Expanding your endovascular practice with EVAS

Michel MMPJ Reijnen
Rijnstate Hospital Arnhem
The Netherlands
Disclosure

Speaker name: MMPJ Reijnen

I have the following potential conflicts of interest to report:

- [x] 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
Why was EVAS developed?

Secondary Interventions following EVAR

- **RCTs**
  - DREAM (2010), 173: 25%
  - EVAR-2 (2010), 197: 25%
  - EVAR-1 (2010), 626: 26%

- **Observational Studies**
  - Verzini (2014), 882: 13%
  - Al-Jubouri (2013), 558: 14%
  - Abbruzzese (2009), 565: 20%
  - Dias (2009), 279: 23%
  - Conrad (2009), 832: 13%
Why was EVAS developed?

8-year follow-up of EVAR I cohort

- Late aneurysm-related mortality
- 23% reinterventions
- Aneurysm-related re-admissions: 61% of cost-differential versus open repair

**R. Greenhalgh et al, NEJM 2010; 362: 1863**
EVAS is NOT another EVAR

• **Case selection**: Other anatomies might be more or less suitable compared with EVAR

• **Case planning**: Volume measurements as planning requirement

• **Surveillance**: Different appearance on CT and Duplex compared to EVAR
Applicability of EVAS

- Analysis of 776 patients (75 ± 9 years)
- Therapy:
  - Infrarenal EVAR 94.1%
  - Open repair 0.8%
  - FEVAR 3.5%
  - Conservatively 1.7%
- 70.1% of all AAA morphologically suitable for Nellix
- infrarenal EVAR patients compliant with IFU
  - Nellix 73.0%
  - Endurant 68.1% \((P<.04)\)
  - Zenith 51.9% \((P<.01)\)
  - Excluder 29.3% \((P<.01)\)

Applicability of EVAS

Instructions for Use:
- Aortic neck angulation $\leq 60^\circ$
- $\geq 10$mm neck length
- Aortic Neck Diameter 18-32mm
- Aortic flow lumen $\leq 60$mm
- CIA diameter of 8 to 35mm

Conclusions: Nellix technology appears widely applicable to contemporary infrarenal AAA practice, and may provide an option for patients that are outside current EVR device instructions for use. However, formal outcomes study is still required, and will ultimately dictate the clinical relevance of this feasibility study. The major limitation to anatomic suitability for Nellix is currently the maximum patent lumen diameter of large AAA.

Aneurysms with a conical neck

Sizing of a conical neck:

Based on proximal neck diameter:
  $\rightarrow$ migration

Based on distal neck diameter:
  $\rightarrow$ Infolding and type 1a endoleak

Advantages of Nellix in conical neck:
  ♦ Less risk of type-1a endoleak
  ♦ Less risk of distal migration
Aneurysms with a conical neck

74-year old male patient
History: TIA, TUR-prostate

Infrarenal aneurysm 59mm

Infrarenal neck reversed-tapered
- 19 mm at level renal arteries
- 24 mm at 10 mm below renal arteries
- 27 mm at 15 mm below renal arteries
Aneurysms with a conical neck neck

10-170 mm Nellix endoprosthesis right side
10-180 mm Nellix endoprosthesis left side
Aneurysms with a conical neck

End of the endobag in the conical neck

10-170 mm Nellix Endoprosthesis
10-180 mm Nellix Endoprosthesis
Aneurysms at risk for type-2 endoleak

69-year old male patient
History: CABG, COPD

Infrarenal aneurysm
- Diameter 55 mm
- Neck length 15 mm
- Neck diameter 22-26 mm
- 6 patent lumbar arteries
- Patent IMA
Aneurysms at risk for type-2 endoleak

2x 10-160 mm Nellix Endoprosthesis
85 mL of polymer (180 mm Hg)
Short common iliac arteries

63-year old male patient

Infrarenal aneurysm
- Diameter 55 mm
- Neck length 25 mm
- Neck diameter 20 mm
- Length common iliac artery 18 mm on both sides
Short common iliac arteries
Calcified aortic neck
‘Stomach’-shaped aneurysms

- Incidence of type-1a endoleak after EVAS is low, but they do occur
- ‘Stomach’-shaped aneurysms seem to be more at risk
- More stability with balloons continuously inflated
Juxtarenal aneurysms

- Proximal neck major limitation of EVAR
- EVAR devices have been used outside IFU, but higher complication rate
- Custom-made FEVAR not always available and relatively high turn-down rate
- Issues with off the shelf FEVAR devices
- Chimney-EVAR used as alternative
Gutters and compression

Chimney-EVAS

2x N10-160 Nellix
63 mL Polymer
Fill pressure 200 mmHg
6x38mm Advanta V12™

Case performed outside IFU
Surveillance

- Appearance of the polymer changes during time
- The edges of the Endobags become more visible
- Air is replaced by fluid within the Endobags
Surveillance
Conclusions

• EVAS expands endovascular options for infrarenal and juxtarenal aneurysm treatment
• Patients less suitable for EVAR may well be treated with EVAS
• Take care with ‘stomach’-shaped aneurysms
• Case selection, planning and surveillance require distinct learning curve
Expanding your endovascular practice with EVAS

Michel MMPJ Reijnen
Rijnstate Hospital Arnhem
The Netherlands