EVAR for Ruptured AAA

Lee WA, Hirneise CM, Tayyarah M, Huber TS, Seeger JM.


Division of Vascular Surgery and Endovascular Therapy, University of Florida College of Medicine, Gainesville, 32610-0286, USA. leewa@surgery.ufl.edu.
EVAR for Ruptured AAA

Lee WA et al - METHODS:

• The hospital records of a single tertiary care center from 1997 to 2004 were retrospectively reviewed, and 36 consecutive patients who underwent treatment for acute ruptured AAA were identified.
• They were divided into 19 (53%) patients who were all treated with conventional open surgery from 1997 to 2001 (early) and 17 (47%) patients who were treated either with open (n = 4, 24%) or endovascular (n = 13, 76%) methods from 2002 to 2004 (late).
• All endovascular repairs were performed with commercially available bifurcated devices.
• Outcome measures included death, major complications, disposition at discharge (home or extended care facility), procedure time, blood loss, and hospital length of stay.
Fig. Rupture AAA management algorithm.

*Stable, systolic blood pressure (SBP) >80 and normal mentation. †Permissive hypotension, no fluid resuscitation unless SPB <80 or ↓ mentation.
EVAR for Ruptured AAA

Lee WA - Methods:

- Anatomic exclusion criteria for endovascular repair were
  - Absence of a suitable proximal neck ($\geq 26$ mm in diameter, $\geq 10$ mm in length)
  - Bilateral small (<7 mm in diameter) external iliac arteries with or without severe occlusive disease.
Lee WA - Methods:

- Due to inventory constraints, more than the typically recommended oversizing of 20% was tolerated for aortic necks smaller than 24 mm, and partial encroachment on a renal artery origin was occasionally allowed.
- Unfavorable iliac anatomy was managed by using endovascular and open surgical techniques.
- All procedures involved exposure of the femoral arteries.
- The left arm was made available for brachial.
Table II. Preoperative, intraoperative, and postoperative results between early and late periods

<table>
<thead>
<tr>
<th></th>
<th>Early (n = 19)</th>
<th>Late (n = 17)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td>89%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>Age (M ± SD)</td>
<td>69 ± 8 y</td>
<td>68 ± 6 y</td>
<td></td>
</tr>
<tr>
<td>AAA size (M ± SD)</td>
<td>7.2 ± 1.4 cm</td>
<td>7.6 ± 1.7 cm</td>
<td></td>
</tr>
<tr>
<td>Hypotension* (% [CI])</td>
<td>68 (0.46–0.85)</td>
<td>41% (0.22–0.64)</td>
<td>.18</td>
</tr>
<tr>
<td>Time to OR (median)</td>
<td>1 h (&lt;0.5–12)</td>
<td>1 h (&lt;0.5–72)</td>
<td>.01</td>
</tr>
<tr>
<td>Procedure time (median)</td>
<td>275 min</td>
<td>149 min</td>
<td>.05</td>
</tr>
<tr>
<td>Blood loss (median)</td>
<td>3800 mL</td>
<td>138 mL</td>
<td>.0001</td>
</tr>
<tr>
<td>Length of stay (median)</td>
<td>18 d</td>
<td>6 d</td>
<td>.05</td>
</tr>
<tr>
<td>Mortality (% [CI])</td>
<td>37 (0.19–0.59)</td>
<td>12% (0.02–0.36)</td>
<td>.13</td>
</tr>
<tr>
<td>Morbidity (% [CI])</td>
<td>84 (0.61–0.95)</td>
<td>65 (0.41–0.83)</td>
<td>.26</td>
</tr>
<tr>
<td>Discharge home (% [CI])</td>
<td>32 (0.15–0.54)</td>
<td>59 (0.36–0.78)</td>
<td>.18</td>
</tr>
</tbody>
</table>

*AAA, Abdominal aortic aneurysm; OR, odds ratio; CI, confidence interval.*
EVAR for Ruptured AAA

Lee WA - CONCLUSIONS:

• Study suggests endovascular therapies may be beneficial in treating patients with ruptured AAAs.
• Longer follow-up and larger cohorts are needed to better establish its feasibility and efficacy compared with open AAA repair.
EVAR for Ruptured AAA

Ockert S, Schumacher H, Böckler D, Megges I, Allenberg JR.


Department of Vascular and Endovascular Surgery, University Hospital Heidelberg, Germany.
stefan@ockerts.de
Ockert et al - METHODS:

- 58 consecutive patients with rAAA who were treated with open or endovascular aneurysm repair (EVAR) 2000 to 2005.
- 29 patients (21 men; median age 71 years) were treated using endovascular techniques (EVAR group) and 29 (28 men; median age 71 years) with open repair (OR group).
- The hemodynamic status at the time of admission was evaluated with respect to blood pressure, pulse rate, and hemoglobin level to reduce selection bias. Patients underwent follow-up by clinical examination and computed tomography.
Ockert et al - RESULTS:

- The 30-day mortality rate was 31% (9/29) in each group (p = 1.0); the morbidity rates also did not differ between groups, 16 (55.2%) EVAR vs. 18 (62.1%) OR; p = 0.9.
- There was 1 (3.4%) primary conversion in the EVAR group and 7 (24.1%) endoleaks, 3 (10.3%) primary; 4 (13.8%) secondary.
- There was no difference between the groups with regard to intensive care unit stay (4 days for EVAR vs. 3 days for OR, p = 0.98) or total hospital stay (9 days for EVAR vs. 12 days for OR, p = 0.69).
- After a mean follow-up of 40.25 months (range 1-70), the midterm mortality rates did not differ [5 (17.2%) EVAR vs. 3 (10.3%) OR, p = 0.41].
EVAR for Ruptured AAA

Ockert et al - CONCLUSION:

• EVAR of rAAAs is feasible, with equal early and midterm mortality rates compared to open repair.
• When a defined patient selection is used for rupture, including hemodynamic status, there is no evidence of a better outcome with EVAR in emergency cases.
EVAR for Ruptured AAA

Alsac JM, Desgranges P, Kobeiter H, Becquemin JP.


Department of Vascular Surgery, Henri-Mondor University Hospital, Créteil, France. jmalsac@hotmail.com
EVAR for Ruptured AAA

Alsac et al – RESULTS:

• 37 patients were enrolled between 2001 to 2004.
• 17 (46%) patients were treated using adapted designed aortoiliac endografts (8 bifurcated, 8 aorto-uniiliac, 1 iliac extension).
• 20 (54%) patients unfit for EVAR because of severe haemodynamic instability (n=8), adverse anatomical configuration (n=7), or unavailability of an appropriate endograft (n=5) were treated by OR.
• 27 (73%) had a retrospective suitable anatomy for EVAR.
• 3 early conversions from EVAR to OR were performed.
• Blood loss, operating time, and intensive care stay were significantly decreased in EVAR patients (respectively: 156 min+/-60, 1520 ml+/-1175, 3 days for EVAR; vs. 222 min+/-82, 3075 ml+/-1750, 13 days for OS; P<.01).
• The 30-day mortality rate was 23.5% for EVAR vs. 50% for OR (P=0.09).
EVAR for Ruptured AAA

BASIC REQUIREMENTS:

• Team approach with clear algorithm
• Allow permissive hypotension (systolic BP > 80)
• Unstable patients are not candidates
• Rapid evaluation with spiral CTA
• Endovascular equipment and inventory readily available
• Brachial access available
• Patient prep for fast conversion to open repair