Treatment of a pancreaticoduodenal arcade aneurysm with a flow modulator stent

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Disclosure

Speaker name:
Dr. Lucas Marcelo Dias Freire
I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Case Report

- 64-year-old woman with history of controlled high blood pressure and previous smoker; presented with dyspepsia.
- Abdominal ultrasound: anechoic mass in the topography of the pancreatic head, measuring 3,0 cm in diameter, with arterial flow in the Doppler study.
CT Scan
CT Scan
CT Scan - posterior view
Gastro-duodenal Arcade aneurysms

- Uncommon lesions
- Significant risk of rupture
- Often associated with celiac axis stenosis/occlusion
The presentation and management of aneurysms of the pancreaticoduodenal arcade

Michael R. Corey, MD, Emel A. Ergul, MS, Richard P. Cambria, MD, Virendra I. Patel, MD, MPH, R. Todd Lancaster, MD, MPH, Christopher J. Kwolek, MD, and Mark F. Conrad, MD, MMSc, Boston, Mass
Treatment options

• Open surgery, with aneurysm ligation and hepatic/splenic artery bypass (antegrade or retrograde) - invasive, risk of pancreatitis, etc.
• Coil embolization of the aneurysm - risk of hepatic and splenic ischemia, due to occlusion of the gastroduodenal arcade.
• Stent-graft: no adequate proximal neck.
Multilayer Stent

• Self-expandable, 3D-braided wire tube, structured in several interlocked layers (Multilayer flow-modulating stent – Cardiatis; Isnes, Belgium)

• CE marked for peripheral vessels
Multilayer Stent

- Laminates flow, while reducing speed and strength of hemodynamic vortices inside the aneurysm (increasing residence time and promoting thrombus formation).
Multilayer Stent

Redirects flow toward the ostia of collaterals; the aneurysm collapses.
Angio
Angio
3-Month Follow-up CT Scan
3-Month Follow-up CT Scan

Length: 3.323 cm (54.478 pix)

Length: 3.143 cm (48.760 pix)
3-Month Follow-up CT Scan

Pre: 13.6 cm³

Post: 6.0 cm³
3-Month Follow-up CT Scan
8-Month Follow-up CT Scan

Length: 3.323 cm (54.476 HU)
3-Month Follow-up CT Scan
8-Month Follow-up CT Scan
Endovascular Repair of Peripheral and Visceral Aneurysms With the Cardiatis Multilayer Flow Modulator: One-Year Results From the Italian Multicenter Registry

Maria Antonella Ruffino, MD, and Claudio Rabbia, MD, on behalf of the Italian Cardiatis Registry Investigators Group

Vascular Interventional Radiology, San Giovanni Battista Hospital, Turin, Italy.
- Multicentric, prospective register, 2009-2010
- 54 patients
- Peripheral (35) and visceral aneurysms

<table>
<thead>
<tr>
<th>Aneurysms</th>
<th>Maximal diameter, mm</th>
<th>With side branches</th>
<th>Side branches at risk</th>
<th>Locations</th>
<th>Diameter, mm*</th>
<th>Branches</th>
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<tbody>
<tr>
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<td>Subclavian artery (n=1)</td>
<td>40</td>
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<td>Celiac trunk (n=3)</td>
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<td>Splenic artery (n=5)</td>
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<td>Hepatic artery (n=5)</td>
<td>60.6 (43-90)</td>
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<td>Gastroduodenal artery (n=1)</td>
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<td>Superior mesenteric artery (n=2)</td>
<td>54, 70</td>
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<td>Renal artery (n=3)</td>
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<td>36.5 (23-65)</td>
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<td>Aortobi-iliac bypass (n=3)</td>
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<td>Popliteal artery (n=6)</td>
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<td>Femoropopliteal bypass (n=2)</td>
<td>18, 23</td>
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</tr>
</tbody>
</table>

32.5 ± 18.9 (9-90)
44 (81.5%)
53
• Technical success: 100%
• 1 year mortality = 5,5%
• No ruptures
• Stent occlusion
• 1 year primary and secondary patency: 86,9% and 90,7%
• 1 year Branches patency: 96,1%
• 1 year aneurysm complete thrombosis: 93,3%
• Diameter reduction (1, 6 and 12 months): 15,5%, 3,8% and 11,0%
Conclusion

• Pancreaticoduodenal arcade aneurysms are rare, but potentially fatal lesions
• Treatment is challenging, especially when associated with celiac trunk occlusion
• The Multilayer stent diverted the flow from the aneurysm to the superior mesenteric artery and preserved gastroduodenal circulation
• Longer-term follow-up is needed
Thanks
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