

Pitfalls in the Treatment of Massive Lower Gastrointestinal Bleeding with "Blind" Subtotal Colectomy*

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In 1969, the concept of "blind" subtotal colectomy was introduced for the treatment of patients with colonic diverticulosis and massive lower gastrointestinal (LGI) bleeding. This "policy" was soon extended to include all patients with LGI bleeding from obscure bleeding sources. In a nine-year period, ten patients presented with massive LGI bleeding, had evidence of colonic diverticula on barium-enema examination, and were explored for unrelenting bleeding. In four patients, careful exploration revealed another source for bleeding and three did well after appropriate surgery. One patient died during surgery. Six patients had blind subtotal colectomy, continued to bleed postoperatively, and three of these patients died. With the advent of selective mesenteric angiography and other preoperative diagnostic techniques, all efforts should be made to identify the exact source of bleeding and proceed with the appropriate surgery rather than subject the patient to blind subtotal colectomy. [Key words: Bleeding, lower gastrointestinal; Colectomy, subtotal; Diverticula, colonic]

In 1969, Freeark,¹ in the discussion of a paper by Taylor and Epstein² titled "Treatment of Massive Diverticular Hemorrhage," stated, ". . . We feel that anything less than subtotal colectomy is an inadequate operation. . . ." This concept was based on the excellent results obtained with six patients treated in this manner at the Cook County Hospital. Although this dictum has been followed since 1969, the use of subtotal colectomy was gradually expanded into a policy for the treatment of all patients with massive lower gastrointestinal (LGI) hemorrhage from obscure bleeding sources. We retrospectively reviewed the records of ten patients treated in this manner who had unsatisfactory results in order to point out the pitfalls of "blind" subtotal colectomy in patients with massive LGI bleeding.

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Materials and Methods

In the 10-year period from January 1970 to December 1979, we were able to collect ten patients who

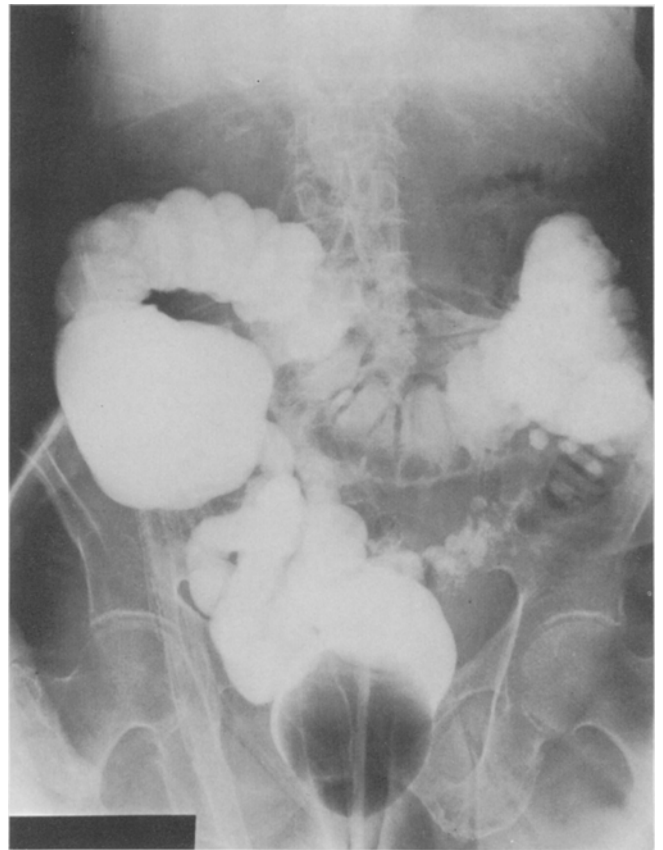


FIG. 1. Results of barium-enema examination reveal pan-colonic diverticulosis in an 85-year-old woman with massive lower gastrointestinal bleeding.

