RUPTURED THORACOABDOMINAL AORTIC ANEURYSMS

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Faculty disclosure

Proctoring of fenestrated and branched procedures for Cook Europe®.
RUPTURED TAAA

- Conservative treatment
  - 100% fatal

- Open surgical repair
  - In-hospital mortality: 40% - 80%

OSR in the urgent or emergency setting

Selection bias

- Fittest patients considered at low or moderate risk for surgery
- Many high-risk patients with significant co-morbidities were just denied OSR
Ruptured thoracic aortic aneurysms: A study of incidence and mortality rates

Gunnar Johansson, MD, PhD, Ulf Markström, MD,* and Jesper Swedenborg, MD, PhD, Stockholm, Sweden

- Year 1980 & year 1989
- 65 rTAAA
- 41% reached the hospital alive
- Only 2 cases were surgically treated

SCOTTISH NATIONAL TAAA SERVICE

- 2002 – 2008
- 216 patients assessed
- 89 (41%): unfit for OSR
- Median f-up: 12 mo
- 49 (55%) deaths
- 23 (47%) rupture

Hansen PA et al, Eur J Vasc Endovasc Surg 2010;39:266-70
Editor's Choice — Hybrid Treatment of Thoracic, Thoracoabdominal, and Abdominal Aortic Aneurysms: A Multicenter Retrospective Study


19 French Univ. Hospitals

76 patients (57 TAAA)

11 emergent cases

30-d mortality: 34.2%

Paraplegia: 18%

Bowel ischemia: 17%

Rosset E et al, Eur J Vasc Endovasc Surg 2014;47:470-8
TOTAL ENDOVASCULAR APPROACH

- Illustrative case 1: 68-yr old, male, COPD, cardiac insufficiency, 68mm rTAAA, Hemothorax, Hemomediastin

Pre-op

Post-op
TOTAL ENDOVASCULAR APPROACH

- Illustrative case 2: 81-yr old, female, previous EVAR with type I endoleak, chronic rTAAA with new-onset acute back pain, retroperitoneal infiltration

Pre-op

Post-op
TOTAL ENDOVASCULAR APPROACH

- Illustrative case 2: 81-yr old, female, previous EVAR with type I endoleak, chronic rTAAA with new-onset acute back pain, retroperitoneal infiltration
TOTAL ENDOVASCULAR APPROACH

- Illustrative case 3: 58-yr old, male, HTA, Diabetes type 2, Obesity, ruptured type B aortic dissection, initial instability, hemothorax, hemomediastin

Pre-op

Post-op
TOTAL ENDOVASCULAR APPROACH

Illustrative case 3: 58-yr old, male, HTA, Diabetes type 2, Obesity, ruptured type B aortic dissection, initial instability, hemothorax, hemomediastin

3-mo post-op

1-yr follow-up
TOTAL ENDOVASCULAR APPROACH

- Ilustrative case 4: 63-yr old, male, HTA, heavy smoker, ruptured type B aortic dissection, Glasgow CS : 10 and new-onset tetraplegy at admission
TOTAL ENDOVASCULAR APPROACH

Illustrative case 4: 63-yr old, male, HTA, heavy smoker, ruptured type B aortic dissection, Glasgow CS : 10 and new-onset tetraplegy at admission

Pre-op  Post-op  Bilateral watershed stroke

✓Full recovery from tetraplegia at 3-mo
TOTAL ENDOVASCULAR APPROACH

Our experience:

<table>
<thead>
<tr>
<th>Period</th>
<th>2009 - 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>13 patients</td>
</tr>
<tr>
<td>Gender</td>
<td>9 men / 4 women</td>
</tr>
<tr>
<td>Age</td>
<td>78 (58 – 85)</td>
</tr>
<tr>
<td>Pathology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 ruptured Type B dissection</td>
</tr>
<tr>
<td></td>
<td>3 chronic rTAAA + new-onset pain</td>
</tr>
<tr>
<td></td>
<td>6 acute rTAAA / hemothor. or mediast</td>
</tr>
<tr>
<td>Sandwich Tech.</td>
<td>To preserve target vessels (5 cases)</td>
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<tr>
<td>Paraplegia</td>
<td>1/13 (7.6%) also fatal</td>
</tr>
<tr>
<td>In-hosp. deaths</td>
<td>2/13 (15%)</td>
</tr>
</tbody>
</table>
TOTAL ENDOVASCULAR APPROACH

Surgeon-modified fenestrated-branched stent grafts to treat emergently ruptured and symptomatic complex aortic aneurysms in high-risk patients

Joseph J. Ricotta, II, MD, MS, and Nikolaos Tsilimparis, MD, Atlanta, Ga

Introduction: Fenestrated branched stent grafts have been developed as a minimally invasive, endovascular alternative for the treatment of complex aortic aneurysms in high-risk patients. However, the manufacture of these devices can take as long as 6 to 12 weeks, and therefore, they cannot be used to treat aortic emergencies. We reviewed our experience with surgeon-modified, fenestrated-branched stent grafts (sm-FBSGs) in high-risk patients who presented as emergencies with ruptured or symptomatic complex aortic aneurysms.

Methods: All patients treated with sm-FBSGs at our institution were retrospectively reviewed. Patients presenting with acute symptoms or an emergency indication for repair were analyzed.

Results: Twelve high-risk patients (nine men), of which seven were at American Society of Anesthesiologists class 4 and five were at class 3, presented with seven symptomatic and five ruptured aortic aneurysms. Mean age was 71 years (range, 52-86 years), and mean maximal aneurysm size was 8.1 cm (range, 5-12 cm). Six patients (50%) had prior aortic surgery or a hostile abdomen. Relevant comorbidities included coronary disease in all 12 patients, and seven (58%) had an ejection fraction ≤35%. Nine patients (75%) had severe pulmonary dysfunction. Four aneurysms were pararenal, and eight were thoracoabdominal (two type II, three type III, and three type IV). An average of three visceral vessels (range, 2-6) were treated per patient, with 35 branches targeted. Endografts were successfully implanted in all patients. There was no paraplegia or intraoperative death. One patient (8.3%) died of subarachnoid hemorrhage ≤36 days. Reintervention was necessary in two patients, for type 1 endoleak and for evacuation of a retroperitoneal hematoma. Morbidity included one myocardial infarction, and two patients each with transient respiratory failure and transient renal insufficiency not requiring dialysis. Mean postoperative length of stay was 4 days in the intensive care unit and 8 days in the hospital. At a mean follow-up of 9 months (range, 3-18 months), two patients died of non-aneurysm-related causes. Branch vessel patency was 100%. No late reinterventions were necessary. No type I or III endoleaks occurred. One type II endoleak is under observation.

Conclusions: Sm-FBSG may play an important role in the treatment of select patients with symptomatic or ruptured complex aortic aneurysms who are at prohibitive risk for open surgery and in whom endovascular repair cannot be delayed to allow implantation of a custom-made commercial device. Until an off-the-shelf fenestrated branched device is created that does not require a prolonged waiting period, this may be the best option to treat patients with symptomatic or ruptured complex aneurysms that are at excessively high surgical risk. (J Vasc Surg 2012;56:1515-43.)

T-Branch: of the Shelf stent-graft for TAAA
Management of rTAAA remained a very challenging endeavor with significant morbidity and mortality.

Necessity to keep the procedure as simple as possible to guarantee clinical success.

The endovascular treatment requires sometimes skillfull endovascular specialist.