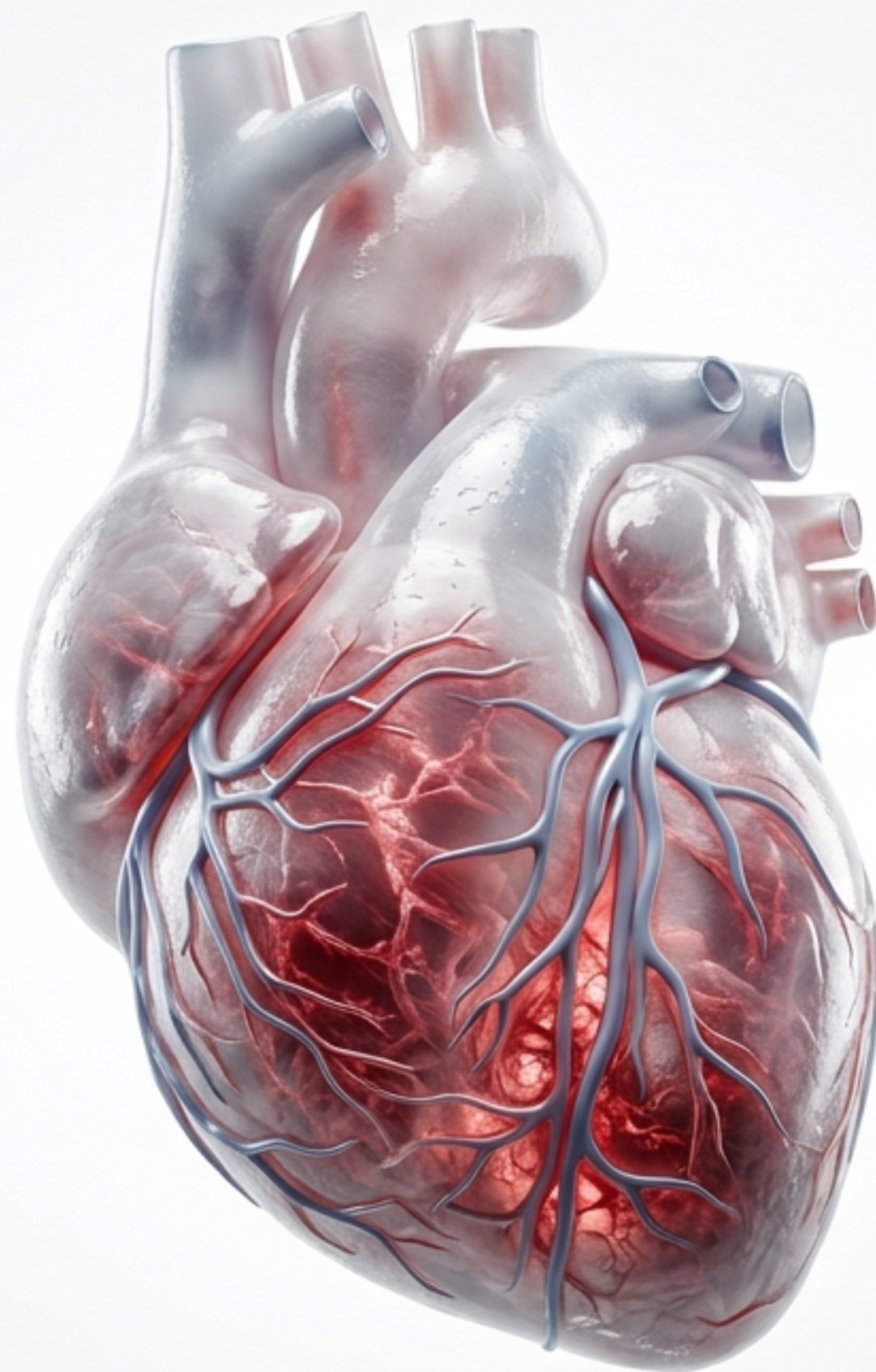


The Invisible Infarction

A Deep Research Verification
of Mechanisms, Diagnosis, and
Management in MINOCA.

