

Hemorrhoid Embolization. An Intense Anal Pain as a Complication of Superior Rectal Artery. Embolization with Embolic Liquid and Coils

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Abstract

We present a case of a patient with grade 2 hemorrhoids treated by supraselective embolization of the superior rectal arteries (SRA) with ethylene vinyl alcohol (Onyx 18) and coils, with technical success. The patient had intense rectal pain (VAS 8-10) and tenesmus which initially resolved with intravenous analgesia. In the 30-day follow-up, he presented intense pain in the rectal region, requiring other imaging techniques that corroborated the presence of a small perirectal collection. Medical treatment provided cure for the process. Currently the patient is asymptomatic.

Keywords: Hemorrhoids; embolization; ethylene vinyl alcohol; perianal abscess.

Introduction

Hemorrhoidal disease is one of the most prevalent medical disorders, its incidence ranging between 4 and 35% [1] in patients between 40-60 years of both sexes, being rare under 20 years [2]. Hemorrhoids are composed of a submucosal connective tissue associated with smooth muscle (Treitz muscle) and an arteriovenous network, forming pads located at the left, anterolateral and right posterolateral level in the anal canal, and there may be accessory plexuses between them. Structure is related to sensory discrimination of fecal material and continence, since they provide basal pressure at rest. There is unanimity regarding the arterial origin of this pathology that would be related to an increase in hemorrhoidal arterial flow that would explain the congestive symptoms [3]. Several factors influence hemorrhoidal disease, such as constipation, heavy defecation, pregnancy or childbirth, which cause progressive laxity of the hemorrhoidal plexuses, causing symptoms ranging from rectal bleeding (the most frequent) to thrombosis with necrosis, passing from prolapse, itching, pain and mucous discharge. There is a classification based on their topographic presentation (external and internal, according to their location below or above the pectineal line) and, in the case of internal ones, the most used classification is that of Goligher prolapse, [4] of which grade II and III benefit from

the endovascular technique. Hemorrhoidal disease is a highly prevalent pathology that causes symptoms that affect the quality of life of the patient, manifesting itself with bleeding in the stools, pain, itching and mucous secretions. Conservative medical treatment is the first line of therapy. When this fails there are many other alternatives including surgery. The embolization of the superior rectal arteries as proposed by Vidal et al in 2014 [5] has been shown to be a safe and effective treatment of internal hemorrhoids. Many studies have been published with technical success rates greater than 90% with acceptable clinical success results [6].

Case report

A 64-year-old female patient with internal and external bleeding Goligher grade III hemorrhoids. The patient refused conventional surgery so she was referred to the Interventional Radiology unit for a superior rectal artery embolization (SRA). The patient had a 37 year history of persistent constipation and had an anal fistula that was previously surgically treated. She reported bleeding one to two times a week, but not anemic bleeding in underwear but not anemia, which is aligned with a French Bleeding Score (FBS) of 5 [7]. The patient reported abdominal pain (Visual Analog scale, VAS = 2), and had a discomfort level of 1 [8]. Hematological analysis showed a hemoglobin of 14g / dL with no other altered parameters.

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With left radial vascular access (Radiofocus Terumo Tokyo Japan), the inferior mesenteric artery was selectively catheterized with MPA 5Fr - 125 cm catheter (Cordis Medical Hialeah Florida) and the embolization was performed as distally as possible with liquid agent (ethylene vinyl alcohol copolymer (EVOH) Onyx 18) Medtronic Minneapolis Minnesota and a 3mm x 4cm detachable coils (Concerto Medtronic Minneapolis Minnesota) (**Figure 1-a**). During the administration of the embolic liquid, the patient had intense rectal pain (VAS 8-10) and tenesmus which resolved with intravenous analgesia. Angiographic imaging revealed occlusion of the superior hemorrhoidal plexus, achieving the technical endpoint to diminish complete arterial flow to the lower segment of the rectal vasculature (**Figure 1-b**).

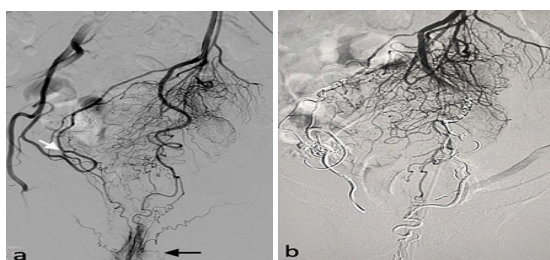


Figure 1: (a) Digital subtraction angiogram of the superior rectal artery showing dominance of the right medial rectal artery and anastomosis with ipsilateral SRA (white arrow). Congestive signs in the corpus cavernosus recti (black arrow). (b) Digital subtraction angiogram demonstrated bilateral distal EVOH embolization and proximal metal coils.

