Prostate arterial embolization in benign prostate hyperplasia

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Disclosure

Speaker name: Ulf Teichgräber, MD, MBA

Potential conflicts of interest related to the presentation:

- Research grant, honoraria: Boston Scientific

Potential conflicts of interest not related to the presentation:


- Master research agreements with Siemens Healthcare, GE Healthcare
BPH

• Transuethral resection of the prostate (TURP) is still considered the standard surgical therapy for the treatment of non-neurogenic male lower urinary tract symptoms (LUTS)
• A retrograde ejaculation, and sexual dysfunction are typical side effects of TURP
• Minimally invasive methods such as PAE are arising with the intention to provide fewer complications
Pelvic vessels
Linker Paramedianschnitt: Ansicht von lateral

- V. cava inferior
- A. et V. obturatoria dextra
- Aorta abdominalis
- A. et V. iliaca communis
- A. glutea inferior
- A. vesicalis inferior
- A. rectalis media

A. vesicalis inferior
R. prostaticus
Rr. urethrales
Rr. capsulares

Hyperplastischer Mittellappen
Hyperplastischer Seitenlappen

M. sphincter urethrae

Arterielle Versorgung der Prostata
(Frontalschnitt, Ansicht von vorn auf eine gutartige Hyperplasie)
1. Iliolumbar artery
2. Sacral internal artery
3. Superior gluteal artery
4. Inferior gluteal artery
5. Obturator artery
6. Umbilical artery
7. Superior vesical artery
8. Inferior vesical artery
9. Prostate artery
10. Medial rectal artery
11. Internal pudendal artery
Anatomische Varianten

Prof. Dr. Herbert Lippert, Urban&Schwarzenberg 1968
1) Common trunk of superior vesical a. + inferior vesical a.
2) Obturator a.
3) Prostate a.
4) Internal pudendal a.
5) Inferior gluteal a.
Uncommon origin of the prostate a. out of superior gluteal artery
Technique
Material
Material / Vorgehen

1. Access groin (4F sheath)
2. Access the contralateral internal iliac a. with a 4 F selektiv catheter (e.g. RIM Tempo, Cordis)
3. Advancing a microcatheter into the prostate a. (e.g. Progreat α 2.0 F, Terumo)
4. First embolisation with microspheres (e.g. Embozene 250 µm)
5. Access the der ipsilateral prostate a.
6. Second embolisation

Adjustment of the angiography
- Before embolisation: confirmation in two plains
  - 1. a.p. projection
  - 2. LAO/RAO 30° (ggf. 10° cc angulation)
The “PErFecTED Technique”: Proximal Embolization First, Then Embolize Distal for Benign Prostatic Hyperplasia

Francisco C. Carnevale · Airton Mota Moreira · Alberto A. Antunes
Challenge
180ml
(76 x 58 x 78mm x π/6)

142ml
(72 x 51 x 74mm x π/6)

- 21%
Benign Prostatic Hyperplasia:
Prostatic Arterial Embolization versus Transurethral Resection of the Prostate—A Prospective, Randomized, and Controlled Clinical Trial

Yuan-an Gao, MD
Yan Huang, MD
Rui Zhang, PhD
Yu-dong Yang, MD
Qing Zhang, MD, PhD
Min Hou, MD
Yi Wang, MD, PhD

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## Postinterventional Symptoms

<table>
<thead>
<tr>
<th>Adverse Event or Complication/Clavien grade</th>
<th>PAE Group</th>
<th>TURP Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intraoperative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical failure/IIIb</td>
<td>3 (5.3%)</td>
<td>0</td>
</tr>
<tr>
<td>Blood transfusion/II</td>
<td>0</td>
<td>2 (3.8)</td>
</tr>
<tr>
<td>Transurethral resection syndrome/IVb</td>
<td>0</td>
<td>1 (1.9)</td>
</tr>
<tr>
<td><strong>Early (&lt;30 days)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postembolization syndrome/I</td>
<td>6 (11.1)</td>
<td>0</td>
</tr>
<tr>
<td>Severe pelvic pain/II</td>
<td>1 (1.9)</td>
<td>0</td>
</tr>
<tr>
<td>Acute urinary retention/I</td>
<td>14 (25.9)</td>
<td>3 (5.7)</td>
</tr>
<tr>
<td>Hematuria/I</td>
<td>0</td>
<td>4 (7.5)</td>
</tr>
<tr>
<td>Urinary tract infection/I</td>
<td>1 (1.9)</td>
<td>2 (3.8)</td>
</tr>
<tr>
<td>Clot retention/I</td>
<td>0</td>
<td>1 (1.9)</td>
</tr>
</tbody>
</table>

Prostatic Diseases and Male Voiding Dysfunction

Prostatic Artery Embolization for Prostate Volume Greater Than 80 cm$^3$: Results From a Single-center Prospective Study

Dmitry Kurbatov, Giorgio Ivan Russo, Alexander Lepetukhin, Sergey Dubsky, Ivan Sitkin, Giuseppe Morgia, Roman Rozhivanov, Sebastiano Cimino, and Salvatore Sansalone
BPH & Prostate gland > 80g

- 88 patients (IPSS ≥ 12, PV ≥ 80cm³, Qmax < 15ml/s)

Kurbanov D, et al. Urology 2014; 84: 400-404
Own results

- **IPSS**
  - Base: 21.26
  - 1 Monat: 10.75
  - 3 Monate: 10.50

- **Restharn**
  - Base: 39.75
  - 1 Monat: 22.25
  - 3 Monate: 6.50

- **PSA**
  - Base: 2.95
  - 1 Monat: 1.74
  - 3 Monate: 1.15

- **QoL**
  - Base: 4.10
  - 1 Monat: 2.67
  - 3 Monate: 2.17

- **Qmax**
  - Base: 10.73
  - 1 Monat: 16.60
  - 3 Monate: 20.55

- **IIEF**
  - Base: 11.73
  - 1 Monat: 14.50
  - 3 Monate: 13.50
Conclusions

**PROS**
- No trauma to the urethra
- Alternative to TURP especially in Prostate gland vol. >65 ml
- Alternative in patients at risk (coagulopathy, general anesthesia)

**CONS**
- Anatomic variations (+arteriosclerosis)
- Risk of inadvertent embolization of the rectum or
- Low acceptance of urologists
Prostate arterial embolization in benign prostate hyperplasia

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