HEMORRHOIDS EMBOLIZATION
WHAT YOU NEED TO KNOW
FINANCIAL DISCLOSURE

Speaker and consultant for Merit Medical since April 2023
OBJECTIVES

1. Introduction to Hemorrhoides embolization
2. Relevant anatomy
3. Technique of embolization
4. Current evidence on practice
5. Seize the opportunity
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A corporation is a form of organization that has an existence independent of its owners. Corporations have powers and liabilities separate and distinct from those of its owners. They can be organized for many purposes and can come in many types. For example, a municipal corporation is a city, county, or town operating under a corporate charter granted by the state, while a public corporation is owned and operated by the government. This lesson will focus on corporations that are engaged in business.
Commonest ano-rectal pathology

Worldwide, the prevalence of symptomatic hemorrhoids is assumed to be 4.4% and about 3.8% in Middle East Countries.
<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>1,090,228</td>
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<tr>
<td>Egypt</td>
<td>2,910,372</td>
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<tr>
<td>Gaza strip</td>
<td>50,661</td>
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<td>Iran</td>
<td>2,581,004</td>
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<tr>
<td>Iraq</td>
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1. **Introduction to Hemorrhoides embolization**

2. **Relevant anatomy**

3. **Technique of embolization**

4. **Current evidence on practice**

5. **Seize the opportunity**
VASCULAR ANATOMY
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HEMORRHOIDAL ARTERIAL SUPPLY:
HEMORRHOIDAL ARTERIAL SUPPLY:
HEMORRHOIDAL ARTERIAL SUPPLY:

IRAs
HEMORRHOIDAL ARTERIAL SUPPLY:

DON'T TOUCH

IRAs
CORPUS CAVERNOSUM
RECTI HYPOTHESIS:
OBJECTIVES

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EMBOLIC AGENTS:

• Coils (Most widely used)
EMBOLIC AGENTS:

- Coils (Most widely used)

*Quoted from Farouk Tradi, Julien Panneau, and Vincent Vidal, MD, PhD; Endovasc Today 2021*
EMBOLIC AGENTS:

• Coils

• Coils + Particles
EMBOLIC AGENTS:

• Coils
• Coils + Particles
• Particles alone
• Glue
• Coils
• Coils + Particles
• Particles alone
• Glue !!!!!!
EMBOLIC AGENTS:

- Coils
- Coils + Particles
- Particles alone

New Technique of Embolization of the Hemorrhoidal Arteries Using Embolization Particles Alone: Retrospective Results in 33 Patients

Abstract

Purpose: The purpose of this study was to assess the safety and efficacy of using particles only in the embolization of the hemorrhoidal arteries for the management of hemorrhoids.

Subjects and Methods: This is a retrospective study for patients treated between March 2015 and December 2018. We treated 33 patients, 13 men and 20 women with a mean age of 37 years (range: 18–70 years), in which 11 patients had Grade II hemorrhoids and 22 had Grade III hemorrhoids. Technical and clinical success together with procedural complications were assessed.

Results: The technical success rate was 100%. No minor or major complications have been reported. No cases of anorectal ischemia, anal incontinence, hemorrhoidal thrombosis, or complications related to femoral arterial puncture have occurred. Follow-up was at 3 months and 12 months postembolization. Clinical success was observed in 32 patients (96.9%) with improvement by at least 2 points of the French bleeding score at 3 months postembolization.

Conclusion: The use of particles alone in the embolization of hemorrhoidal arteries whether from the superior rectal artery and/ or from the middle and inferior rectal arteries can offer a safe and effective treatment option.

Keywords: Bleeding, embolization, hemorrhoids, particles

EMBOLIZATION OF HEMORRHHOIDS

Patient selection:

Grade II and non complicated grade III with bleeding per rectum
EMBOLIZATION OF HEMORRHOIDS

• Technique:
  • Right femoral puncture
  • 6F vascular sheath
  • IMA and IIA catheterization by 5F Cobra Head or Simon 2 catheter.
  • 2.7 – 2.8F Micro-catheter to catheterize SRA and MRA.
  • Embolization of arteries below symphysis pubis by 2 – 3 mm 0.018 coils or 300-500 µ particles.
EMBOLIZATION OF HEMORRHOIDS

• Technique:
  • Right femoral puncture
  • 6F vascular sheath
  • **IMA** and **IIA** catheterization by 5F Cobra Head or Simon 2 catheter.