Based on research by
Peter Megdal PhD | Curing Heart Disease, LLC



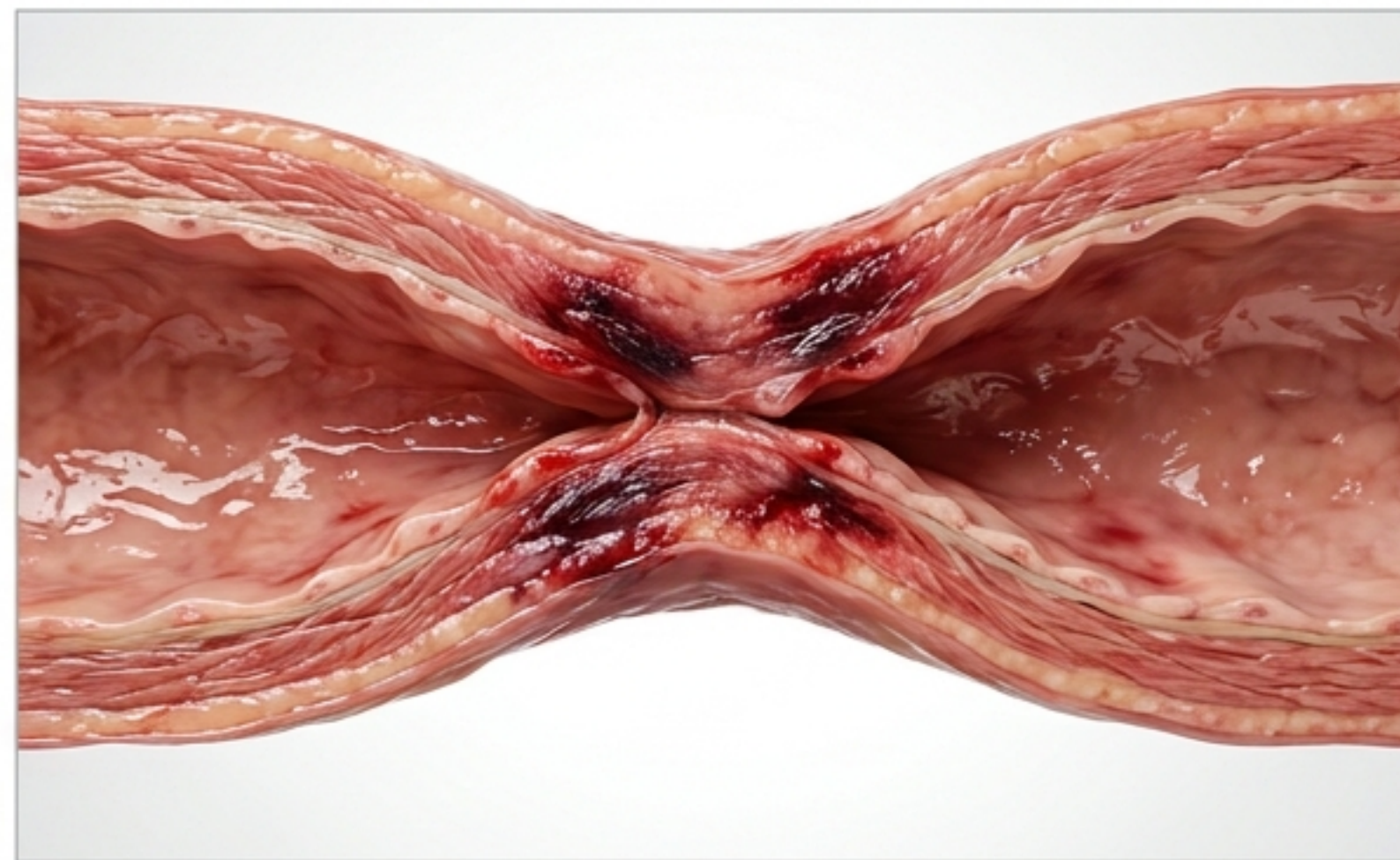
Moving Beyond the ‘Plumbing’ Model of Cardiology

The Classic Paradigm: “Plumbing” Model



Progressive plaque builds up, narrowing the lumen until it ruptures and clogs the pipe.