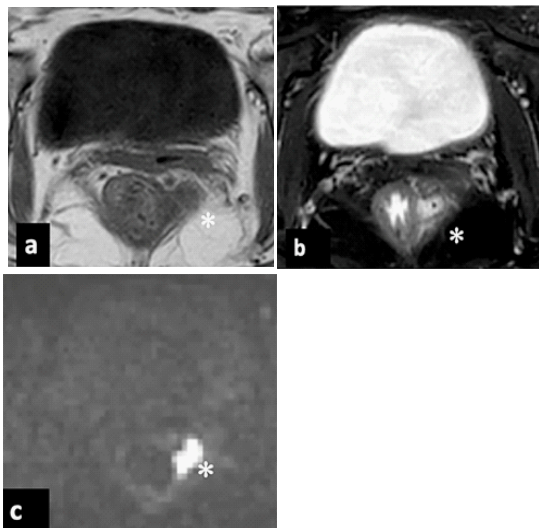


Figure 2: (a) MRI axial T1 sequence shows hypointensity on the left side of the rectal fat. (b) MRI T2 axial with fat suppression shows hyperintensity of the left para-rectal fat, in the lower rectum, compatible with inflammatory changes and associated collection (asterisk). (c) Diffusion-weighted imaging corroborates the findings on T2.

Outpatient follow-up occurred 30 days after the procedure in a specialized consultation clinic. The patient presented with moderate to severe pain in the anal region (VAS 8), with partial relief using oral non-steroidal anti-inflammatory drugs. The patient reported tenesmus with significant anal pain (FBS = 0, VAS = 9, discomfort = 4) and bleeding was not present. Anoscopy evaluation did not show any areas of necrosis or other alterations. A pelvic MRI was ordered to assess possible causes

of pain. MRI evaluation showed a small heterogenous hyperintensity on the T2-weighted image, which corresponded to a fluid collection within the left pararectal space (measuring approximately 12 x 8 mm) in wide contact with the left rectal wall (**Figure 2**). No image finding corresponding a perianal fistula was observed. No fever, no alterations in the acute phase reactants, or markers of inflammation were found (leukocytes 9.5 mil / mm³; neutrophils 67.6%; normal values of IL-6, IL-8 and C- reactive protein).

Despite these clinical findings, treatment with antibiotics and anti-inflammatory drugs was initiated. At three months the patient was pain-free (VAS = 0-1), with no bleeding (FBS = 0), and had a discomfort level of 4. Anoscopy showed slightly congestive normal anal canal mucosa.

Discussion

Several reports in the medical literature support the safety and efficacy of coil and particle embolization of the superior rectal arteries for the treatment of internal bleeding hemorrhoids [8-10]. The most frequently reported complications include recurrence of bleeding which required one or more re-embolizations [1,8], anal irritation, rectal pain, or tenesmus. The most common complications described in the medical literature have been recurrence of bleeding that has required one or more re-embolization [8, 11, 12], anal irritation [12] rectal pain or tenesmus [13]. The vast majority of these complications have been described in patients who had been treated with only coils or coils with polyvinyl alcohol microspheres. There are no references in the medical literature related to ischemic complications after embolization of SRA with both coils and particles with the exception of the article recently published by Eberspacher C et al. [14] in which rectal sigmoid ischemia occurs 3 days after SRA embolization with microparticles. The physical exam, the anal mucosa biopsy, and the Doppler imaging that was performed one month after the procedure did not show ischemic alterations of the intestinal mucosa. The double vascularization of the rectum and anal canal (upper rectal arteries dependent on the inferior mesenteric artery and lower and middle rectal arteries dependent on hypogastric arteries) would also prevent intestinal ischemia. This double vascularization could also explain poor clinical results despite embolization of the superior rectal artery alone.

The EVOH embolization liquid was chosen for its safety and efficacy in gastrointestinal bleeding pathology [15, 16] and on the other hand the significant recurrence in our experience due to presence of communicating arteries from the superior rectal artery system with the internal iliac artery (middle and inferior rectal arteries). Also, the suggestions of Dr Alonso-Burgos [17] in a recent and magnificent article published in CVIR in February 2021 led us to use a liquid agent (ethylene vinyl alcohol copolymer (EVOH) in our patient).

Despite administration of an analgesic during the procedure, slow injection of dimethyl sulfoxide (DMSO) and EVOH was extremely painful, and intravenous opiates were used for pain alleviation. Despite the findings on MRI and the pain de-

scribed by the patient, no other inflammatory-infectious signs were present or detected (Fever or suppuration anal endoscopy and biopsy were negative) Therefore, the diagnosis of a left pararectal abscess is possible speculation; antibiotic treatment completely resolved the pain and tenesmus. But surgeons initially ruled out surgery. Despite powerful analgesia during the procedure, slow injection of EVOCH was extremely painful so opiates were used.

The follow-up in the clinic showed significant pain and rectal tenesmus that required consultation and treatment at the pain clinic. MRI with axial, coronal and sagittal sequences weighted in T2 with fat suppression allowed the diagnosis of a collection of 12x8 mm in the left pararectal space. The patient did not show, except for pain and the MRI image, inflammatory-infectious signs. Therefore, the diagnosis of left pararectal abscess is a possible speculation, however, antibiotic treatment completely cured the pain and tenesmus. In conclusion, regarding the use of embolic liquid in the treatment of hemorrhoidal disease, we agree with the recent article by Tradi F et al. [18] who advise prudence and encourage us to maintain an expectant attitude regarding embolic liquids, especially since the microcoils and microspheres are so effective and safer. The study by Tradi et al. [18], indicated that ethylene vinyl alcohol copolymer may be an unsafe agent for hemorrhoid embolization since in their experimental study in pigs they observed necrosis of the distal area of the rectum with mural infarction in animals that underwent embolization with ethylene vinyl alcohol copolymer.

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