• 2.7 – 2.8F Micro-catheter to catheterize SRA and MRA.
• Embolization of arteries **below symphysis pubis** by 2 – 3 mm 0.018 coils or **500-700 µ** particles.
• Where should we look for hemorrhoides?
EMBOLIZATION OF HEMORRHOIDS

- Where should we look for hemorrhoides?
- 60 year old female patient suffering BPR for 25 years
- Endoscopically diagnosed Internal hemorrhoids grade II to III
- Previous endoscopic banding and open surgery failed to control bleeding
EMBOLIZATION OF HEMORRHOIDS
EMBOLIZATION OF HEMORRHHOIDS
1 month later the patient reported rebleeding however milder than before 1st session. Thorough revision of all the angiographic runs was done with suspected supply of the hemorrhoidal arteries via Internal Iliac artery branch.
• SRA embolization was durable.
EMBOLIZATION OF HEMORRHOIDS
• What did I learn from this case?
• Early Lesson

ALWAYS DO AN INTERNAL ILIAC ANGIOGRAM
EMBOLIZATION OF HEMORRHOIDS

IIA supply embolized by particles
And another case .....
EMBOLIZATION OF HEMORRHOIDS

• Do we overrate ischaemia?!
• Do we overrate ischaemia?!

• 18 year old female patient endoscopically diagnosed Internal hemorrhoids underwent endoscopic banding session during which she developed severe attack of BPR and was referred hemodynamically unstable with Hb conc. 4.5 g/dL
Angiogram revealed very early venous filling ... Like a hemorrhoidal artery AVM
Due to hemodynamic instability I decided to use NBCA Lipiodol mixture 1:3
overembolized !!!!
EMBOLIZATION OF HEMORRHOIDS

• What did I learn from this case?
EMBOLIZATION OF HEMORRHOIDS

• What did I learn from this case?

We might be overrating ischemia in the IMA
OBJECTIVES

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CURRENT EVIDENCE IN PRACTICE
WHERE ARE WE!!!
Since its debut; Hemorrhoidal Arterial Embolization or EMBORRHOIDES has gained acceptance being safe, minimally invasive with excellent bleeding control.
• There is rather scarce evidence when it comes to hemorrhoids embolization
CURRENT PRACTICE

- There is rather scarce evidence when it comes to hemorrhoids embolization

Review

Hemorrhoid embolization: A review of current evidences

Reza Talaihe\textsuperscript{a,\textdagger,\dagger}, Pooya Torkian\textsuperscript{a,\dagger}, Arash Dooghaie Moghadam\textsuperscript{b}, Farouk Tradi\textsuperscript{c}, Vincent Vidal\textsuperscript{c}, Marc Sapoval\textsuperscript{d,\textuuml,\textdagger}, Jafar Golzarian\textsuperscript{a}

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\textsuperscript{\dagger} Department of General, Visceral, and Transplantation Surgery, University of Heidelberg, 69120 Heidelberg, Germany
\textsuperscript{b} Interventional Radiology Section, Department of Medical Imaging, University Hospital Timone, AP-HP, 13006 Marseille, France
\textsuperscript{d} Vascular and Oncological Interventional Radiology, Hopital European Georges Pompidou, Assistance Publique-Hôpitaux de Paris, 75015 Paris, France
\textsuperscript{\textuuml} Université de Paris, Faculté de Médecine, 75006 Paris, France
CURRENT PRACTICE

- There is rather scarce evidence when it comes to hemorrhoids embolization

**Review**

**Hemorrhoid embolization: A review of current evidences**

Reza Talaie\(^1\), Pooya Torkian\(^2\), Arash Dooghaie Moghadam\(^3\), Farouk Tradi\(^4\), Vincent Vidal\(^5\), Marc Sapoval\(^6\), Jafar Golzarian\(^7\)

