



Symptomatic Presentation For Complex Aortic Aneurysms Is Associated With Increased Mortality When Compared With Asymptomatic Patients

Rahul Ghosh, MS^{1,2}; Kirsten D. Dansey, MD, MPH¹; Lily H. Wang, MS¹; Xuehan Ci¹; Thu Vu, MS¹; Thomas FX O'Donnell, MD³; Grace J. Wang, MD⁴; Marc L. Schermerhorn, MD⁵; Sara L. Zettervall, MD, MPH¹.

¹University of Washington, Seattle, WA, USA, ²Texas A&M School of Medicine, ³Columbia University Irving Medical Center, New York City, NY, USA, ⁴Hospital of the University of Pennsylvania, Philadelphia, PA, USA, ⁵Beth Israel Deaconess Medical Center, Boston, MA, USA.

Background

- Patients treated for symptomatic infrarenal aneurysms have worse outcomes compared to those treated electively.
- This has not been quantified in patients with juxtarenal and thoracoabdominal aneurysms.
- In this study, we assess outcomes of patients who underwent endovascular repair for symptomatic and asymptomatic complex aortic aneurysms.

Methods

Inclusion Criteria:

- Complex aortic repair in VQI
- Non-ruptured aneurysm
- Repair within 48 hours of presentation

Outcomes:

- Primary: All-cause mortality
- Secondary: re-interventions and complications

Results

Cohort:

- 3757 total patients (442 (11.7%) symptomatic)
- Symptomatic patients were more likely to:
 - Be younger (71 vs 74 p<0.001)
 - Be female (40% vs 24%, p<0.001)
 - Be non-white (29% vs 16%, p<0.001)
 - Have had a prior aneurysm repair (3.6% vs 2.7%, p<0.001)

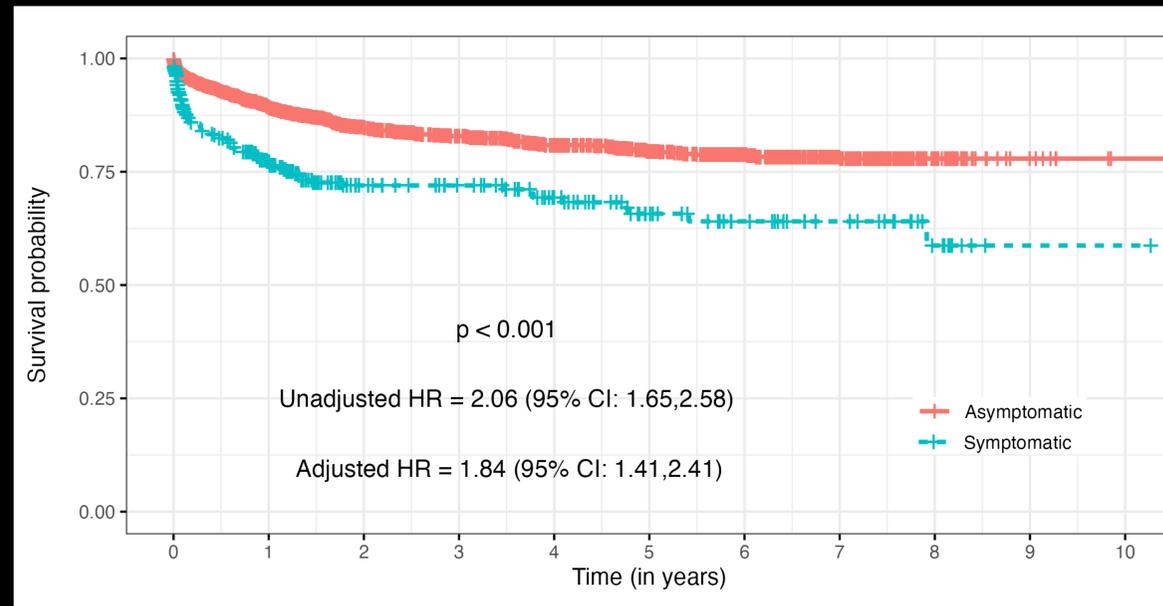


Figure 1: Survival analysis of patients with symptomatic and asymptomatic presentation of complex aortic aneurysm who underwent repair. (HR = hazard ratio, CI = confidence interval)

