Aortic Dissection Masquerading as Acute Ischemic Stroke: A Case Series and Risk Factor Analysis in NTWC

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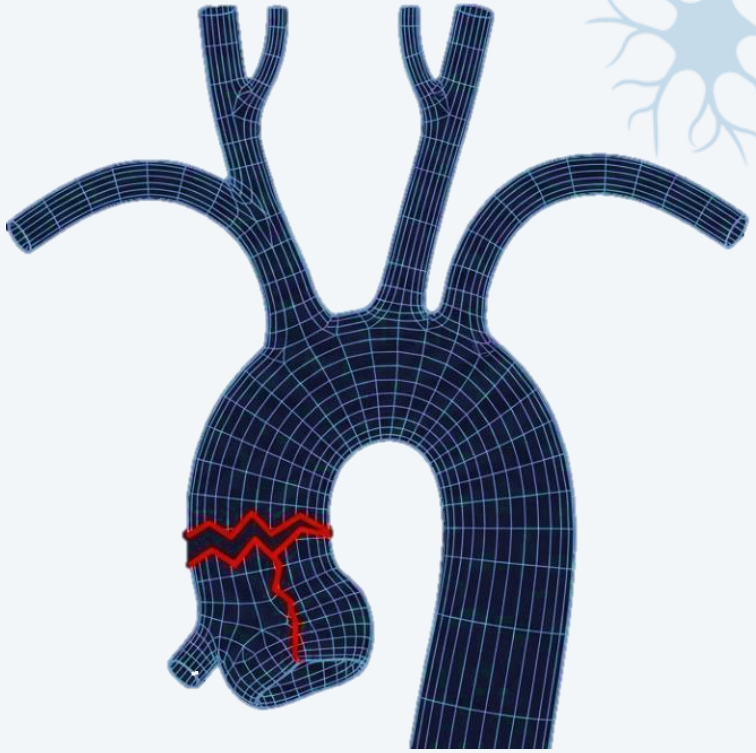


The Clinical Dilemma

59/M, unremarkable past health

Presented with right weakness,
slurred speech, profound sweating, & restless

NIHSS 11, Power R 2/2 L 5/5

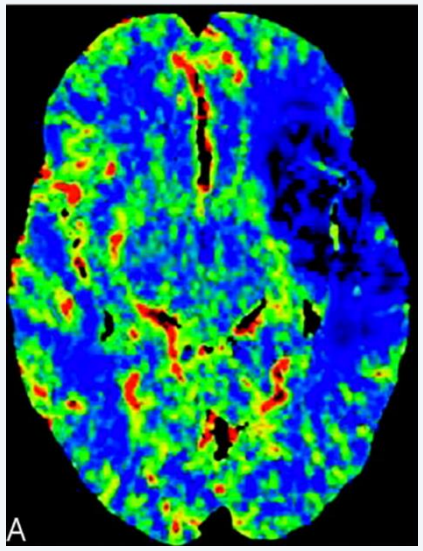
Stroke onset time already 4 hours

IV Tenecteplase is ready for administration

Should we proceed with IV TNK? Any blind spot we missed?

Ischemic Stroke
→ **Time is Brain**

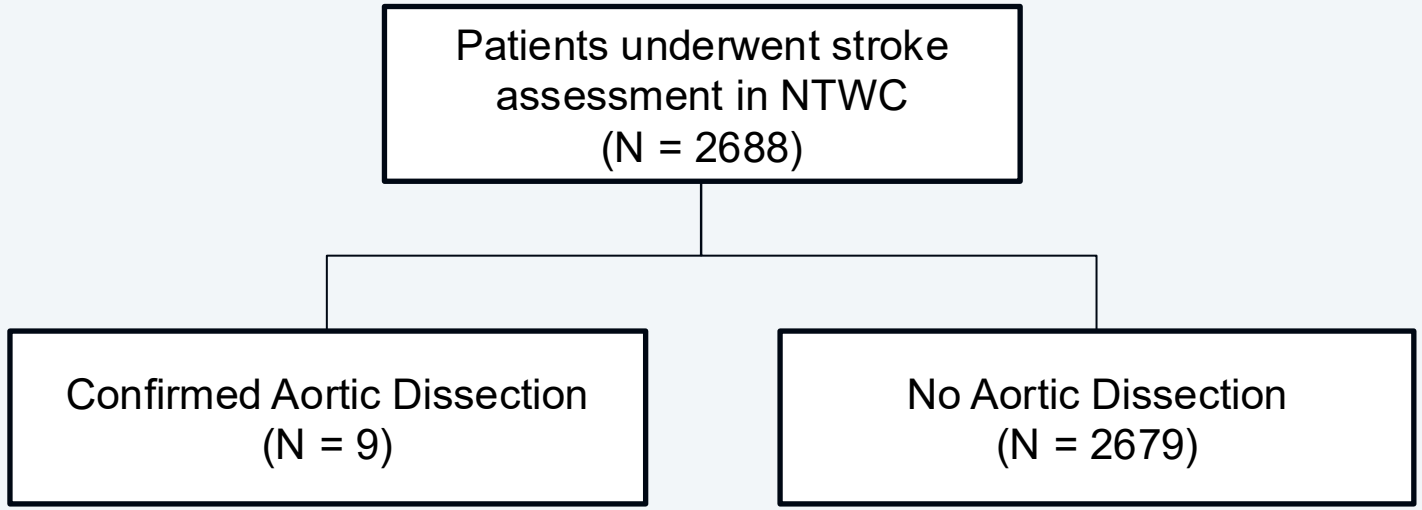
Aortic Dissection
→ **Thrombolysis is Fatal**



Is there any specific risk factors/ presentation for aortic dissection in patients with stroke-like presentation?