\(^1\) Vascular and Interventional Radiology, Department of Radiology, University of Minnesota, 54153 Minneapolis, USA
\(^2\) Department of General, Vascular, and Interventional Surgery, University of Heidelberg, 69120 Heidelberg, Germany
\(^3\) Interventional Radiology Section, Department of Medical Imaging, University Hospital Firefox, 13005 Marseille, France
\(^4\) Vascular and Endovascular Interventional Radiology, Hospital for Lippe, Georges Pondiavw, Assistance Publique-Hopitaux de Paris, 75015 Paris, France

- 12 studies
- Total less than 250 patients
- All single center studies
- Equivocal candidate selection with mean grade of bleeding hemorrhoids 2.3
<table>
<thead>
<tr>
<th>No.</th>
<th>Author, year [Ref. number]</th>
<th>Country</th>
<th>Study design</th>
<th>Embolizing agent</th>
<th>Number of coils (when reported)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Moussa et al. 2017 [38]</td>
<td>France</td>
<td>Retrospective, multi-center Case series</td>
<td>Nester 0.018-In, 2–3 mm micro coils (Cook Nester®)</td>
<td>7.6 ± 4.4 (SD)</td>
</tr>
<tr>
<td>2</td>
<td>Tradi et al. 2018 [41]</td>
<td>France</td>
<td>Prospective, single-center Case series</td>
<td>2–3 mm micro coils (Cook Nester®)</td>
<td>6.1 ± 2.9 (SD)</td>
</tr>
<tr>
<td>3</td>
<td>Vidal et al. 2014 [32]</td>
<td>France</td>
<td>Retrospective, single-center Case series</td>
<td>Nester 0.018-In, 2–3 mm micro coils (Cook Nester®), 3 cm long</td>
<td>N.A</td>
</tr>
<tr>
<td>4</td>
<td>Giurazza et al. 2020 [17]</td>
<td>Italy</td>
<td>Retrospective, single-center Case series</td>
<td>Microcoils (Concerto™ Medtronic - MicroNester® or Tornado® Cook Medical)</td>
<td>N.A</td>
</tr>
<tr>
<td>5</td>
<td>Vidal et al. 2015 [37]</td>
<td>France</td>
<td>Prospective, single-center Case series</td>
<td>Nester 0.018 Inch, 2–3 mm micro coils (Cook Nester®)</td>
<td>N.A</td>
</tr>
<tr>
<td>6</td>
<td>Sun et al. 2018 [42]</td>
<td>China</td>
<td>Retrospective, single-center Case series</td>
<td>Gainturco® coils; Cook Europe</td>
<td>3-5</td>
</tr>
<tr>
<td>7</td>
<td>Moussa et al. 2020 [15]</td>
<td>France</td>
<td>Retrospective, single-center Case control</td>
<td>Embospheres (300–500 μm) followed by 2–3 mm micro coils (Cook Nester®)</td>
<td>6.9 ± 3.8 (SD)</td>
</tr>
<tr>
<td>8</td>
<td>Zakharchenko et al. 2016 [16]</td>
<td>Russia</td>
<td>Prospective, single-center Case series</td>
<td>Standard 3–5 mm metallic coils (Gianturco® coils; Cook Europe) for SRA trunk + synthetic polyvinyl alcohol particles (0.3 mm) (Ivalon®; Ivalon international Therapeutics)</td>
<td>N.A</td>
</tr>
<tr>
<td>9</td>
<td>Sun et al. 2017 [40]</td>
<td>China</td>
<td>Retrospective, single-center Case report</td>
<td>3 mm metallic coils (Gianturco coils; Cook Europe®)</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>Venturini et al. 2018 [35]</td>
<td>Italy</td>
<td>Retrospective, single-center Case series</td>
<td>0.025-In, 3-mm-diameter, 3-cm long coils (Cook Nester®)</td>
<td>N.A</td>
</tr>
<tr>
<td>11</td>
<td>Benci et al. 2008 [36]</td>
<td>Hungary</td>
<td>Retrospective, single-center Case report; Case report</td>
<td>0.2-mm and 1.4-mm 0.018-In. fibered platinum microcoils (Boston ScientificTM)</td>
<td>N.A</td>
</tr>
<tr>
<td>12</td>
<td>Küçükay et al. 2021 [43]</td>
<td>Turkey</td>
<td>Prospective, single-center Case series</td>
<td>Tri-aryl-gelatin 500–1200 μm Particles (Emosphere®, Merit Medical)</td>
<td>N.A</td>
</tr>
</tbody>
</table>

