

CROSSING POINT IN THE MANAGEMENT ALGORITHM OF ACUTE LOWER GASTROINTESTINAL BLEEDING – CASE REPORTS AND LITERATURE REVIEW

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Abstract

Acute lower gastrointestinal bleeding (LGIB) is a significant health problem with a quite important mortality rate. It can be located in the small or large bowel. The small intestine is less interested and is known to be the commonest cause of obscure bleeding. When conservative medical treatment associated with interventional endoscopy cannot handle the bleeding, endovascular therapy can be salutary. Also, in some rare cases of acute LGIB with hemodynamic instability the last therapeutic resource remains surgery. Therefore, we will reveal a couple of cases with LGIB, we will review the different variants of treatment and in the conclusions, we will underscore the steps of the management in acute LGIB.

Keywords: *acute lower gastrointestinal bleeding, management algorithm, crossing point*

Introduction

Acute lower gastrointestinal bleeding (LGIB) is a significant health problem with a quite important mortality rate. It can be located in the small or large bowel. The small intestine is less interested and is known to be the commonest cause of obscure bleeding. When conservative medical treatment associated with interventional endoscopy cannot handle the bleeding, endovascular therapy can be salutary. Also, in some rare cases of acute LGIB with hemodynamic instability the last therapeutic resource remains surgery.

Case presentation

Case report 1

We present the case of a 29-year-old male patient who was hospitalized in the surgery clinic of Floreasca Emergency Hospital for hematochezia, pale skin and mucous membranes and general influenced state. Symptomatology started about 24 hours ago with the occurrence of the blood in stool, subsequent with progressive evolution, what led to the patient's presentation to the emergency room. At admission the general clinical examination revealed an afebrile patient, with a body mass index of 23.7 kg/m², with pale skin and mucosa, dehydrated, hemodynamic stable with a blood pressure of 131/70mmHg and the heart rate of 88 beats per minute. Local clinical examination reveals a supple abdomen,

mobile with respiratory movements, painless spontaneous or on palpation, with no signs of peritoneal irritation. We conducted primary laboratory tests that showed severe posthemorrhagic anemia with a hemoglobin of 6,7 g/dL. Preliminary paraclinical investigations as chest X-ray, abdominal X-ray and abdominal ultrasound, didn't show any particularities.

We initiated electrolyte rebalancing and blood products administration in parallel to the mechanical bowel preparation using four liters of Fortrans.

The upper endoscopy and colonoscopy revealed no injuries. Taking into consideration the favorable evolution of the patient under conservative treatment a CT scanner with contrast substance administered orally and intravenously was performed. This has highlighted at the level of the terminal ileum, on the postcontrast sequences a progressive increase in the degree of attenuation of its content which suggests a slow bleeding at this level. As a result, it was considered appropriate to perform an angiography that revealed a 9/7 mm pseudoaneurysm with active bleeding (Figure 1). It was supraseductively catheterized and embolized with Gelitaspon with a favorable result and with the stopping of the bleeding. The postintervention course was uneventful and the patient was discharged after 4 days.

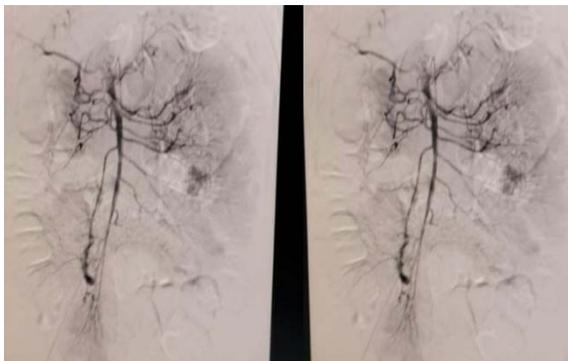


Figure 1 – Angiography revealing a 9/7 mm pseudoaneurysm with active bleeding.

Case report 2

We present the case of a 68-year-old female patient who was hospitalized in the surgery department for hematochezia which began 48 hours ago. At admission the patient has anemia with hemoglobin values of 8.3g/dL. In the emergency department we decided to perform an upper gastrointestinal endoscopy which did not

reveal anything. After a mechanical preparation of the colon (using 4 liters of Fortrans) and conservative treatment (hemostatic and blood products) a total colonoscopy was tempted without finding the source of bleeding. Due to hemodynamic stability a CT scan was performed which revealed an 8/4.5cm tumor process which seems to be attached to the ileum (Figure 2).