Methodology

- Retrospective view of medical records of patients underwent hyperacute stroke assessment in NTWC
- Period: Nov 2024 – Nov 2025
- N = 2688
- AD incidence = 0.3%



- Baseline demographics, stroke severity, & AD risk factors was comparison between groups

- AD risk factors based on Aortic Dissection Detection Risk Score (ADD-RS) (Nazerian et. al, 2018) (Sensitivity 94.6%, Specificity 34.7%)

Aortic Dissection Detection Risk Score (ADD-RS)

High Risk Predisposing Conditions	Presence of high risk pain feature	Presence of high risk exam feature
• Marfan syndrome • Family history of aortic disease • Known aortic valve disease • Recent aortic manipulation • Known thoracic aortic aneurysm	• Chest, back, or abdominal pain • abrupt onset • severe intensity • ripping/tearing pain	• pulse deficit • systolic BP difference • new aortic insufficiency murmur (with pain) • hypotension/shock

Results

Baseline Demographic			
	AD group (n=9)	**No AD group (n=2679)**	
Age	56.7±15.3 years old	69.9±14.2 years old	p<0.05
Male Gender (%)	7 (77.8%)	1521 (56.8%)	p<0.05
NIHSS at presentation	11±8.2	10.9±10.2	p=0.9661
ADD-RS score item			
High Risk Predisposing Conditions (%)	0 (0%)	0 (0%)	p>0.05
Presence of high risk pain Feature at onset (%)	8 (88.9%)	23 (0.9%)	p<0.05
Presence of high risk exam feature (%)	9 (100%)	51 (1.9%)	p<0.05
Mean bilateral BP difference	34.7±22.3 mmHg	12.5±3.7 mmHg	p<0.05
Chest X-ray features			
Mean mediastinum width	97.5±9.1mm	76.2±10.2mm	p<0.05

The Severity Paradox

Confirmed AD patients

11.0±8.2
Median NIHSS

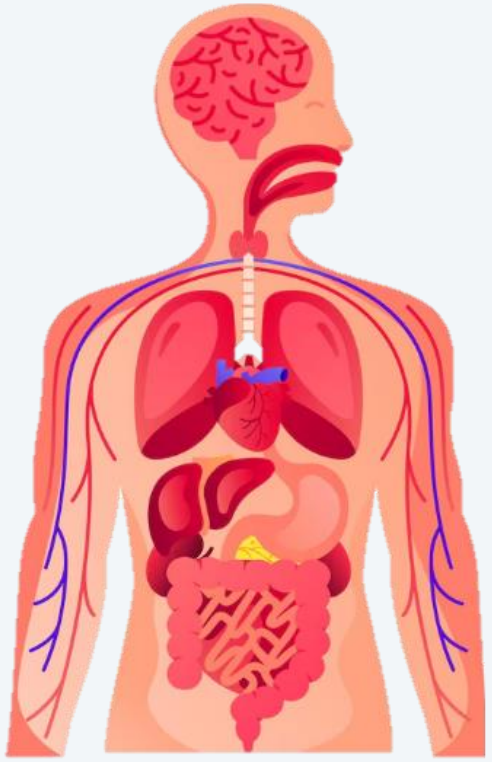
VS

Non AD patients

10.9±10.2
Median NIHSS

NO statistical significance in stroke severity &
clinical stroke presentation (hemiplegia, gaze preference)

