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EDITORIAL

Embolization of the superior rectal artery: another management option for hemorrhoids

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Possibly one of the most common medical condition worldwide, with a prevalence ranging from 4 to 35%, hemorrhoids are usually responsible for local discomfort, bleeding that can sometimes cause anemia, and pain particularly in the event of a complication such as thrombosis.

Since about 10% of patients will require surgery in their lifetime, several techniques have been developed during the past few decades to find an alternative to the Milligan and Morgan open hemorrhoidectomy, the surgical landmark procedure, which involves quite a long recovery period with postoperative pain and a marked need for analgesics.

One of the novel treatments for symptomatic hemorrhoids is based on endovascular embolization of the superior rectal artery (SRA). Vidal et al. introduced their "hemborrhoid" technique in 2014; this method is based on the theory of hemorrhoid artery ligation as an effective treatment of bleeding hemorrhoids. The technique described is performed through the catheterization of the femoral artery and a selective angiogram of the inferior mesenteric artery. Since hemodynamic studies have shown that SRA is the main feeding artery of hemorrhoids and it is split into three to five branches, embolic agents are delivered to occlude these distal branches, eventually leading to reduced blood flow into the hemorrhoidal cushions.

After the first pilot work, which included only 3 patients, Vidal et al. performed other studies with a larger sample size: 14 patients with disabling chronic rectal bleeding, previous proctological surgery, or coagulation disorders, underwent SRA embolization with pushable micro-coils [1]. Technical success was achieved in all the patients, cessation of bleeding at 1 month in 72% of the patients and an additional embolization was performed in tow of the four patients who experienced rebleeding. One patient complained of a perianal reaction with temporary pain.

In 2015 Moussa et al. [2] used SRA embolization for 30 consecutive patients suffering from disabling chronic hemorrhoidal bleeding and with a contraindication for surgery or a failure of previous surgical treatment. After 5 months, 72%, of patients had a clinical improvement after a single or a double embolization session, even if no improvement in bleeding was observed in eight patients (28%).

Venturini et al. focused their attention on patients with severe heart disease and bleeding hemorrhoids causing chronic anemia and requiring multiple blood transfusions, with contraindication to surgical treatment. They treated two patients with SRA embolization and reported a mean procedural time of 82 min (range 75–90 min) and no intra- or post-procedural complications. After 6 months, no recurrence of bleeding was observed [3].

Zarchenko et al. [4] included 40 patients: most of them (30 out of 40) ceased bleeding the first day after the embolization, others (6/40) on the second day, while in the last four patients some bleeding persisted but only until 1 week after embolization. Moreover, the authors hypothesized that embolization was more effective employing 0.3 mm synthetic polyvinyl alcohol particles, since this permitted more distal hemorrhoidal plexus embolization and could reduce the SRA reload from the middle rectal arteries anastomoses [4].

In this issue of the journal, Han et al. [5] retrospectively analyzed 32 patients with stage II and III hemorrhoids, all suffering from disabling chronic hematochezia and with relative contraindications for surgery or rejection of conventional hemorrhoidectomy. After selective embolization of SRA branches, bleeding symptoms resolved in 84.4% of patients. The remaining 15.6% still had some blood in the stool at 1-month follow-up and underwent either stapled hemorrhoidopexy or sclerotherapy. At 1-year follow-up there were no serious complications; however, four cases of rebleeding occurred, all successfully treated with internal

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iliac arteriography and branch embolization, without further bleeds. To embolize the proximal end of the left and right branches of the SRA, Han and colleagues chose gelatin sponge particles and then, several 2–3 mm metallic coils. However synthetic polyvinyl alcohol particles or pushable microcoils can be used as a valid alternative [2, 3]. We should congratulate Han et al. for the attention they paid to patient selection, with a multidisciplinary team consisting of proctologists, gastroenterologists and radiologists. They performed quite a long follow-up with no loss of patients and data are reported methodically and precisely. In their work, 34.4% of patients experienced fever after surgery, 12.5% had postoperative pain, which resolved spontaneously without painkillers, and 53.1% of patients experienced varying degrees of tenesmus. On the other hand, the authors did not report serious complications, such as massive hemorrhage, infection or rectal necrosis. The patients were hospitalized for 3 days after embolization, and the lower limb on the side of the puncture was immobilized and bandaged for 24 h. This is in contrast with the current trends aiming at reducing time until recovery and assuring early discharge, possibly within few hours after surgery. Therefore, this method could hardly became the new standard for hemorrhoid disease: patients with poor cardiopulmonary function, cirrhosis, blood coagulation disorders or no other treatment options, could benefit from this technique, Other patients, who simply refuse conventional hemorrhoidectomy, should be referred to other types of less-invasive treatment such as transanal dearterialization or rubber band ligation, that can be performed as outpatients or day-case procedures.

Embolization procedures carry a theoretical risk of rectal ischemia; however, no ischemic complications have been described until now. Bleeding, hematoma or pseudoaneurysm at the puncture site were not reported either although they are possible complications of femoral artery puncture. Likewise, despite the use of iodine endovenous contrast, post-procedure renal failure has not been reported so far. Some authors suggested rehydration after embolization to facilitate the excretion of iodine contrast.

In conclusion, SRA embolization is technically feasible, seems to be safe, and early results suggest that it can be effective in treating hemorrhoid symptoms. At present this procedure can be considered part of the surgeon's armamentarium for the treatment of this common and disabling condition. However, the long-term effect on bleeding, as well as cost and length of hospitalization, should be considered to better define the indications and clarify the role of this approach compared to standard treatment as well as to other minimally invasive techniques such as sclerotherapy, rubber band ligation or laser dearterialization.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This article does not contain any studies with human participants performed by any of the authors.

Informed consent Informed consent is not required for this article

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