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Emorrhoid – a new treatment method for hemorrhoids: case presentation

Hemoroidinių arterijų embolizacija – naujas hemorojaus gydymo metodas: atvejo pristatymas

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Background / Objective

Hemorrhoids are a very common anorectal condition, affecting millions of people around the world and represent major medical and socioeconomic problem. New technique for treating symptomatic hemorrhoids has been introduced in to clinical practice. Only limited number of cases using this technique were reported. This was a first clinical case in Lithuania using this technique for treating hemorrhoids. 44 year-old-man underwent liver transplantation for B viral cirrhosis in 2011. He developed liver transplant cirrhosis, hepatorenal syndrome, portal hypertension, hiperuricaemia. He presented to us with recurrent episodes of massive rectal bleeding, requiring multiple transfusions, with hemoglobin as low as 45 g/l. Several episodes of conservative treatment for hemorrhoids was not effective. Because of thrombocytopenia, risk of intra- and postoperative bleeding usual choice of surgical or minimally invasive treatment for hemorrhoids was not possible. The choice of selective angiography and embolization was made. On the 30th of July 2015 the patient underwent visceral and selective mesenteric angiograms. Inferior mesenteric artery was cannulated. Terminal branches of the inferior rectal artery were embolized using Interblock 18 microspirals. Three spirals were used. Rectal bleeding stopped. Proctoscopy was performed after three weeks. Hemorrhoidal cushions were reduced by approximately 70%. No recurrent bleeding was observed 23 months after the procedure. The patient safely underwent repeated liver transplantation within 1 month.

Conclusions

Embolization of inferior rectal arteries requires multidisciplinary approach. Emborrhoid is a safe, effective microinvasive treatment for hemorrhoids in patients, who are otherwise at high risk for surgical complications.

Key words: hemorrhoidal disease, embolization, superior rectal artery, emborrhoid

Įvadas / tikslas

Keturiasdešimt ketverių metų vyrui dėl lėtinio hepatito B išsivysčiusios kepenų cirozės 2011 m. rugsėjo 30 d. atlikta kepenų transplantacija. Progresuojant hepatitui po 4 metų išsivystė kepenų transplantato cirozė, hepatorenalinis sindromas, portinės hipertenzijos sindromas (splenomegalija ir hipersplenizmas, stemplės venų varikozė, tiesiosios žarnos venų varikozė), hiperurikemija. III^o hemorojus komplikavosi gausiais kraujavimais. Dėl posthemoraginės anemijos kelis kartus atliktos hemo-transfuzijos. Konservatyvus gydymas buvo neveiksmingas. Dėl trombocitopenijos ($45 \times 10^9/l$), tiesiosios žarnos venų varikozės, gausaus kraujavimo operacijos metu arba po operacijos didelio pavojaus klasikinės hemoroidektomijos arba mikroinvazinių operacijų (LHP, THD) nebuvo galima atlikti. Situacija buvo aptarta konsiliume dalyvaujant intervenciniams radiologams. Buvo nuspręsta atlikti hemoroidinių arterijų embolizaciją. 2015 m. liepos 30 d. buvo atliktos visceralinė ir selektyvi angiografija. Į apatinę mezenterinę arteriją buvo įvesta kaniulė. Hemoroidinių arterijų embolizacija atlikta „Interblock 18“ mikrospiralėmis. Panaudotos trys 3 mm 6 cm ilgio spiralės. Introduseris pašalintas. Punkcijos vieta užsiūta „Angioseal“ prietaisu.

Po embolizacijos praėjus 3 savaitėms atlikta RRS. Kraujavimo iš tiesiosios žarnos požymių neaptikta, hemorojiniai mazgai sumažėjo, apie 70 % sumažėjo tiesiosios žarnos venų varikozė. Per 23 mėn. po procedūros kraujavimų iš tiesiosios žarnos nepastebėta.

