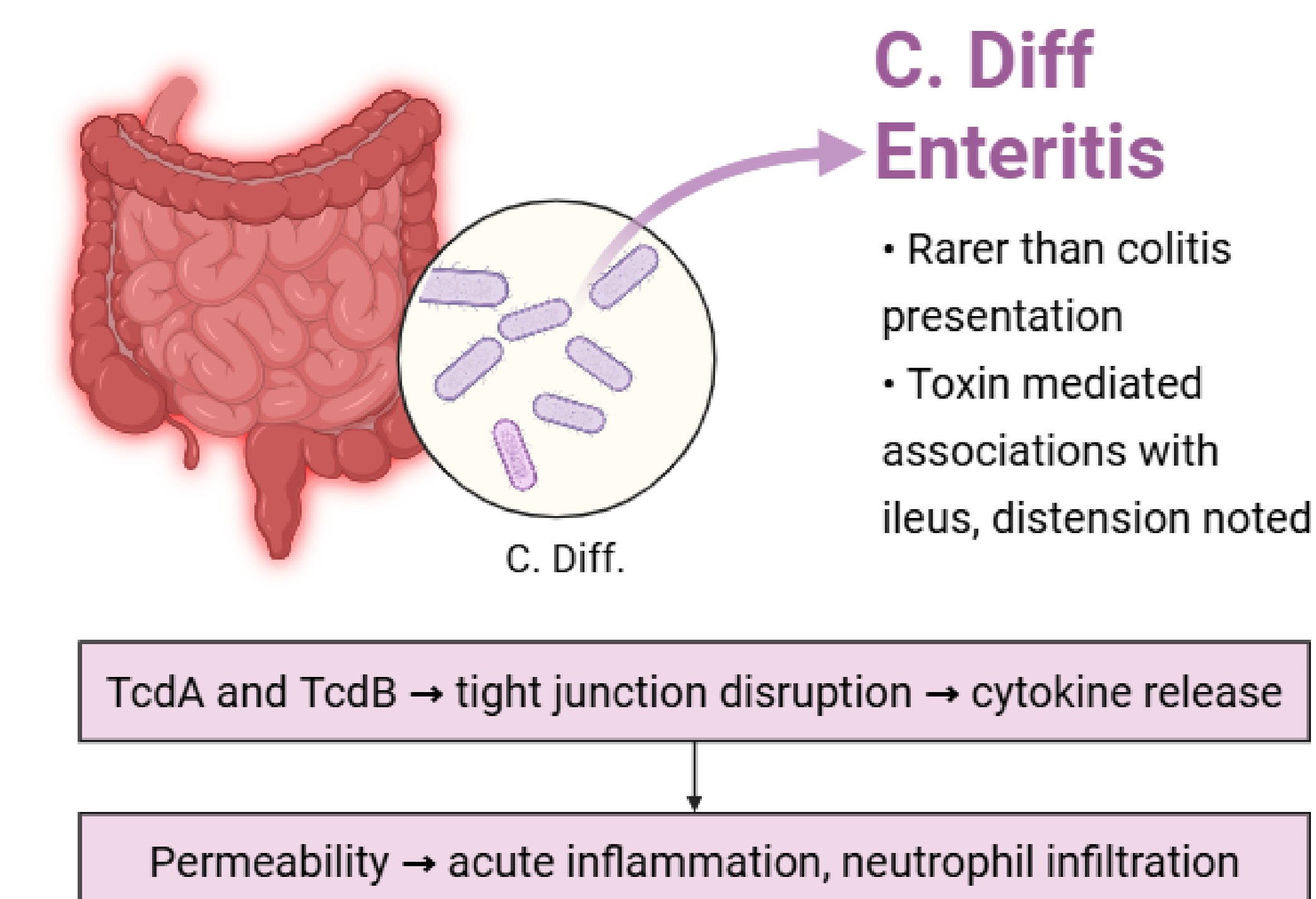
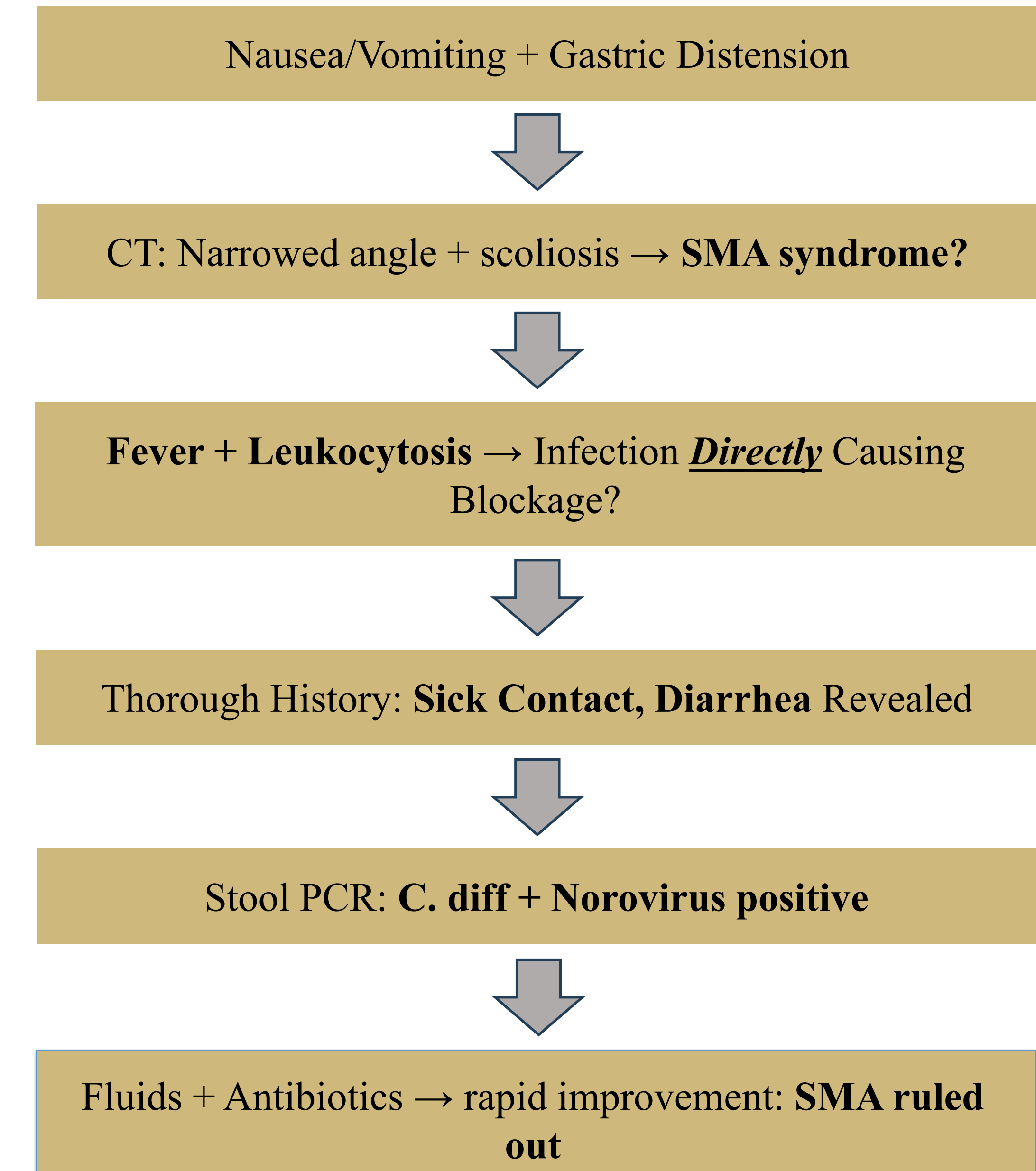


Figure 4. C. Diff Contribution to Enteritis. While not as common as colitis, enteritis may also present in *C. diff* infection as toxins A and B disrupt Rho GTPases and damage enterocyte tight junctions. Subsequent inflammation mimics SMA syndrome blockages.^{5,6}

DIAGNOSTIC REASONING



CONCLUSION

This case demonstrates the benefit of avoiding diagnostic anchoring by taking a broad, thorough, history. Imaging revealing a narrow SMA angle in conjunction with patient risk factors including scoliosis, low BMI, and younger age may point to classic SMA syndrome, but rapid improvement after treating for infection highlights an uncommon presentation of common gastroenteritis rather than a common presentation of a rare condition (SMA syndrome). Imaging should be interpreted in greater clinical context, and other causes on the differential should be thoughtfully explored.

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