N.A: Data not available; SD, Standard deviation
**Embolization:**

- Particles embolization should obstruct hemorrhoid plexus more effectively as it passes distally to the corpus cavernosum while allowing for normal flow in the IRA.

- The presence of collateral SRA branches was associated with recurrence by reperfusion of the corpus cavernosum recti downstream.

- The MRA or a posterior branch could be embolized to decrease recurrence rate.
Original Article

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Karim A. Abd El Tawab, Amr Muhammad Abdo Salem, Rana T. M. Khafagy
Department of Radiology, IT Unit, Ain Shams University Hospitals, Cairo, Egypt
Success rates:

- Literature supports feasibility, efficacy, and safety of SRA embolization for hemorrhoids. With a technical success close to 100% defined as the occlusion of SRA visible branches with closure of the corpus cavernosum recti plexus.
Success rates:

- Clinical success was defined as cessation of rectal bleeding with improved post-procedural scores, without severe complications.
Complications:

• Mostly Minor

• Transient pain (SIR grade A-B) including abdominal pain, fever and nausea and vomiting after the procedure were also reported as well as transient rise in the liver enzymes were documented.
WHAT HINDERS POPULARITY

Common disease
Feasibility
Success rates
Safety
Common disease
Feasibility
Success rates
Safety
Common disease
Feasibility ✓
Success rates
Safety
Common disease ✓
Feasibility ✓
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Safety ✓
Need for more IRs to adopt Surgeons
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Need for more IRs to adopt ✗
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Common disease  ✓
Feasibility  ✓
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Insurance  ✗
Cost  ✗
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CAN WE DO MORE?

- 300+ cases of Hemorrhoides sclerotherapy
• 300+ cases of Hemorrhoides sclerotherapy
• Started hemorrhoides embolization in 2015 with more than 50 cases
WHY DID I START DOING HEMORRHOIDES SCLEROTHERAPY?

• Started hemorrhoides embolization in 2015 with more than 50 cases

OUT OF HUNDREDS !!!!
WHY DID I START DOING HEMORRHOIDES SCLEROTHERAPY?

• Started hemorrhoides embolization in 2015 with more than 50 cases

OUT OF HUNDREDS !!!!

• Grade 1
• Non bleeding
• Mild symptoms
Very familiar with sclerotherapy
+
see in clinic lots of hemorrhoides patients:
coming for embolization
Very familiar with sclerotherapy
+
see in clinic lots of hemorrhoides patients:
coming for embolization
We are very familiar with sclerotherapy + see in clinic lots of hemorrhoides patients: coming for embolization or in females with PCS + genital varices and annoying them by history (we routinely ask for anal symptoms)
• Sclerosant filling the vascular spaces within the hemorrhoid so it fibroses and shrinks
The Hemorrhoid Foam Study
Efficacy and Safety of Aethoxysklerol® Foam for Sclerotherapy of First Grade Hemorrhoidal Disease

In summary, the results of this study show that foam sclerotherapy with polidocanol is a new, highly effective and non-surgical method in the treatment of hemorrhoidal disease and is as safe as well-proven liquid sclerotherapy. Both the efficacy of foam sclerotherapy in second and third grade hemorrhoidal disease and long-term data on foam sclerotherapy remain to be evaluated in additional studies.
TECHNIQUE

Equipment needed:

• Anoscope
• 3% polydocanol
• 1 cc syringe
• 31g needle for superficial and spinal
  21 G needle if deep
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PAIRS 2024
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