Išvados

Hemoroidinių arterijų embolizacija reikalauja įvairių sričių gydytojų specialistų komandos darbo – intervencinio radiologo, proktologo, pilvo chirurgo, transplantologo. Viršutinės tiesiosios žarnos arterijos (retais atvejais ir papildoma apatinės tiesiosios žarnos arterijos) embolizacija yra patikimas, efektyvus, saugus mikroinvazinis kraujuojančio hemorojaus gydymo metodas, taikytinas pacientams, sergantiems kepenų ciroze arba turintiems kraujo krešėjimo sutrikimų.

Reikšminiai žodžiai: hemorojus, embolizacija, viršutinė tiesiosios žarnos arterija, emboroidas

Introduction

Hemorrhoids are a very common anorectal condition defined as the symptomatic enlargement and distal displacement of the normal anal cushions. They affect millions of people around the world, and represent a major medical and socioeconomic problem [1]. The most common symptom of hemorrhoids is rectal bleeding [2] and the most effective treatment of hemorrhoids is hemorrhoidectomy [3]. Recurrence following a properly performed hemorrhoidectomy is uncommon [3]. However, non-operative techniques are preferred when feasible in the first instance because surgery is associated with more pain and complications [3]. Furthermore, new hemorrhoid pathophysiology study suggested arterial origin of the hemorrhoidal disease [4]. For this reason a doppler-guided hemorrhoid artery ligation technique was introduced into a surgical practice to cut off the blood supply to hemorrhoids without the need for hemorrhoid removal and as an alternative to hemorrhoidectomy [5]. Based on doppler-guided hemorrhoid artery ligation technique's principles a new emborrhoid technique was developed [6]. However, any procedure in patients who have poor blood clotting or are prone to infection carries significant risk of complications. The aim of this paper was to report results of first case

in Lithuania managing rectal bleeding due to hemorrhoids using emborrhoid technique in Vilnius University Hospital "Santariskiu Klinikos".

Case report

44 year-old-man underwent liver transplantation for B viral cirrhosis in 2011. He developed liver transplant cirrhosis, hepatorenal syndrome, portal hypertension, hiperuricaemia. He presented to us with recurrent episodes of massive rectal bleeding, requiring multiple transfusions, with hemoglobin as low as 45 g/l. Several episodes of conservative treatment for hemorrhoids was not effective. Because of thrombocytopenia, risk of intra- and postoperative bleeding usual choice of surgical or minimally invasive treatment for hemorrhoids was not possible. The choice of selective angiography and embolization was made. Catheter was introduced to the inferior mesenteric artery (Figure 1) and selective angiography of superior rectal artery was performed (Figure 2). Angiography was performed using 200 ml of non-ionic iodinated contrast agent (Visipaque). Embolization was performed using Interlock 18 three 3 mm 6 cm length microcoils (Figure 3). After the procedure, puncture site was closed using vascular closure device (Angio-seal). After procedure right testicular hemato-

ma occurred, but resorbed one month later without any further treatment. Patient was discharged home 4 days after procedure. Proctoscopy was performed after three weeks. Hemorrhoidal cushions were reduced by approximately 70%. No recurrent bleeding was observed 23 months after the procedure. The patient safely underwent repeated liver transplantation after 1.6 years after the procedure.

Discussion

Aigner et al found that the terminal branches of the superior rectal artery supplying the *corpus cavernosus recti* in patients with hemorrhoids had a significantly larger caliber and greater blood flow compared to those of healthy volunteers. These abnormal findings still remained after surgical removal of the hemorrhoids, concerning the association between hypervascularization and the development of hemorrhoids. There was also linear correlation between increased arterial caliber and blood flow and the grades of hemorrhoids [4]. A new technique based on doppler-guided ligation of the terminal branches of the superior hemorrhoidal artery was introduced in 1995 as an alternative to hemorrhoidectomy [5]. As an analogy Vidat et al. proposed an endovascular approach for the superior rectal artery's branches occlusion. He suggested that compared with Doppler guided – hemorrhoid artery ligation endovascular embolization has the enormous advantage of identifying all the hemorrhoidal arterial branches perfectly, making it thus possible to completely occlude them with certainty, which could noticeably improve the therapeutic results. In addition, the vascular approach avoids all the anal and rectal traumas which are inevitable with surgical treatment, even if they are minimally invasive; a reduction in morbidity following treatment is thus one of the improvements foreseen [6]. The first study that described embolization of the SRA for chronic symptoms of hemorrhoidal disease was reported by Vidal et al. It was a retrospective study with 14 patients. The patients were treated after the decision of a multidisciplinary team (proctologist, visceral surgeon, and radiologist). These patients were not suitable for other medical or surgical treatments and suffered from severe rectal bleeding. Technical success of the embolization procedure was 100%. Clinical success was

