EVAR can be performed
Safely and Effectively
In Severely Angled Necks:
What adjuncts may be required and when

Boonprasit Kritpracha, MD
Dhanakom Premprabha, MD
Pong Juntarapatin, MD
Wittawat Tantarattanapong, MD
Jitpreedee Sungsiri, MD
Suttatip Saemu, MD
Sorracha Rookapan, MD
Prince of Songkla University
Hat Yai, Thailand

71 year-old male,
symptomatic 65 mm AAA
65 x 63 mm
166°

77 year-old male,
Rapidly enlarged 92 mm AAA
92 x 65 mm
85°

High Risk:
1st pt. - CAD, Recent stroke
2nd pt. - CAD, COPD

Options:
1. Open repair X
2. Conservative treatment
3. Endovascular Repair
   “a safe and effective option ???”

EVAR in Severely Angled Aortic Necks

3 questions:
1) Can we successfully deploy the device?
2) Good long term result?
3) What are the limits? (75° , 90° , 120° , may be more?)

Disclosure
Medtronic
**Prince of Songkla U. experience**

January 2009 – July 2017

Reviewed all AAA patients with neck angle >60° treated with Endurant stent graft in Songklanagarind hospital

Study – demographic data
perioperative data
follow up imaging studies

**RESULTS**

EVAR in neck angle >60°

154 patients

121 males, 33 females (22%)

Average age 75.8 years (56 -91)

AAA diameter, average 68 mm (34-112)

Neck diameter, average 22 mm (16-32)

Neck length, average 27 mm (12-56)

Neck angle, average 91° (62-166)

**EVAR in severe angulated neck**

Longest follow up

74 yo female, 50 mm symptomatic AAA

AAA shrinkage
No migration
No Proximal endoleak

05/2020

AAA 81 x 73 mm
Pre-op

AAA 77 x 74 mm
1.5-year PO

AAA 77 x 74 mm
8-year PO

AAA 45 x 50 mm
Pre-op

AAA 29 x 34 mm
1-month PO

AAA 29 x 34 mm
5-year PO
EVAR in severe angulated neck

77 yo male, 91 mm AAA

Pre-op

AAA shrinkage
No migration
No Proximal endoleak

1-month PO

AAA 91 x 75 mm

2-year PO

AAA 83 x 64 mm

RESULTS

95% Technical success
Exclude aneurysm from circulation

8 proximal endoleak 5%
1 renal artery coverage (renal stent)

30-day mortality – 4 cases (2.6%)
2 MIs
1 stroke
1 ruptured AAA

RESULTS

8 Proximal Endoleaks:
1 sealed spontaneously @ 1 month
3 sealed w adjunct procedures
Proximal extension @ 1 month
EndoAnchor @ 1 year
Chimney @ 2.5 years

3 ruptures @ 22 days, 1 year, & 1.5 years
1 f/u @ 9 months

RESULTS

154 patients – 5 groups

AAA shrinkage
No migration
No Proximal endoleak

Proximal Endoleak treated with EndoAnchor

BEFORE

AFTER

Proximal Endoleak treated with EndoAnchor
Proximal Endoleak treated with EndoAnchor

BEFORE

AFTER

RESULTS

Follow up, average 25 months (1-106)
2 late proximal endoleaks
@ 3 & 5 years PO
Both from neck dilatation
Persistent type II endoleak
Device migration (>10 MM)
1 case - 7 mm migration

EVAR in severe angulated neck
7 mm distal migration

78 x 68 mm
Pre-op

49 x 58 mm
3-year PO

RESULTS

153 patients – 5 groups

Neck angle
81° – 75°
35 cases 22%
61° – 75°
50 cases 31%
76° – 90°
38 cases 25%
91° – 105°
17 cases 11%
106° – 120°
14 cases 9%

Quite good results !!!

BUT........

There are some technical difficulties.
Shortened neck
From 3 cm-long neck

Accuracy of device deployment
When in doubt, deploy a little low

Removal of delivery system
Belly pushing

chimney procedure
10 cases (6%)
to maximize neck length

Neck diameter 22 mm
Neck length 13 mm
Neck angle 84°

RESULTS
Proximal extension needed in 38 cases (25%)
RESULTS

153 patients – 5 groups

- Neck angle 61° – 75°: 35 cases (23%)
- Neck angle 76° – 90°: 50 cases (33%)
- Neck angle 91° – 105°: 38 cases (22%)
- Neck angle 106° – 120°: 17 cases (11%)
- Neck angle >120°: 14 cases (9%)

3 questions:

1) Can we successfully deploy the device?
   - Yes, but can be difficult.

2) Good long term result?
   - Yes

3) What are the limits?
   - 75°, 90°, 100°, 110°, 120°, or more

EVAR in Severely Angled Aortic Necks

71 yo male, symptomatic 6.5 cm AAA
EVAR + sandwich LRA + proximal cuff

77 year-old male, Rapidly enlarged 92 mm AAA
EVAR

Conclusions

EVAR can be offered for AAA patients with severely angled neck, who are not candidates for open repair.

Need longer neck length,
Can be extremely difficult.
May need adjunct procedures:
   - Cuff, Parallel graft, EndoAnchor.

Up to 100° angled neck may be reasonable for EVAR.
Thank you

Songkanagarind hospital