Embolization of the superior rectal arteries for chronic bleeding due to hemorrhoidal disease

Moussa N

Sielezneff I; De Parades V; Tradi F; Del Guidice C; Fathallah N; Amouyal G; Pellerin O; Vidal V; Sapoval M

1Interventional radiology department - 5Gastro-enterology department Georges Pompidou European Hospital, Paris, France
2Interventional radiology department, 3Visceral Surgery department - La Timone Hospital, Marseille, France
4Proctology department - Saint-Joseph Hospital, Léopold-Bellan Institute, Paris, France
Nadia Moussa, M.D.

• No relevant financial relationship reported
HEMORRHOID: BACKGROUND

The most common anorectal disease

→ Prevalence of 4-35%

Main symptoms: chronic bleeding

→ Poor quality of life
HEMORRHOID: BACKGROUND

Hemorrhoidal disease is defined as enlargement and symptomatic prolapse of normal hemorrhoidal cushions.

Hemorrhoidal bleeding is related to excessive arterial inflow.

The Vascular Nature of Hemorrhoids
Aigner et al.
HEMORRHOID: BACKGROUND

Hemorrhoids are not **veins**

It’s a **vascular plexus** above the dentate line described as the "**corpus cavernosum recti**"

**Mechanical occluding functions** rather than nutritional
ANATOMY

**SUPERIOR RECTAL ARTERY:**
Main vascularization of hemorrhoidal plexus

**PUDEAL ARTERY:**
For the middle rectal artery, rarely involved in the hemorrhoidal process
HEMORRHOID: BACKGROUND

Favorable results of Doppler-Guided Hemorrhoidal Arteries Ligation (DG-HAL) contributed developing the “Emborrhoid technique” consisting in occluding the distal branches of the superior rectal (hemorrhoidal) arteries.

We reported our favorable technical and clinical experience after a first feasibility report in 2014.
PURPOSE

Assess the safety and efficacy of the embolization of superior rectal arteries in patients unfit for surgery.
METHODS AND MATERIALS: PATIENTS CHARACTERISTICS

Between January 2014 and April 2015
Patients presenting chronic rectal bleeding related to hemorrhoidal disease

Contraindication to conventional therapies
Discussed in multidisciplinary team including a proctologist/surgeon and an interventional radiologist.

30 consecutive patients

- Haemostasis disorders = 17 (57%)
- Previous surgery = 7 (23%)
- Both haemostasis disorders & previous surgery = 3 (10%)
- Inflammatory disease of the colon = 3 (10%)
METHODS AND MATERIALS:
CLINICAL ASSESSMENT

**Before** and **after** embolization:
- Proctologic examination
- Goligher’s classification scale (prolapse stage)
- General symptom score
- Quality Of Life score
- Bleeding severity score (Table 1)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Never</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1 per year</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>≥ 1 per months</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>≥ 1 per week</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>≥ 1 per day or per saddle</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bleeding</th>
<th>Never</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>At wiping</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>In the toilet</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>In underwear</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anemia</th>
<th>Never</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without transfusion</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>With transfusion</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

*Table 1: Bleeding severity score* /9
METHODS AND MATERIALS: PROCEDURE DETAILS

5 Fr right femoral approach
Local anaesthesia.

Super-selective micro-coils embolization (pushable fibered 2-3 mm /0.018 coils - Tornado and Nester - Cook) with a micro catheter

Occlusion of the distal branches of the superior rectal arteries
RESULTS

30 patients

Total success rate 83% (25 patients)

Primary success 70% (21 patients)

Secondary success 13% (4 patients)

Failure* 17% (5 patients)

Mean follow-up was 6 +/- 3.8 months [1 - 15 months]

Immediate technical success was 93%.

No complication, including no case of rectal ischemia

The average number of embolized arteries per patient were 3, for an average of 7.6 coils per patient

Primary success: Significant bleeding reduction after a single embolization session.
Secondary success: Significant bleeding reduction after a second embolization.
Failure: No significant bleeding reduction

*even after 3 embolization for one patient
RESULTS:
SCORE EVOLUTIONS

Significant **decrease of clinical scores** linked to bleeding
No modification of the hemorrhoidal **prolapse** as classified by Goligher’s scale

**Table 2: Clinical scores evolution**

<table>
<thead>
<tr>
<th>Score</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding severity score</td>
<td>7 +/- 1.2</td>
<td>3.7 +/- 1.2</td>
</tr>
<tr>
<td>General symptom score</td>
<td>11 +/- 3.2</td>
<td>6.5 +/- 3.8</td>
</tr>
<tr>
<td>Quality Of Life</td>
<td>3.5 +/- 0.9</td>
<td>1.9 +/- 0.8</td>
</tr>
<tr>
<td>Goligher’s classification score</td>
<td>2.2 +/- 0.78</td>
<td>2.1 +/- 0.69</td>
</tr>
</tbody>
</table>
DISCUSSION

83 % clinical success means that the technique might need improvement

Moving toward particles + coils (See Dr Zakharchenko presentation)

More evidence in more centers is needed
CONCLUSIONS

Distal coil Embolization of superior rectal arteries for disabling chronic rectal bleeding is **safe and effective** in patients beyond proctologic resources.

This technique is a new field of peripheral embolization, relatively easy and could be offered in many vascular interventional radiology centers worldwide.
REFERENCES