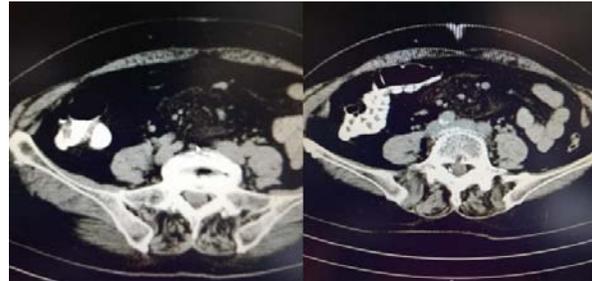


Figure 2 – CT scan of the abdomen revealing an 8/4,5 cm tumor which seems to be attached to the ileum.

This tumoral process raises suspicion of a tumor of the Meckel diverticulum and is vascularized from a pedicle with origin in the superior mesenteric vascular axis. As a result, we intervened surgically. Intraoperatively we found tumor of the Meckel diverticulum (Figure 3) and we performed segmental enterectomy with mesenteric excision and entero-enteric anastomosis termino-terminal performed manually with continuously thread.

Postoperative evolution was favorable and the patient was discharged 7 days postoperatively.

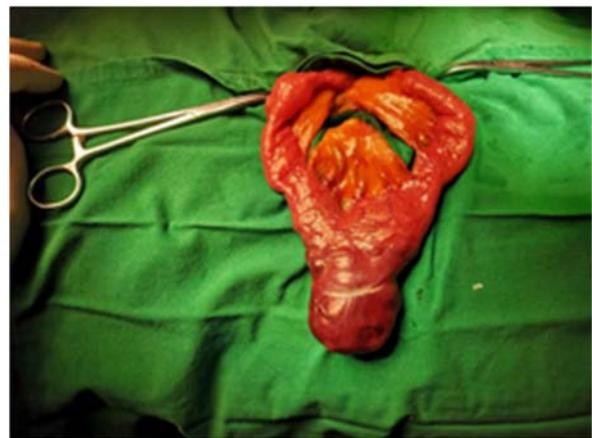


Figure 3 – Tumor of the Meckel diverticulum.

Discussions

Surgeons frequently run into acute LGIB. The incidence of acute LGIB is rising recently in parallel with the aging of the population and the increasing use of aspirin/non-steroidal anti-inflammatory drugs and anticoagulants [1]. Unlike superior gastrointestinal bleeding, which in many cases can be prevented using proton pump inhibitors, the inferior one cannot be prevented. Acute LGIB is associated with a high morbidity and mortality and increased length of hospitalization [2]. The cause of bleeding may be various pathologies, localized in the small intestine or colon. The vast majority of cases are relieved under conservative treatment. There is, however, a proportion of patients with a more serious pathology such as colonic diverticulitis, angiodysplasias or tumors whose management requires interventional therapy. At the moment, physicians have a number of different diagnostic and therapeutic options to choose from, ranging from colonoscopy (diagnostic/interventional) to radiographic interventions such as radionuclide scintigraphy and angiography. A small proportion of cases with acute LGIB require surgical intervention, either because noninvasive or minimally invasive methods fail either because the pathology requires surgical resolution from the very beginning.

Initial assessment

Anamnesis, general and local physical examination, and laboratory testing are important at the time of presentation of patients with acute LGIB. A nasogastric aspirate/lavage is mandatory in order to exclude a superior gastrointestinal bleeding. Also, a urinary catheter is inserted and the monitoring of the blood pressure and heart rate are done permanently. Hydroelectrolytic rebalancing, administration of hemostatic products and blood products are made depending on the hemodynamic status of the patient. An important point to note is in patients with anticoagulant and / or antiaggregation therapy. At this kind of patients, it must be taken into account the risk of bleeding or rebleeding versus the risk of thromboembolic events.

Colonoscopy

Colonoscopy is the first procedure for almost all patients presenting with acute LGIB, because

it has both diagnostic and therapeutic utility [3]. The role of colonoscopy is to identify the site of bleeding and perform hemostasis. It is recommended that this investigation should be made within the first 24 hours of admission. Using the so-called urgent colonoscopy can determine the improvement in the identification of the bleeding source and may increase the rate of endoscopic interventions [4]. During colonoscopy, gastroenterologist should intubate the terminal ileum to rule out a small bowel lesion. This procedure is a safe one, the rate of complications being similar to performing it in an elective manner if we are talking about the mechanical preparation of the colon [5]. If we refer to the proper procedure complications are rare in both cases [6]. Because more than half of the bleeding causes were localized to the right colon, cecal intubation with adequate colon preparation is required even for early colonoscopy [7]. Rectosigmoidoscopy or colonoscopy without mechanical preparation in LGIB is not recommended because cecal intubation rates are low [8].