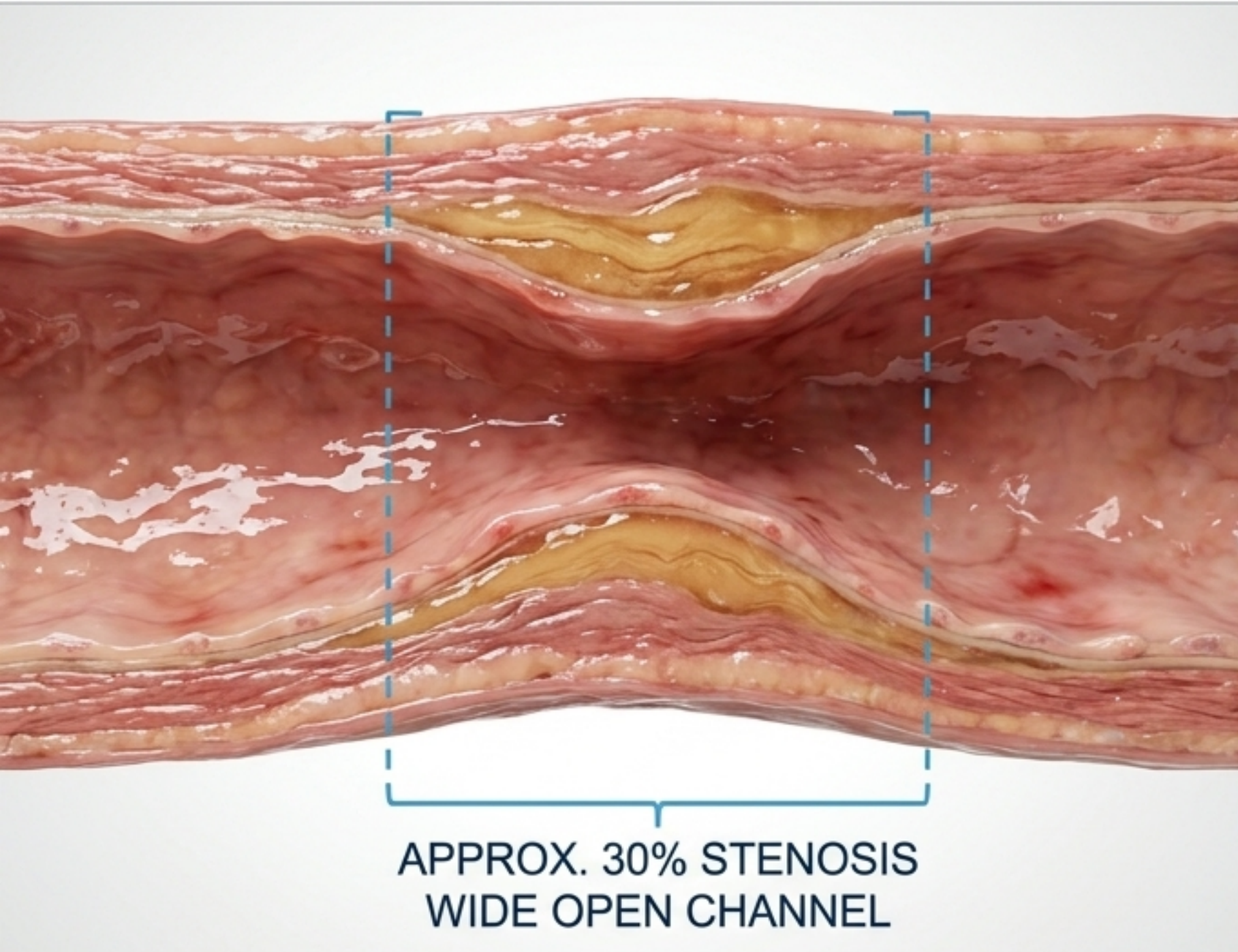
The MINOCA Reality: Beyond “Plumbing”



A true acute myocardial infarction (AMI) occurring without obstructive coronary arteries.

ACTION Registry–GWTG Insight: Occurs in approximately 5–6% of MI presentations, disproportionately affecting women and younger patients.

'Clear' Arteries Do Not Mean Healthy Arteries



A persistent misconception is that MINOCA implies “no plaque.” MINOCA explicitly includes patients with mild to moderate atherosclerosis.

< 50% Stenosis: The clinical threshold. The vessel is not functionally blocked.

Hidden Danger: Plaque exists, but it doesn't fit the classic profile of a flow-limiting occlusion.