72% (10/14) with a follow-up of 2–13 months (mean 192 days). They suggested that coil embolization should be as complete as possible in order to avoid rebleeding. And presumed that possible complications could be related to the femoral puncture and to a potential rectal ischemia and suggested that using coils which lead to a non-distal embolization limits the risk of ischemia. Also there was found that patients who previously had rectal surgeries had more developed vascular network of the rectum with more anastomoses [7]. Another retrospective study with 30 patients reported the clinical success of the emborrhoid technique in 72% of patients, with no complications observed. One patient presented an episode of spontaneously resolved acute diarrhea one week after treatment that was not attributed to embolization. All the patients included in the report were referred for embolization by a proctologist or a surgeon, due to contraindications for surgery. The contraindications encountered in those patients were oral anticoagulant treatment, various acquired or genetic coagulation disorders (cirrhosis, protein S deficiency, hemophilia) and chronic inflammatory disease of the colon and previous unsuccessful surgery [8]. But most recent study by Zakcharenko et al. demonstrated very encouraging results of symptoms management for hemorrhoidal disease. Clinical examination before and after embolization revealed significant reduction in hemorrhoid size one month after embolization. Authors have raised a question regarding usage of small particles for embolization and effectiveness of procedure and increased risk for ano-rectal ischemia. But they found that SRA embolization with PVA particles and coils is more effective, because of better patient satisfaction at one month compared to that of 75% reported by Vidal et al [8] and does not lead to ischemia. Absence of ischemia is explained by the presence of inferior rectal artery anastomoses. They assumed that 0.3 mm particles do not pass inferior rectal artery anastomoses. Therefore, middle rectal artery anastomoses are closed but inferior rectal artery anastomoses persist. A one-month follow-up appears sufficient to assess the risk of ischemic complications, but is too short to assess possible recurrences with this technique. Good results of managing hemorrhoid symptoms are related to a complete embolization of the hemorrhoidal plexus, lower than the anastomoses with the middle rectal ar-

