

- 9 **Johnson-Henry KC**, Nadjafi M, Avitzur Y, et al. Amelioration of the effects of *Citrobacter rodentium* infection in mice by pretreatment with probiotics. *J Infect Dis* 2005;**191**:2106–17.
- 10 **Mayer EA**. The neurobiology of stress and gastrointestinal disease. *Gut* 2000;**47**:861–9.
- 11 **Collins SM**. Stress and the gastrointestinal tract IV. Modulation of intestinal inflammation by stress: basic mechanisms and clinical relevance. *Am J Physiol Gastrointest Liver Physiol* 2001;**280**:G315–18.
- 12 **Soderholm JD**, Perdue MH. Stress and the gastrointestinal tract II. Stress and intestinal barrier function. *Am J Physiol Gastrointest Liver Physiol* 2001;**280**:G7–13.
- 13 **Soderholm JD**, Yang PC, Ceponis P, et al. Chronic stress induces mast cell-dependent bacterial adherence and initiates mucosal inflammation in rat intestine. *Gastroenterology* 2002;**123**:1099–108.
- 14 **Velin AK**, Ericson A-C, Braaf Y, et al. Increased antigen and bacterial uptake in follicle associated epithelium induced by chronic psychological stress in rats. *Gut* 2004;**53**:494–500.
- 15 **Brades S**, Schwetz I, Ennes HS, et al. Repeated exposure to water avoidance stress in rats: a new model for sustained visceral hyperalgesia. *Am J Physiol* 2005;**289**:G42–53.
- 16 **Berg RD**. Bacterial translocation from the gastrointestinal tract. *Trends Microbiol* 1995;**3**:149–54.
- 17 **Van Grieken NC**, Meijer GA, zur Hausen A, et al. Increased apoptosis in gastric mucosa adjacent to intestinal metaplasia. *J Clin Pathol* 2003;**56**:358–61.
- 18 **Kiliaan AJ**, Saunders PR, Bijlsma PB, et al. Stress stimulates transepithelial macromolecular uptake in rat jejunum. *Am J Physiol* 1998;**275**:G1037–44.
- 19 **Knutton S**, Baldwin T, Williams PH, et al. Actin accumulation at sites of bacterial adhesion to tissue culture cells: basis of a new diagnostic test for enteropathogenic and enterohemorrhagic *Escherichia coli*. *Infect Immun* 1989;**57**:1290–8.
- 20 **Mangell P**, Nejdfor P, Wang M, et al. *Lactobacillus plantarum* 299v inhibits *Escherichia coli*-induced intestinal permeability. *Dig Dis Sci* 2002;**47**:511–16.
- 21 **Eutamene H**, Chabo C, Guggisberg S, et al. The probiotic formulation Lacidofil/Enterline prevents stress-induced increase in colonic permeability and sensitivity to distension in rats. Presented at the 20th International Symposium on Neurogastroenterology and Motility, Toulouse, France, July 2005: abstract P180).
- 22 **Levenstein S**, Prantera C, Varvo V, et al. Stress and exacerbation in ulcerative colitis: a prospective study of patients enrolled in remission. *Am J Gastroenterol* 2000;**95**:1213–20.
- 23 **Yang PC**, Jury J, Soderholm JD, et al. Chronic psychological stress in rats induces intestinal sensitization to luminal antigens. *Am J Pathol* 2006;**168**:104–14.
- 24 **Lu L**, Walker WA. Pathologic and physiologic interactions of bacteria with the gastrointestinal epithelium. *Am J Clin Nutr* 2001;**73**:1124–30S.
- 25 **Resta-Lenert S**, Barret K. Live probiotics protect intestinal epithelial cells from the effects of infection with enteroinvasive *Escherichia coli*. *Gut* 2003;**52**:988–97.
- 26 **Thompson-Chagoyan OC**, Maldonado J, Gil A. Aetiology of inflammatory bowel disease: Role of intestinal microbiota and gut-associated lymphoid tissue immune response. *Clin Nutr* 2005;**24**:339–52.
- 27 **Luyer MD**, Buurman WA, Hadfoune M, et al. Strain-specific effects of probiotics on gut barrier integrity following hemorrhagic shock. *Infect Immun* 2005;**73**:3686–92.
- 28 **Michail S**, Abernathy F. *Lactobacillus plantarum* reduces the in vitro secretory response of intestinal epithelial cells to enteropathogenic *Escherichia coli* infection. *J Pediatr Gastroenterol Nutr* 2002;**35**:350–5.
- 29 **Ouwehand AC**, Salminen S, Roberts PJ, et al. Disease-dependent adhesion of lactic acid bacteria to the human intestinal mucosa. *Clin Diagn Lab Immunol* 2003;**10**:643–6.

EDITOR'S QUIZ: GI SNAPSHOT

Obscure gastrointestinal bleeding

Robin Spiller, Editor

Clinical presentation

A 54 year old woman was admitted to our hospital due to melena, which had occurred three times in the previous month. A similar bleed had occurred three years earlier without any diagnosis being established at upper gastrointestinal endoscopy, colonoscopy, and enteroclysis. Also, no lesion was found following the current evaluation of upper gastrointestinal endoscopy and colonoscopy. Multidetector computed tomography (MDCT) and reconstructed three dimensional angiography were performed (figs 1, 2).

Question

What is the diagnosis?

See page 1585 for answer

This case is submitted by:

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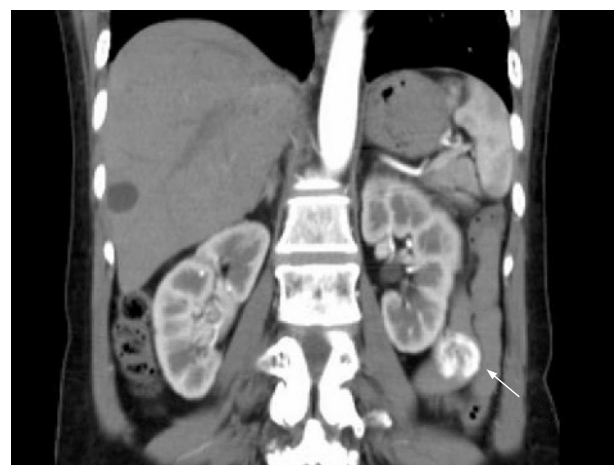


Figure 1 Multidetector computed tomography of the jejunum.

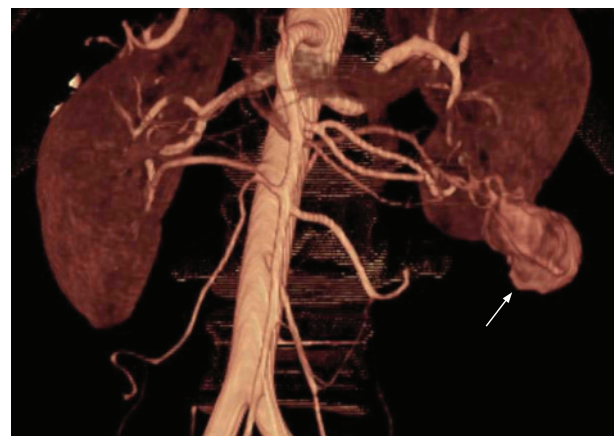


Figure 2 Three dimensional angiography of the jejunum.