Computed tomography

Because CT can be done quickly and is generally available in the acute setting is a more and more used diagnostic method for patients who are hemodynamically stable with acute gastrointestinal bleeding. CT has the advantage to locate the source of arterial or venous gastrointestinal bleeding and also to highlight underlying pathology that may be the cause of bleeding [9]. The major advantages of CT are that it may reveal the vascular anatomy before angiographic embolization and can highlight anatomical variants. Disadvantages include decreased sensitivity compared to other methods (radionuclide imaging), high radiation dose, the need for IV contrast and false-negative results (if the patient is not bleeding at the time of the scan). Even if the protocols to perform CT for gastrointestinal bleeding may differ from one institution to another, in general a three-phase examination is performed (non-contrast, arterial and venous phase) [10]. Regardless of the phase, the scan range should include the complete abdomen and pelvis. Oral contrast should not be administered because they can obscure IV contrast extravasation into the bowel lumen [10]. The phases without contrast are performed and

entered into the procedure in order to be sure that the pre-existing ingested material within the bowel lumen can be differentiated from active hemorrhage during the scan [11]. Subsequent, the reconstruction phase of the images can be done at 5-mm thickness for non-contrast images and 1.25 mm for arterial and venous phase images [12]. The standard image is the appearance of contrast into the bowel lumen during the arterial phase (“contrast blush”) that is not present on non-contrast images [10]. In patients with slow bleeding, extravasation may be present only on the venous phase images. In patients with recent bleeding who are not actively bleeding at the time of imaging, CT may reveal hyperdense clot within the bowel lumen without active extravasation. While sensitivity and specificity of CT in gastrointestinal bleeding can vary a lot between studies, García-Blázquez et al in a systematic review and meta-analysis found that CT had a sensitivity of 85.2% and specificity of 92.1% in detecting gastrointestinal bleeding [13]. Also, for negative results in patients with LGIB the recurrence rate is very small, that's why these patients may not need subsequent angiography [14].

Angiography

In acute LGIB the superior mesenteric artery and the inferior mesenteric artery should be evaluated. The angiographic finding is extravasation of contrast material from the arterial vessel. Angiography has a risk of bowel ischemia. This risk is a small one due to the vascularization of the bowel and because of the angioembolization technique. In order to achieve that you have to have a balance between arterial inflow reduction and collateral arterial blood flow. When inserting the microcatheter there is a risk of vasospasm, dissection or vessel perforation. There is a wide variety of agents that can be used for embolization. In our department of angiography, the most commonly used agents are pledgets of absorbable gelatin sponge.

Currently, the technique of angiographic embolization controls bleeding in about 80%-90% of patients [15]. Angiographic embolization in the treatment of acute LGIB is a safe procedure with adverse effects in less than 2% of the patients [16].

Surgical treatment

Most cases of inferior digestive hemorrhage can be treated by conservative or minimally invasive procedures. In those cases where patients remain hemodynamically unstable after the initial assessment, those that become unstable during conservative treatment, those who do not succeed in modern treatment or those to whom the Imagistics is indicative for radical treatment, require surgery. Being a faster resolution of bleeding in some cases, surgery may cause a decrease in the need for transfusion. It was shown in the literature many years ago that blood transfusions can cause an increased mortality [17].

The incision should be adjusted according to preoperative paraclinical investigations. After the incision is performed, surgical team should focus on detecting intraluminal blood. Exploration of the peritoneal cavity begins at the level of the superior gastrointestinal tract taking into account the fact that some injuries localized here were not excluded preoperatively. Thereafter, the small intestine and the colon should be explored. The endoscope, enteroscope or colonoscope can be used during surgery for better evaluation of possible lesions.

Conclusion

Managing cases of inferior digestive hemorrhage requires a wide range of medical resources. It requires a good initial clinical evaluation and continuous monitoring of the hemodynamic parameters, a skilled and trained gastroenterologist familiar with such cases in an emergency setting, an angio-CT scanner, interventional angiography laboratory and last but not least a surgical team ready for such cases. It is very important to note that in some cases of acute LGIB, the computed tomography angiography can be the crossing point in the management algorithm and can decide the indication for surgical intervention.

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