Case report:
Multilayer Flow Modurator (MFM) for Pararenal Aneurysm with AneurysmFlow

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Saccular Aneurysm in Perivisceral Aorta

- F/67

- Hypertension(+), Diabetes Mellitus(-), ischemic heart disease(-), renal insufficiency(-)
- Hepatitis(-), Tuberculosis(-)

- History of spinal surgery in 2013
- FUO in local hospital in April 2017
- Epidural abscess drainage in May 2017
- Compression fracture T12 due to slip down in May 2017
- hematochezia due to duodenal ulcer in June 2017
2*4cm sized Saccular Aneurysm in posterior aorta between renal artery and SMA

No active inflammation in PET CT
The Concept

Endothelialization

The flow lamination excludes the aneurysm from the blood circulation by inducing a physiological thrombus formed of lines of Zahn. The MFM® gets endothelialized, permitting the reductive process to start.

Fusiform Aneurysm

Without MFM

Vorticity in the aneurysmal sac

With MFM

Reduction of wall shear stress (WSS) and channeling flow to branches

Wall shrinkage close to the branch

Formation of a layered organized thrombus

Organized thrombus and branches patency
AneurysmFlow

- Extract & display “hidden” flow information from the dynamics of X-ray sequences:

Clinical benefit:
- Pre-treatment support for decision making
- Post-treatment analysis of result
Aneurysm Flow in Cerebral Aneurysm

Evaluation before and after Flow diverter

DSA with 60 fr/s
3-5cc contrast /s for 4 second

Contrast Transit time

Contrast concentration

Flow velocity

Flow direction

Pre- Flow Diverter stenting

Post- Flow Diverter stenting
### Interventional Strategy

**Introduction side:** Right

<table>
<thead>
<tr>
<th>Collateral arteries</th>
<th>Coverage</th>
<th>Presence of stenosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCT</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>LCA</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>LSA</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Celiac trunk</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>SMA</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Left Renal</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Right Renal</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Left Iliac</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Right Iliac</td>
<td>No</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Devices**

- **Aorta**

  CTMS
  CTMS 25100 / 18 Fr

  Stiff guidewire: 300 mm

Note: This report is an advisory recommendation for physician reference.
CT in 3 months
CT in 4 months
Conclusion

• MFM (Multilayer Flow Modurator) as a alternative option for conventional open surgical repair of pararenal aneurysm.

• AneurysmFlow for cerebral aneurysm may show hemodynamic information for aortic treatment.
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