Midterm outcomes of the Endurant stent graft for the treatment of AAA in patients with narrow aortic bifurcation

Veera Suwanruangsri ,MD
Wanchai Chinchalongporn ,MD Pruesttipong Kaviros,MD

Department of Surgery, Maharat Nakhon Ratchasima Hospital, Thailand
Speaker name:
Veera Suwanruangsri

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
The problems of narrow aortic bifurcation and narrow aorta ??

- Arterial dissection and disruption
- Stent graft compression and collapse
- Iliac limb occlusion
- Difficulty for cannulation of the contralateral gate

**Current recommendations : 20 mm at the aortic bifurcation.**

*J Vas Surg* 2015;62:1140-7
Three options

- Open repair
- Aortouniiliac stent graft (AUI)
- Bifurcated stent graft (off-label technique)
• 231 AUI-EVAR patients
• Patency@3 yr : 91%
• Patency@5 yr : 83%
• Wound complications : 11%
  (groin hematoma 4%, seroma 3%, superficial wound infection 3%)
• Fem-fem bypass graft occlusion : 4%

J Vas Surg 2003;38:498-503
• Aortic bifurcation diameter < 18mm
• Early mortality rate = 1.8%, morbidity rate = 11%
• Bifurcated stent grafts (106) : diameter : 16±3mm
• Stent graft primary patency @ 1,5 yr : 99%, 96%
• Aortouniiliac stent grafts : diameter : 14±2mm
• Stent graft primary patency @ 1,5 yr : 100%, 83%

J Vas Surg 2015;62:1140-7
Up and over technique
Iliac limb compression

Kissing balloon angioplasty
Kissing balloon angioplasty

Kissing stents
Objectives:

• The aim of this study was to compare the early and midterm outcomes of endovascular aortic aneurysm repair (EVAR) in patients with narrow aortic bifurcation and standard bifurcation.
Methods:

• 136 EVAR; Nov 2012-Jun 2016
• Inclusion criteria
  1. Asymptomatic AAA; size >5cm
  2. Saccular infrarenal and CIA aneurysm
  3. Symptomatic AAA
  4. Conceal ruptured AAA
• 109 pt. : EVAR with Endurant stent graft
• 80 patients in standard group (SA group): ≥ 18mm
• 29 patients in narrow group (NA group): < 18mm
• Early and midterm outcomes were evaluated in these patients in terms of postoperative mortality, morbidity and the rate of graft occlusion.
<table>
<thead>
<tr>
<th></th>
<th>SA group (80)</th>
<th>NA group (29)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>64(80%)</td>
<td>23(79.3%)</td>
<td>0.93</td>
</tr>
<tr>
<td>hypertension</td>
<td>53(66.3%)</td>
<td>22(75.9%)</td>
<td>0.33</td>
</tr>
<tr>
<td>diabetes</td>
<td>8(10%)</td>
<td>5(17.2%)</td>
<td>0.30</td>
</tr>
<tr>
<td>dyslipidemia</td>
<td>21(26.3%)</td>
<td>8(27.6%)</td>
<td>0.88</td>
</tr>
<tr>
<td>CAD</td>
<td>17(21.3%)</td>
<td>3(10.3%)</td>
<td>0.19</td>
</tr>
<tr>
<td>COPD</td>
<td>9(11.3%)</td>
<td>1(3.4%)</td>
<td>0.21</td>
</tr>
<tr>
<td>CVA</td>
<td>3(3.8%)</td>
<td>2(6.9%)</td>
<td>0.48</td>
</tr>
</tbody>
</table>
Results:

Mean aortic bifurcation diameter
37.4 mm (20-75) in SA group
16.4 mm (12-18) in NA group

Overall mortality rate = 7.34%
SA group = 8.75%
NA group = 3.45%
$p = 0.11$
## Results:

<table>
<thead>
<tr>
<th></th>
<th>SA group (80)</th>
<th>NA group (29)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endoleak Type I, II</td>
<td>11 (13.75%) 10, 1</td>
<td>4 (13.79%) 0, 4</td>
<td>0.99</td>
</tr>
<tr>
<td>Increase Cr</td>
<td>16 (20%)</td>
<td>3 (10.3%)</td>
<td>0.24</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>8 (10%)</td>
<td>2 (6.9%)</td>
<td>0.61</td>
</tr>
<tr>
<td>Brachial art. thrombosis</td>
<td>0 (0%)</td>
<td>1 (3.4%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Groin hematoma</td>
<td>1 (1.25%)</td>
<td>1 (3.4%)</td>
<td>0.44</td>
</tr>
<tr>
<td>MI</td>
<td>2 (2.5%)</td>
<td>0 (0%)</td>
<td>0.41</td>
</tr>
</tbody>
</table>
Stent graft occlusion

- 1 in 80 (1.25%) in SA group: follow-up time 19.6 month (1-60)
- 0 in 29 in NA group: follow-up time 24.9 month (2-61)
<table>
<thead>
<tr>
<th>NA group (29)</th>
<th>AUI-EVAR (17)</th>
<th>Bifurcated-EVAR (12) 6pta, 6kissing stents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-up time (month)</td>
<td>25</td>
<td>24.8</td>
</tr>
<tr>
<td>Mean diameter (mm)</td>
<td>16.1 (14-17.9)</td>
<td>16.7 (14-17.9)</td>
</tr>
<tr>
<td>Fem-fem bypass graft occlusion/infection</td>
<td>1 / 1</td>
<td>0</td>
</tr>
<tr>
<td>2 year patency = 94%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rising Cr level</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Brachial artery thrombosis</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Groin hematoma</td>
<td>1 (5.8%)</td>
<td>0</td>
</tr>
<tr>
<td>Graft infection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outcomes of Endurant stent graft in narrow aortic bifurcation

Nicola Troisi, MD, Konstantinos P. Donas, MD, Kristin Weiss, MD, Stefano Michelagnoli, MD, Giovanni Torsello, MD, and Theodosios Bisdas, MD, Florence, Italy, and Münster, Germany

• Data from Nov.2007-Aug.2014
• 87 pt (10.6%) with narrow aortic bifurcation : ≤ 20mm (mean:18.5mm) : NA group
• 730 pt (89.4%) with standard aortic bifurcation : SA group

Midterm outcomes (3 years)
• Mean follow-up time : 16.3 month (1-73)
• 3 year survival rate : similar
  (87.2% in NA gr, 80.8% in SA gr)
• 3 year freedom from graft thrombosis
  : 96.9% in NA gr, 94.8% in SA gr ; p=.79

J Vas Surg 2016;63:1135-40
Sandwich technique in narrow aorta
Sandwich technique in narrow aorta
Sandwich technique in narrow aorta
Sandwich technique in narrow aorta
Sandwich technique in narrow aorta
Conclusions

• EVAR with a bifurcated stent graft can be performed in patients with narrow aortic bifurcation with acceptable mid-term outcomes.

• Sandwich technique may be the alternative technique in selected cases.
Thank you

for

your attention
Midterm outcomes of the Endurant stent graft for the treatment of AAA in patients with narrow aortic bifurcation

Veera Suwanruangsri, MD
Wanchai Chinchalongporn, MD Pruesttipong Kaviros, MD

Department of Surgery, Maharat Nakhon Ratchasima Hospital, Thailand