Possible Clinical Differentiators for AD



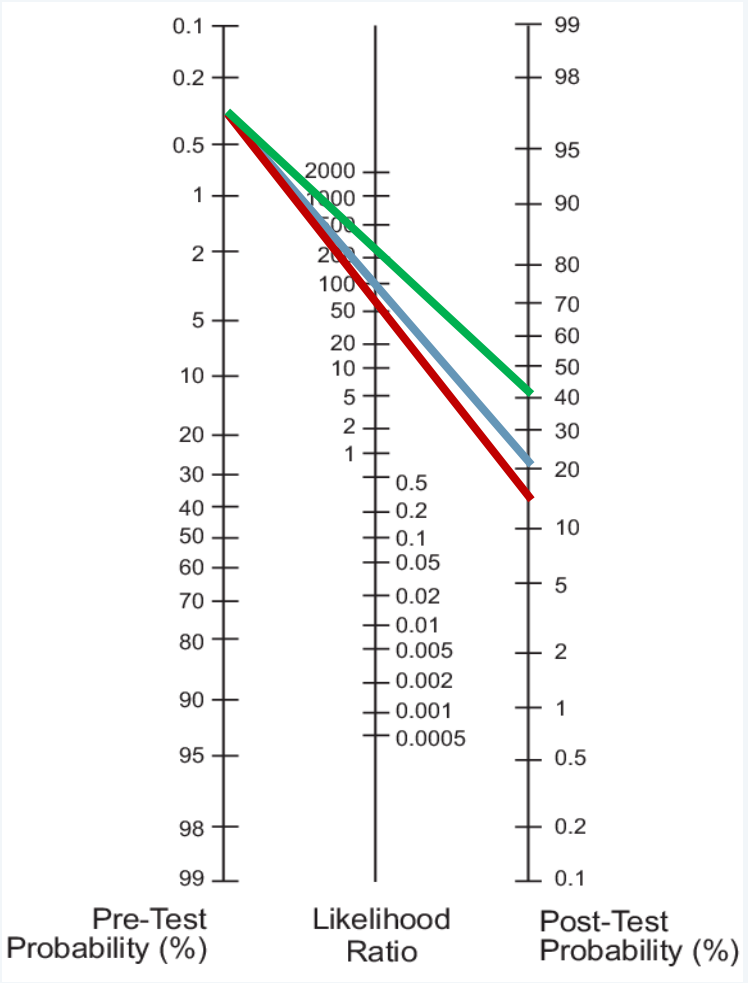
Male predominant
(77.8% vs 56.8%)

Significantly younger
(56.7±15.3 vs 69.9±14.2 years old)

Presence of chest pain
(LR+ 98.8, 95% CI 64.8-165.3)

Presence of BP difference
(LR+ of 52.6 , 95% CI 40.0-68.9)

CXR widen mediastinum
(97.5±9.1mm vs 76.2±10.2mm)



Presence of BP difference alone

Presence of chest pain alone

Presence of BP difference + chest pain

Devastating Outcome of AD

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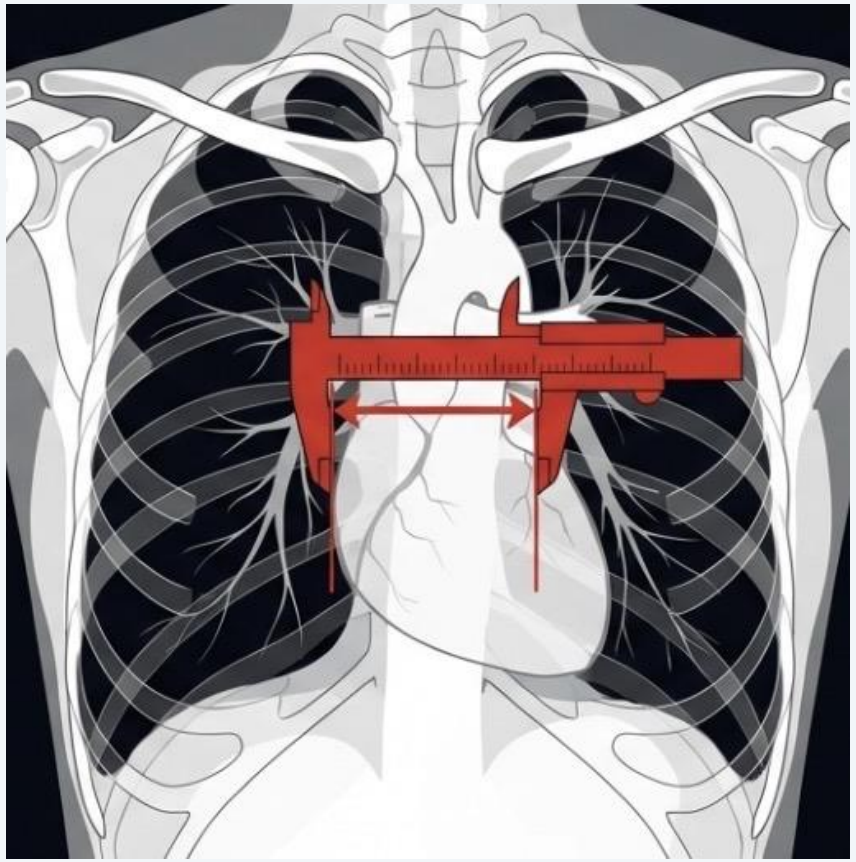
Thrombolysis given to suspected AD patient



44%

AD patients died in same hospital admission


Dead End
Ahead
Mindset
Change
NEXT EXIT

Enhancements of Safety Culture

- Every hyperacute stroke patient will be screened for chest pain

Fast Track Thrombolysis

- Typical age of stroke
- Absence for high risk features

Stop and Go for CT aorta

- Chest / Back / Abdomen pain
- Bilateral BP difference > 20 mmHg
- Widen mediastinum on CXR
- Atypical young stroke

- Effectively screened out 3 aortic dissection in 2026