TABLE 1. *Surgery for Massive Lower Gastrointestinal Bleeding, Presumed Diagnosis Diverticulosis (Small Bowel Sources)*

Age	Sex	Procedure	Rebled	Final Diagnosis
52	M	Resection small bowel leiomyoma	No	Small bowel leiomyoma
50	M	Resection small bowel leiomyoma	No	Small bowel leiomyoma
46	M	Resection jejunal diverticulum	No	Jejunal diverticulum
79	F	Patient died in operating room		Ileal diverticulum

presented with massive bright red rectal bleeding, all of whom had lost from one-third to one-half of their blood volume. These patients underwent resuscitation and diagnostic procedures, and failed to respond to a course of conservative management. All had evidence of colonic diverticula on barium-enema examination. The patients were submitted to surgery due to unrelenting bleeding and with a preoperative diagnosis of massive diverticular hemorrhage. The entire group was found to be bleeding from other sources.

These patients can be divided into three groups:

Four patients were found, on careful exploration, to be bleeding from small-bowel sources. The two patients bleeding from small-bowel leiomyomas had their lesions resected and did well. Another patient who had excision of a bleeding jejunal diverticulum also did well. One patient died during surgery and was found to have been bleeding from an ileal diverticulum (Table 1).

The second group was composed of two patients who underwent blind subtotal colectomy and who were found, in the postoperative period, to have unrelenting hemorrhage from anorectal sources. One patient with bleeding hemorrhoids had his bleeding controlled with simple ligation. One patient with an anal ulcer, thought to have solitary rectal ulcer syndrome, had her bleeding controlled with electrocoagulation (Table 2).

The third group of patients was made up of those bleeding from systemic or unknown causes. One pa-

tient, an 85-year-old woman, had known pancolonic diverticula with massive unrelenting bleeding, but continued to bleed after subtotal colectomy and ileorectal anastomosis. Postoperative selective visceral angiography showed that she was bleeding from several arteriovenous malformations with extravasation in the mid-ileum (Figs. 1, 2). The bleeding stopped spontaneously and she had had no further bleeding up to four years later. The other three patients died of continuing bleeding during the postoperative period. One patient, at postmortem examination, was found to have Osler-Weber-Rendu disease, while the cause of death in the other two patients was not determined (Table 3).

Discussion

The causes of gastrointestinal bleeding are myriad and many can present with massive bright red rectal bleeding. A "blind" subtotal colectomy will not stop bleeding from diseases proximal or distal to the intra-abdominal colon or bleeding from systemic diseases (Table 4).

Diseases proximal to the colon which can cause massive LGI hemorrhage, occur most commonly from the mouth to the duodenum—most often from esophageal varices, diffuse gastritis, and duodenal ulcer. Examples of small-bowel sources are tumors (especially leiomyomas), diverticula, and angiomas; bleeding may occur from a Meckel's diverticulum

TABLE 2. *Surgery for Massive Lower Gastrointestinal Bleeding, Presumed Diagnosis Diverticulosis (Anorectal Sources)*

Age	Sex	Procedure	Rebled	Final Diagnosis
70	M	Total abdominal colectomy with ileorectal anastomosis	Yes	Bleeding hemorrhoids
67	F	Total abdominal colectomy with ileorectal anastomosis	Yes	Solitary rectal ulcer syndrome

TABLE 3. Surgery for Massive Lower Gastrointestinal Bleeding, Presumed Diagnosis Diverticulosis (Systemic or Unknown Sources)

Age	Sex	Procedure	Rebled	Final Diagnosis
85	F	Total Abdominal colectomy with ileorectal anastomosis	Yes	Small bowel and large bowel ectasias
48	M	Total abdominal colectomy with ileorectal anastomosis	Yes (died)	Osler-Weber-Rendu disease
75	F	Total abdominal colectomy with ileorectal anastomosis	Yes (died)	Unknown
29	F	Total abdominal colectomy with ileorectal anastomosis	Yes (died)	Unknown

with ectopic gastric mucosa, acid production, and ulceration.

