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Gastrointestinal bleeding: The role of radiology☆

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Abstract Gastrointestinal bleeding represents a diagnostic challenge both in its acute presentation, which requires the point of bleeding to be located quickly, and in its chronic presentation, which requires repeated examinations to determine its etiology. Although the diagnosis and treatment of gastrointestinal bleeding are based on endoscopic examinations, radiological studies such as computed tomography (CT) angiography for acute bleeding or CT enterography for chronic bleeding are becoming more and more common in clinical practice, even though they have not yet been included in the clinical guidelines for gastrointestinal bleeding. CT can replace angiography as the diagnostic test of choice in acute massive gastrointestinal bleeding, and CT can complement the endoscopic capsule and scintigraphy in chronic or recurrent bleeding suspected to originate in the small bowel. Angiography is currently used to complement endoscopy for the treatment of gastrointestinal bleeding.

PALABRAS CLAVE
Hemorragia digestiva;
Angiografía por TC;
TC enterografía;
Arteriografía

Hemorragia digestiva: papel de la radiología

Resumen La hemorragia digestiva (HD) supone un problema diagnóstico tanto en su forma de presentación aguda, que requiere una rápida localización del punto de sangrado, como en la crónica, que precisa de exploraciones repetidas para determinar su etiología. El diagnóstico y tratamiento se basa en estudios endoscópicos, aunque los estudios radiológicos mediante angiografía por tomografía computarizada (TC) en la hemorragia aguda y mediante TC enterografía en la crónica son cada día más utilizados en la práctica clínica, a pesar de no estar incluidos todavía en las guías clínicas de la HD. La TC puede ser una exploración diagnóstica de primera elección en la hemorragia aguda masiva, sustituyendo a la angiografía, y una exploración diagnóstica complementaria a la cápsula endoscópica y la gammagrafía en la hemorragia crónica o recurrente cuando se sospecha un origen en el intestino delgado. La angiografía es actualmente un método terapéutico complementario a la endoscopia en el manejo de esta afección.

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Introduction

Gastrointestinal (GI) bleeding represents a serious clinical problem and a common cause of hospitalization, with a mortality rate of 6–10% for upper GI bleeding (UGIB) and of 4% for lower GI bleeding (LGIB). The study and treatment of GI bleeding require a multidisciplinary approach involving gastroenterologists, endoscopists, surgeons and radiologists. GI bleeding is self-limited in 80% of cases, requiring only supportive measures. However, the persistence of bleeding represents a diagnostic challenge to locate the site of bleeding (especially in severe bleeding) and to determine, if possible, its cause. This will allow us to select the most appropriate therapeutic approach in order to reduce the morbidity and mortality, the length of hospitalization and the transfusion requirements.

Types of gastrointestinal bleeding

Several clinical settings of GIB should be distinguished according to the source and form of presentation.

Gastrointestinal bleeding according to the source

Upper gastrointestinal bleeding

UGIB is bleeding proximal to the angle of Treitz. It accounts for 75% of GIB and can present as hematemesis or melena; however, severe hemorrhage may manifest as red blood per rectum. The placement of a nasogastric tube can help identify the source of UGIB, but this procedure should be avoided in patients with liver disease to prevent trauma to possible esophageal varices. The most common causes of UGIB are peptic ulcer disease and esophageal varices in patients with portal hypertension, but its etiology varies greatly (Table 1).

Lower gastrointestinal bleeding

LGIB is bleeding from a source between the angle of Treitz and the rectum. It accounts for about 25% of GIB and can present in the form of rectal bleeding, hematochezia or melena, depending on the volume and site of blood loss. Of the cases initially diagnosed as LGIB, up to 12% were actually UGIB, especially in cases of severe bleeding. The most common causes of LGIB are angiodysplasia and diverticulosis (Table 1), with the incidence increasing with age presumably due to the high incidence of these conditions.[1] In young patients, infectious or inflammatory conditions are the most common causes.

A new classification based on the endoscopic access to the different parts of the GI tract has been proposed recently. This classification introduces the concept of mid GI bleeding, defined as bleeding from the ampulla of Vater to the terminal ileum, inaccessible to conventional endoscopy

Table 1 Main causes of gastrointestinal bleeding.

Upper gastrointestinal bleeding	Lower gastrointestinal bleeding
Peptic ulcer:	Colonic diverticulosis
- Duodenal or gastric	Angiodysplasia
Esophageal lesions caused by reflux:	Ischemic colitis
- Esophagitis	Colon adenocarcinoma
- Esophageal ulcers	Villous and tubular adenomas
- Mallory-Weiss syndrome	Hemorrhoids
Portal hypertension:	Post-polypectomy bleeding (3% post-resection)
- Esophageal and gastric varices	
- Hypertensive gastropathy	
- Ectopic varices	Small bowel malignancies (GIST, leiomyoma, adenocarcinoma, lymphoma, metastasis)
	Crohn's disease and ulcerative colitis
	Celiac disease
Tumors:	Meckel's diverticulum
- Adenocarcinoma	Small bowel diverticula
- GIST	NSAID enteropathy
Others:	Intestinal lymphoma
- Aortoenteric fistula (to esophagus or duodenum)	Infectious enteritis (*Clostridium difficile*, *Shigella*, *Escherichia coli*, *Campylobacter*, CMV)
- Dieulafoy's lesion	Isolated rectal ulcer
- Hemobilia	Anal fissure
- Hemosuccus pancreaticus	Dieulafoy's lesion
	Vasculitis
	Endometriosis