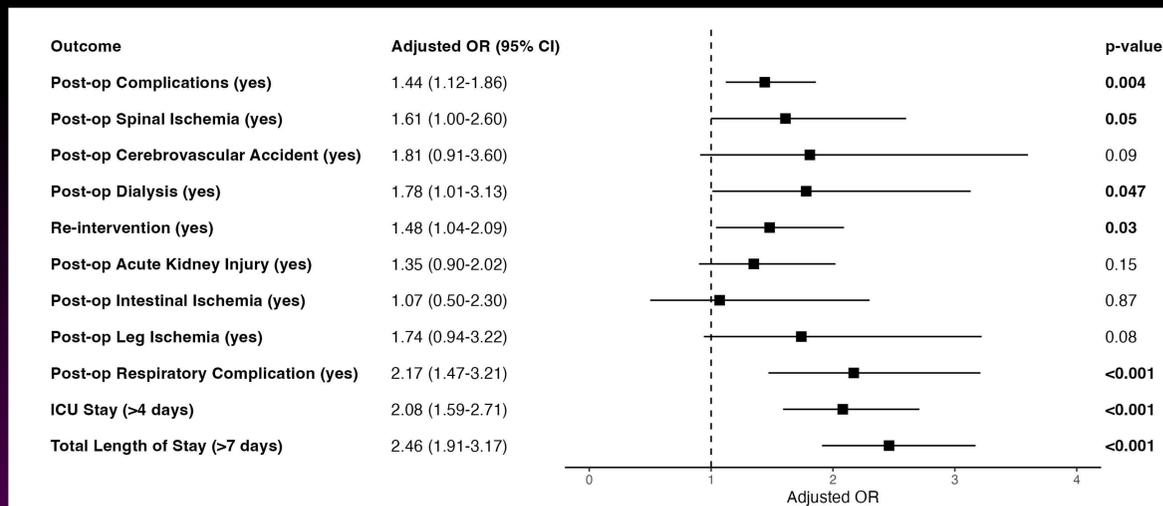


Figure 2: Forest plot presenting the adjusted odds ratios for patients with symptomatic presentation on binary secondary outcomes.

Results

Anatomic Details:

- Larger aneurysm diameters (66 vs 61, p<0.001)
- More commonly had dissection (8.4% vs 1.1%, p<0.001),
- More frequently had a thoraco-abdominal aneurysm (vs juxtarenal) (41% vs 21%, p<0.001).

Post-Operative Outcomes:

- Higher in-hospital mortality (6% vs 2%, p<0.001),
- More reinterventions (12% vs. 6%, p<0.001),
- Increased dialysis (5.0% vs 1.9%, p<.0001)
- Spinal cord ischemia (8% vs 3%, p<0.001)

| Year | Survival Proportion (95% CI) | |
|------|------------------------------|--------------------|
| | Asymptomatic | Symptomatic |
| 1 | 0.89 (0.88 – 0.90) | 0.77 (0.72 – 0.81) |
| 5 | 0.79 (0.79 – 0.82) | 0.66 (0.58 – 0.72) |
| 10 | 0.78 (0.75 – 0.80) | 0.59 (0.46 – 0.70) |

Table 1: Estimated survival rate and 95% confidence intervals at one, five, and ten years for patients undergoing complex aortic repair

Conclusions

- Patients who underwent complex endovascular repair for symptomatic aneurysms had worse long-term outcomes including increased mortality.
- Symptomatic patients were more commonly, women, persons of color and younger patients and presented with more aggressive disease, thoracoabdominal aneurysms, and larger diameters.
- Earlier intervention and access to care may improve outcomes for patients undergoing complex aortic repair