World’s Largest AAA Repair: 25 cm

All Large AAAs Do Not Rupture

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Veith Symposium 2015
New York City

AAA size and risk of rupture

- Most AAA are discovered when they are <6 cm
- Risk of rupture increases exponentially when AAA >6cm
- One year risk of rupture 30-50% when AAA >8cm
- AAA >10 cm are rare with only a few case reports of successful repair of AAA >12cm
- Largest report of successfully repaired giant AAA = 15cm

Gigantic 25 cm AAA

- Riga, Latvia, June 1993
- 69 y.o. man with prominent, aSx, pulsatile abdominal mass
- Pt had noticed pulsation several years earlier, but had never sought medical attention
- Smoker, hypertensive, hepatitis C, Tbc
- Translumbar aortography was performed showing 25cm AAA

Disclosure Statement of Financial Interest

- None, related to presented topic

Open AAA Repair – June 1993

Riga, Latvia
This “law” states that the stress in the AAA wall is proportional to its diameter.

Administrator, 11/14/2015
Open Repair of AAA

- Aneurysm size confirmed with direct measurement at operation
- Bifurcated 22x12 Dacron graft
- 1 unit cell-saver transfusion
- Unremarkable recovery, discharged at 12 days
- No subsequent treatment needed
- Survived for 7 years, dying of heart failure, age 76

Why Do AAAs rupture?

- Many potential reasons, strongest and most consistent association is AAA size

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<th>Biomechanics:</th>
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<tr>
<td>Diameter</td>
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<td>Peak wall stress</td>
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<td>Wall strength</td>
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<td>Wall stiffness</td>
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<td>Arterial Hypertension</td>
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<th>Tissue metabolics:</th>
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<td>Elastic/collagen</td>
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<th>Risk factors:</th>
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<td>Age</td>
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<td>Female</td>
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<td>Smoking</td>
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<td>Aneurysm expansion rate</td>
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<td>COPD</td>
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Large AAAs DO NOT always rupture?

- Possible explanations for lack of rupture:
  - Smoking cessation (but both largest aneurysms were in smokers)
  - Best medical practice (AH:ACE-inhibitors, diabetes, statins, inflammatory cytokines manipulation)
  - Calcium and Zinc deficit influencing matrix-degrading metalloproteinase production?
  - Thin patient whose abdominal wall provided additional external support to the AAA like ‘banding’
  - Self-selection of non-rupture (those prone to rupture do not survive)
- Largest, 25 cm AAA from Latvia, 22 years ago before lifestyle changes and best medical practices introduced
- Second largest, 15 cm from Boston, 5 years ago from well-developed public healthcare system

Summary

- The world’s largest successfully treated abdominal aortic aneurysm is 25 cm
- the size of a basketball
- Not All large AAAs rupture
- When you find a large AAA, treat it before it ruptures
- This can be done with either open or endovascular technique

Thank You

Kristaps Porzingis
A2
Several factors influencing strengths of the wall and reduction of critical stress to the wall been described. Such as: ....
Administrator, 11/16/2015

A3
large insubstantiality about how to best medically manage the risk of enlargement and rupture of an aortic aneurysm.
Administrator, 11/12/2015