GI Bleeding

Is there a Role for Embolization in Bleeding from Hemorrhoids

Vincent VIDAL
Vincent Vidal, M.D., Ph.D.

• Consultant/Advisory Board: Medtronic
The nature of haemorrhoids. Thomson WH. Br J Surg 1975
In emergency !!!
In Emergency

- **Dobson CC et al (1999) CVIR**
  Treatment of rectal hemorrhage by coil embolization.

  Safety and efficacy of superselective angioembolization in control of lower gastrointestinal hemorrhage.

- **Pichon N et al (2005) CVIR**
  Embolization of rectal arteries: an alternative treatment for hemorrhagic shock induced by traumatic intrarectal hemorrhage.

- **Morar KN et al (2006) CVIR**
  Embolization of middle hemorrhoidal artery in the management of life-threatening rectal bleeding.

- **Berczi V et al (2008) CVIR**
  Embolization of a hemorrhoid following 18 hours of life-threatening bleeding.

**No ischemic complications**
**Evaluation of anemia caused by hemorrhoidal bleeding.**

Kluiber RM1. DIS Colon Rectum. 1994

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### Chronic Bleeding

EVALUATION OF IRON-DEFICIENCY ANEMIA

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Patients (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon cancer</td>
<td>4</td>
</tr>
<tr>
<td>Colon polyp</td>
<td>7</td>
</tr>
<tr>
<td>VM</td>
<td>6</td>
</tr>
<tr>
<td><strong>hemorrhoids</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Crohn’s ileitis</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total lesions</strong></td>
<td><strong>22†</strong></td>
</tr>
</tbody>
</table>

- 5 – 15% Of anemia caused by lower GI bleeding
For Chronic Bleeding

Doppler-guided Haemorrhoid Artery Ligation 2005
Emborrhoid Technique
Arterial physio-pathology

- Venous hyperpressure hypothesis

What are hemorrhoids and what is their relationship to the portal venous system? Bernstein WC. Dis Colon Rectum. 1983

- New concept: HIGH arterial flow

The "functional unit" of the corpus cavernosum recti is a narrow, partly tortuous, thick-walled artery which terminates, without interposed capillaries, directly into the hollow spaces which are separated from each other by tough connective tissue septa.
The Corpus Cavernosum Recti
The Corpus Cavernosum Recti

ROLE:
- Not to bring Oxygen to the rectum
  - Arterio-venous shunt
  - Create the cushion

Functional role
- Anal closure

Red bleeding
Arterial physio-pathology

- **HIGH arterial flow theory**

Aigner 2006, Austria. The Vascular Nature of Hemorrhoids

*J Gastrointest Surgery*
Arterial physio-pathology

- **HIGH arterial flow theory**

Aigner 2006, Austria. The Vascular Nature of Hemorrhoids

J Gastrointestinal Surgery

Low Resistance index

AV shunt?
AV shunt
Emborrhoid: A New Concept for the Treatment of Hemorrhoids with Arterial Embolization: The First 14 Cases

V. Vidal · M. Sapoval · Y. Sielezneff · V. De Parades · F. Tradi · G. Louis · J. M. Bartoli · O. Pellerin
Prospective study: First line treatment

- After a **multidisciplinary** discussion
  - Proctologist, visceral surgeon and radiologist

- 25 patients (disabling, abundant rectal bleeding)
  - 30 to 72 y.o (mean 54 y.o)
  - 18 men, 7 women
  - Stage of the hemorrhoidal disease
    - II (18) or III (7) or IV (0)
Technique

- Right **femoral** route after inserting a 5 Fr sheath.
- Catheterization of the **inferior mesenteric artery** using a **Simmons** catheter
- **Superior rectal** arteries
- **microcatheter**
- Coils used:
  - 0.018”
  - 2 and 3 mm
  - **Nester (Cook).**
Technique
Results

• Follow-up at one year:

  • Technical success: **100%** (25/25)
    • Mean number of arteries embolized: **4.2** (3-6)

  • Overall rate of symptom improvement **61%**
    • **8 (32%)** patients ask for a new embolization

  • 14 Complete embolization: **70%**
  • 11 Partiale embolization: **40%** (p<0.05)
Results

• Complications:
  • No ischemic complication observed
Results

• Bleeding score :

\[6 \rightarrow 3.7\]

1 per week at wiping

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

Table 1: Bleeding severity score 0 to 9
Symptom Improvement

- Pain decrease proportionally
- Bleeding decrease proportionally
Discussion

- Partial embolization?

Other embolic Agent?
Porcine model : Coils
Porcine model: Coils
Porcine model: ONYX
Porcine model: ONYX
Porcine model: Particles 500
Porcine model: Particles 500
CONCLUSION

In emergency:

- technically feasible
- safe – no complication

For chronic bleeding:

- Emborrhoid
- need to improve the technique