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A Novel Modular Double Embedded Branches Stent Graft for Aortic Arch Pathologies

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- ZENITH ARCH BRANCHED DEVICE (Cook Medical)

- RELAY DOUBLE-BRANCHED STENT-GRAFT (Bolton Medical)

- NEXUS AORTIC ARCH SYSTEM (Endospan Medical)
Disclosure

Speaker name: Wei Guo, MD

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
WeFlow-Arch™
A Modular Branched Stent Graft

The First Section
The Second Section

WeFlow-Arch™
A Modular Branched Stent Graft

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<th>Pro.</th>
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<td>Pro. Part: Excellent radio force</td>
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<td>Mid. Part: Flexible coverstent</td>
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<td>Dis. Part: Good adherence performance</td>
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The Third Piece

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A Modular Branched Stent Graft

The proximal end of the stent graft can be bent into shape, with small resilience and good bending flexibility.

The distal end of the covered stent adopts a smaller wire diameter, which has a smaller radial force.
CASE 1: M/74y, Examination revealed arch aneurysm with asymptomatic for three weeks. Risk factor: hypertension, smoke

3D printed aortic model and in vitro simulation
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Results of First in Man Study

The first segment implantation and carotid artery track establishment
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Results of First in Man Study

Innominate a. / left carotid a. branch covered stent and the third piece implantation after LCCA-LSA bypass
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Results of First in Man Study

CTA FU: patency mainbody and branches, no endoleak
Duplex US: normal blood flow of carotid arteries
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Results of First in Man Study

CASE 2: M/60yo, Examination revealed arch aneurysm with asymptomatic for one month. Accident trauma 20 years ago.

CTA FU: patency mainbody and branches, no endoleak
Duplex US: normal blood flow of carotid arteries
CASE 3: M, 58y, Cough with hoarseness and examination revealed arch aneurysm for 2 weeks. Left vertebral artery occlusion.

CTA FU: patency mainbody and branches, no endoleak
Duplex US: normal blood flow of carotid arteries
CASE 4: M/64yo with obvious chest pain, arch aneurysm for 4 weeks. Left vertebral artery originated from arch. Risk factor: hypertension, diabetes.

CTA FU: patency mainbody and branches, no endoleak
Duplex US: normal blood flow of carotid arteries
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Results of First in Man Study

Case 5: M/53Yo, One year after Traumatic aortic dissection aneurysm

6 month CTA follow-up: perfect stent graft morphology and patency, no endoleak and any other complications.
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Results of First in Man Study

Advantages
- Suitable for arch and partial ascending aorta lesions
- Segmental release do not affect cerebral blood flow
- Simple localization and release, perfect stability
- Adjustable deliver system
- Easy bridging technique
- No GUTTER endoleak
- Good inner branches morphology

Limitation
- There may be a branch of the superior arch arteries that needs a surgical bypass
Take home message

- There are still many challenges in endovascular reconstruction of the aortic arch.
- Clinical evidence for the limited number of endovascular aortic arch reconstruction devices is still lacking and the results are not satisfactory.
- The design concept of module double branch provides another way to reconstruct aortic arch.
- Further multicenter clinical studies are expected to confirm the safety and efficacy of the device.