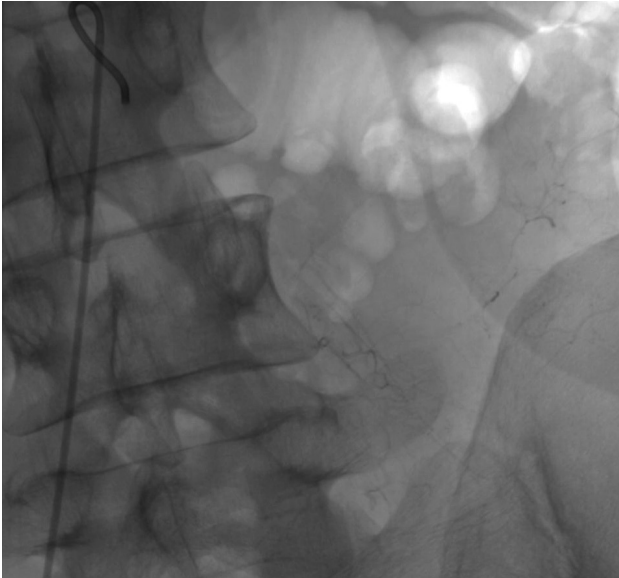


Figure 1. A catheter placed to inferior mesenteric artery



Figure 3. Selective angiography after embolization

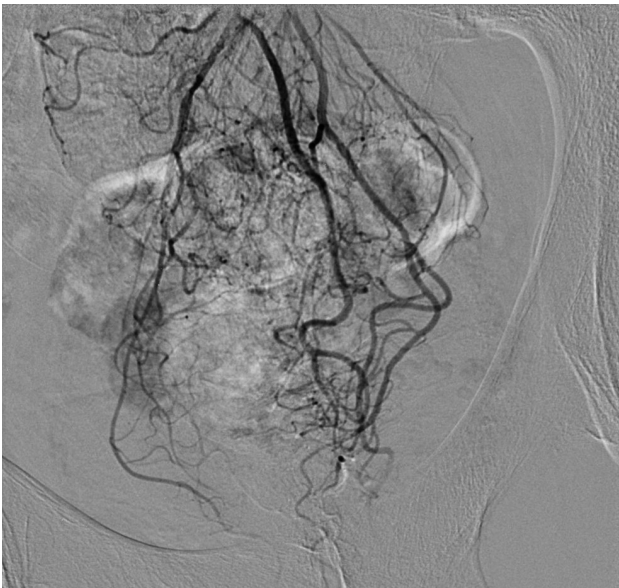


Figure 2. Selective angiography of the superior rectal artery

teries and thus open a new door in the development of the Emborrhoid technique.

Even though this case showed very promising results, but it has several limitations including limited sample size and short follow-up. Future prospective randomized controlled with more patients are needed confirm the actual efficacy of the technique [9].

To our mind, the technique, although promising, should be reserved for clinical studies as well as for patients, for whom usual surgery would pose significant risks in terms of bleeding and/or infection.

Conclusions

Embolization of inferior rectal arteries requires multidisciplinary approach. Emborrhoid is a safe, effective microinvasive treatment for hemorrhoids in patients, who are otherwise at high risk for surgical complications.

REFERENCES

1. Lohsiriwat V. Hemorrhoids: From basic pathophysiology to clinical management. *World J Gastroenterol.* 2012; 18(17): 2009–17.
2. Lohsiriwat V. Approach to hemorrhoids. *Curr Gastroenterol Rep.* 2013; 15: 332.
3. MacRae HM, Temple LK, McLeod RS. A meta-analysis of hemorrhoidal treatments. *Semin C R Surg.* 2002; 13: 77–83.
4. Aigner F, Bodner G, Gruber H, Conrad F, Fritsch H, Margreiter R, and Bonatti H. The Vascular Nature of Hemorrhoids. *Journal of Gastrointestinal Surgery.* 2006; 10 (7): 1044–50.
5. Morinaga K, Hasuda K, Ikeda T. A novel therapy for internal hemorrhoids: ligation of the hemorrhoidal artery with a newly devised instrument (Moricorn) in conjunction with a Doppler flow- meter. *Am J Gastroenterol.* 1995; 90: 610–3.
6. Vidal V, Louis G, Bartoli JM, and Sielezneff I. Embolization of the Hemorrhoidal Arteries (the Emborrhoid Technique): A New Concept and Challenge for Interventional Radiology. *Diagnostic and Interventional Imaging.* 2014; 95(3): 307–15.
7. Vidal V, Sapoval M, Sielezneff Y, De Parades V, Tradi F, Louis G, Bartoli JM, and Pellerin O. Emborrhoid: A New Concept for the Treatment of Hemorrhoids with Arterial Embolization: The First 14 Cases. *Cardiovascular and Interventional Radiology.* 2015; 38(1): 72–78.
8. Moussa N, Sielezneff I, Sapoval M, Tradi F, Del Giudice C, Fathallah N, Pellerin O, et al. Embolization of the Superior Rectal Arteries for Chronic Bleeding due to Haemorrhoidal Disease. *Colorectal Disease.* 2017; 19(2): 194–99.
9. Zakharchenko A, Kaitoukov Y, Vinnik Y, Tradi F, Sapoval M, Sielezneff I, Galkin E, and Vidal V. Safety and Efficacy of Superior Rectal Artery Embolization with Particles and Metallic Coils for the Treatment of Hemorrhoids (Emborrhoid Technique). *Diagnostic and Interventional Imaging.* 2016; 97(11): 1079–84.