Anorectal bleeding can occur from hemorrhoids, fissures, inflammatory bowel disease, foreign bodies, and the solitary rectal ulcer syndrome. It is paramount that the operating surgeon perform careful anoscopy and proctoscopy prior to exploratory surgery for undiagnosed bleeding, lest he be embarrassed and his patient be left with continued bleeding.

Systemic causes of bleeding may be hematologic in nature such as leukemia or hemophilia, or miscellaneous causes such as uremia, sarcoidosis, and vasculitis.

We, like Veidenheimer *et al.*³ and Johnson and Goldberg,⁴ follow an algorithmic method for precise anatomic diagnosis of the origin of massive LGI hemorrhage (Fig. 3). In a patient with massive bleed-

ing resuscitation is followed by a careful review of patient history, physical examination, and a screening hematologic and biochemical battery. A nasogastric tube is then inserted and, if bile is not aspirated, upper gastrointestinal endoscopy is performed to exclude the bleeding source. The surgeon responsible for the patient's care should then perform careful anoscopy and proctosigmoidoscopy. If vital signs continue to be unstable, signaling persistent bleeding, the patient is submitted to three-vessel visceral angiog-

TABLE 4. Pitfalls in the Treatment of Massive Lower Gastrointestinal Bleeding by "Blind" Subtotal Colectomy

A. Proximal Disease
1. Upper gastrointestinal source; mouth to duodenum
2. Small-bowel source; tumor, angiodysplasia, varices
B. Distal Disease
Ano-rectal source; fissure, hemorrhoids, inflammation, tumor, solitary rectal ulcer syndrome
C. Systemic disease
1. Hematologic leukemia; hemophilia
2. Miscellaneous; uremia, sarcoidosis, vasculitis



FIG. 2. Subtraction films of superior mesenteric artery injection in the same patient following total colectomy and ileorectal anastomosis. There are several arteriovenous malformations and extravasation of dye in mid-ileum.

