Value And Limitations Of Using The Nellix Endograft And EVAS To Treat Ruptured AAAs

Thomas Larzon, MD, PhD
Department for Research & Development
Örebro University Hospital
Sweden

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Disclosures
I have the following potential conflicts of interest to report:
Co-founder Meliora-Vision
Co-founder MV Arterica

Value

EVAR
• Using aortic balloon in patients with deep circulatory shock circulation distal of the balloon is totally occluded

EVAS
• By prefilling of the bags the bleeding can be controlled with visceral, renal and limb circulation preserved.
• The time-frame between prefilling and polymer filling can be controlled by a separate axillary inserted balloon

Limitations

EVAR
The concept is basically the same in ruptured as elective cases as sealing and fixation is obtained in a "non-diseased " neck and iliac segment

EVAS
The mechanism on the sac in a ruptured compared to a non-ruptured situation is not fully understood as the limit for filling is based on the pressure in a non-ruptured aneurysm

Case example

• Screening detected 62 mm AAA at last control
• On surveillance due to suspected high complication risk with a most probably 4-fenestrated solution
• Presented with circulatory shock and rupture of an 80 mm aneurysm
• Immediately transported to the hybrid suite for EVAS

Case example

• Prefilling established a "stable" blood pressure during 1 hour until the polymers were defrosted and ready for use
• No visible type I endoleak during prefilling
• During the polymer phase no stable pressure could be achieved
• Injected polymer volume was 314 ml (no stable pressure)
• Outcome was fatal
• 7 x 5 cm wall rupture at autopsy
Was the size of the rupture affected by the wall pressure exerted?

Limitations

**EVAR**
In case of type IA endoleak extensions with cuffs and stents are well-known standard procedures.

**EVAS**
Type IA endoleaks can be solved but there is a need of more complex (and time-consuming) adjunct procedures.

Case with incorrect placement

Proximal compensation not possible as the stent was trapped and enough force could not be established.

Case with incorrect placement

Resulted in endoleak Type I.

Proximal extension

and Onyx solved the problem.
Type I endoleak after EVAR
Solved with two Nellix

Type I EL with one patent renal chimney and one access route after EVAR and Onyx solved with one Nellix and SMA Chimney

Type I EL with one patent renal chimney and one access route after EVAR and Onyx solved with one Nellix and SMA Chimney

Previous open repair with graft now ruptured and planned for two Nellix extensions and a left renal chimney

Previous open repair with graft now ruptured and planned for two Nellix extensions and a left renal chimney

During the final phase of polymer filling proximal migration occurred
Previous open repair with graft now ruptured and planned for two Nellix extensions and a left renal chimney

Not possible to move the stent down enough which resulted in a fatal SMA occlusion

Compare with the Champagne cork

Conclusion

- Nellix may have **potential benefits** in treatment of RAAA especially in circulatory chock to stabilize bleeding and preserve essential circulation
- **Adjunct procedures** may be more complex, so be sure to have a well-equipped tool-box
- Instructions of how to use Nellix may need to be modified as compared to elective cases.