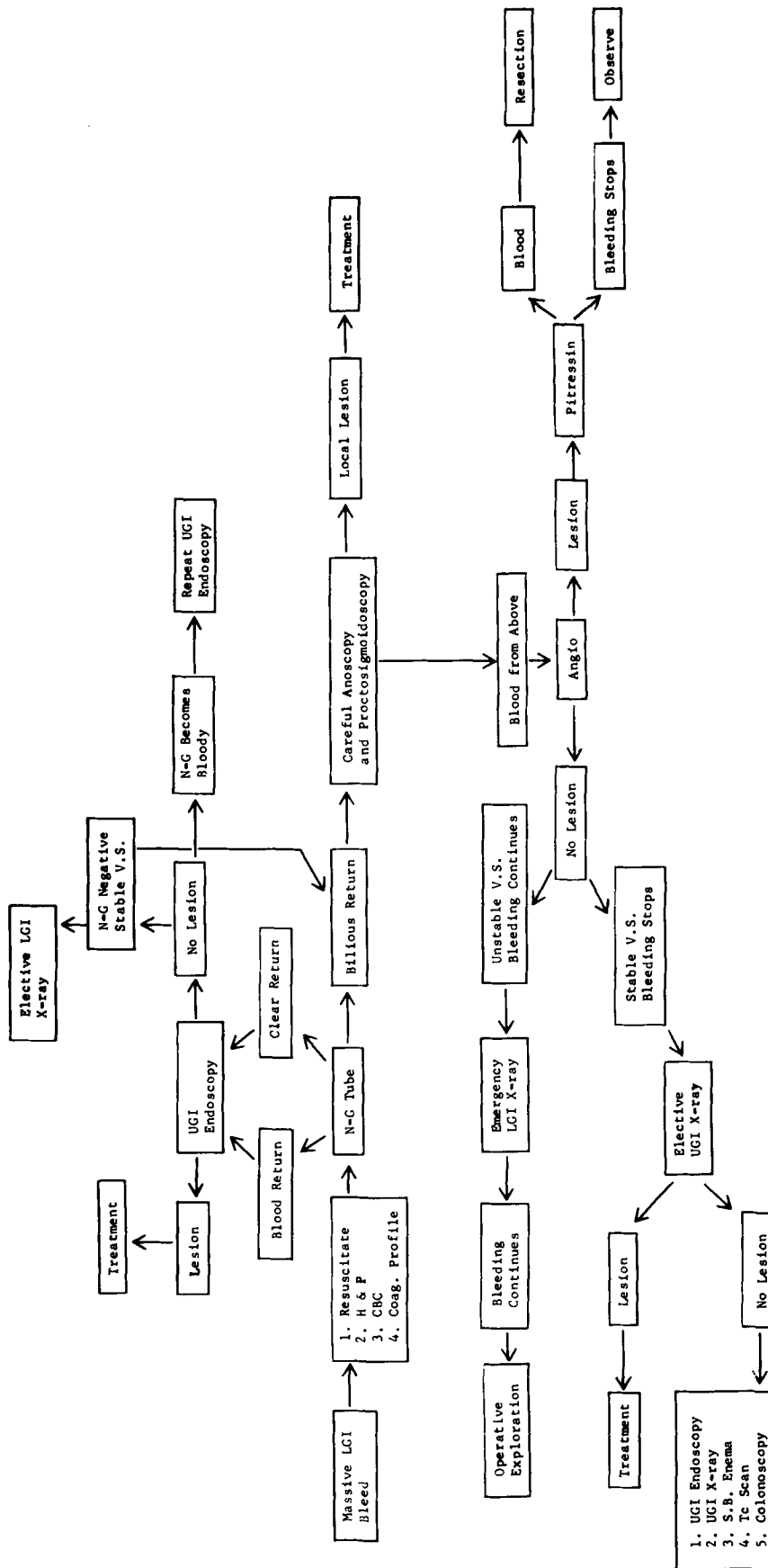


FIG. 3. Algorithmic approach to precise anatomic diagnosis of massive lower gastrointestinal bleeding.

raphy in an attempt to localize the bleeding site. Intra-arterial Pitressin® should be tried if an amenable bleeding source is found. If bleeding persists, barium-enema examination is performed for both diagnostic and possible therapeutic purposes.

In a few cases, it will be necessary to submit the patient to surgery for emergent definitive diagnosis and treatment. If the bleeding site is found at surgery, it should be treated by segmental resection; however, when a definite source cannot be found but blood is confined to the colon, the surgeon is probably safe in performing a subtotal colectomy. If, on the other hand, blood is found both in the small and large bowels, subtotal colectomy may not stop the bleeding. At this point, if the patient has ceased active bleeding, the surgeon may elect to end the procedure and repeat diagnostic tests if rebleeding occurs.

Summary

In 1981, "blind" subtotal colectomy is only rarely indicated. Before surgical treatment is begun on a patient with massive LGI bleeding, a vigorous attempt should be made to find the precise anatomic lesion causing the bleeding. Segmental resections of localized lesions should be performed whenever possible.

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Memoir

FASO, JOSEPH MARTIN, Erie, Pennsylvania; born November 11, 1913, in Portland, New York. Dr. Faso graduated from Hahnemann Medical School 1940; interning at Hamot Hospital, Erie; surgical residency at Hamot and Buffalo General Hospitals. His colon and rectal training was with Dr. Lester S. Knapp, Buffalo, New York. Dr. Faso served in the U.S. Armed Forces during World War II.

Dr. Faso joined the American Society of Colon and Rectal Surgeons in 1952 and was elected to Fellowship in 1969. He was a Diplomate of the American Board of Colon and Rectal Surgery, a Fellow of the American College of Surgeons, a member of the American Medical Association, Pennsylvania State Medical Society, and Past President of the Erie County Medical Society.

Prior to his retirement in 1980, Dr. Faso served as Chief of the Colon and Rectal Department at Hamot and St. Vincent's Hospitals in Erie and was a consulting surgeon at the Erie Veteran's Hospital. Dr. Faso died December 19, 1981.