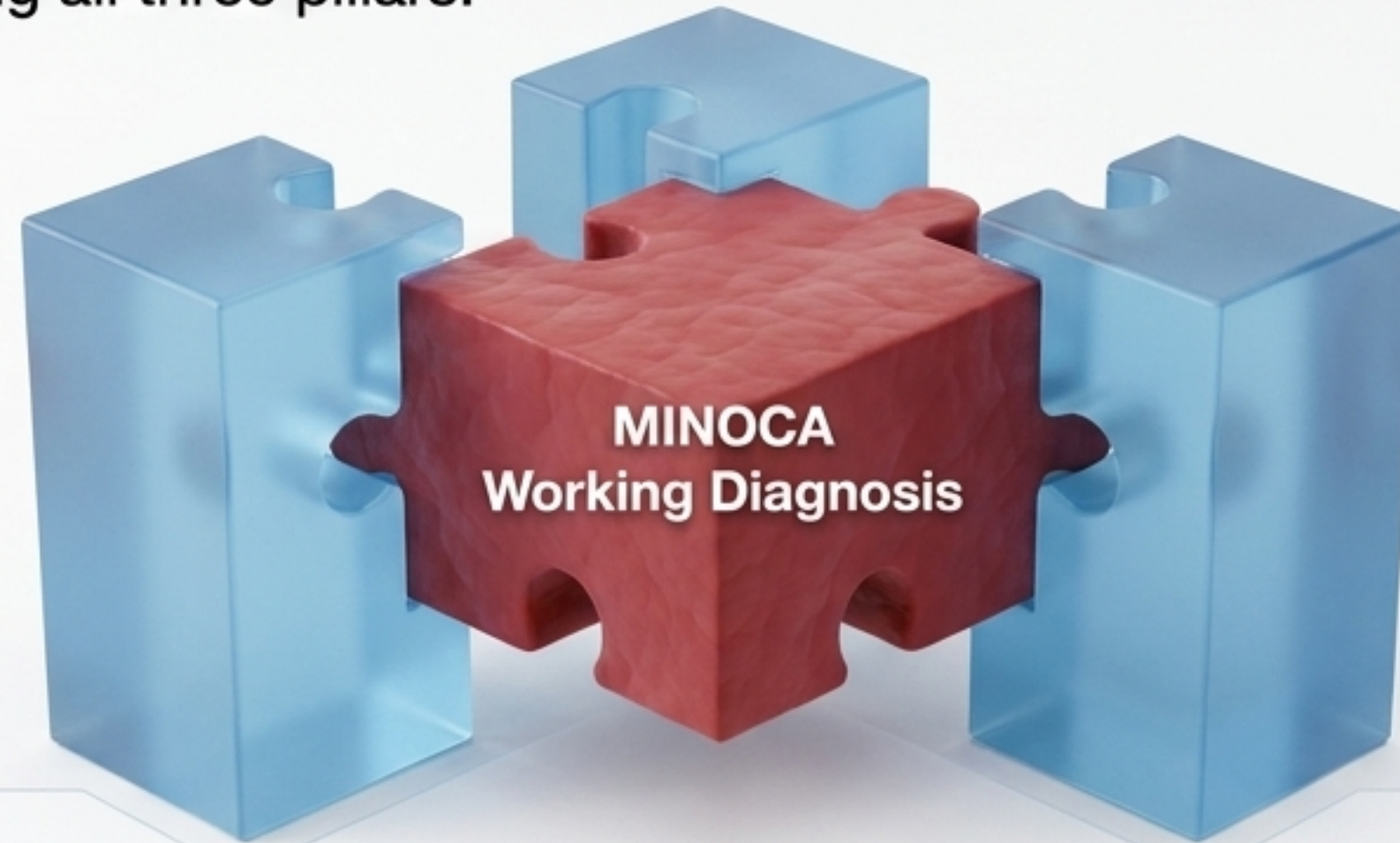
The 2019 AHA Scientific Statement is explicit: MINOCA does not mean normal arteries.

Two Paths of Myocardial Infarction

	Obstructive MI (The Classic)	MINOCA (The Invisible Infarction)
 Angiographic Appearance:	>50% Stenosis (Blocked)	<50% Stenosis (Non-obstructive)
 Plaque Level:	Severe , flow-limiting atherosclerosis	Mild, moderate, or none
 Primary Culprit:	Major plaque rupture and massive thrombosis	A heterogeneous mix (spasms, micro-tears, subtle erosions)
 Demographics:	Historically skews older , higher proportion of men	Skews younger , higher proportion of women

The Three Diagnostic Pillars of MINOCA

The 2019 AHA statement aligns with the Fourth Universal Definition of Myocardial Infarction. Diagnosis requires unlocking all three pillars:



Pillar 1: True Acute MI

Rise/fall in cardiac troponin (>99th percentile) + clinical evidence of myocardial ischemia.

Pillar 2:

Non-Obstructive Arteries

Angiography confirms no epicardial coronary stenosis $\geq 50\%$.

Pillar 3: No Alternate Diagnosis

Explicitly ruling out non-ischemic mimics (sepsis, pulmonary embolism, myocarditis, or takotsubo syndrome).

Why the Standard View Fails: The Imaging Shift

Standard angiography visualizes only the lumen (the empty space). Intravascular imaging (OCT) and Cardiac Magnetic Resonance (CMR) are required to see the artery walls and myocardial injury patterns where MINOCA hides.



The Satellite Map (Angiography)

Shows the highways. Misses the potholes.

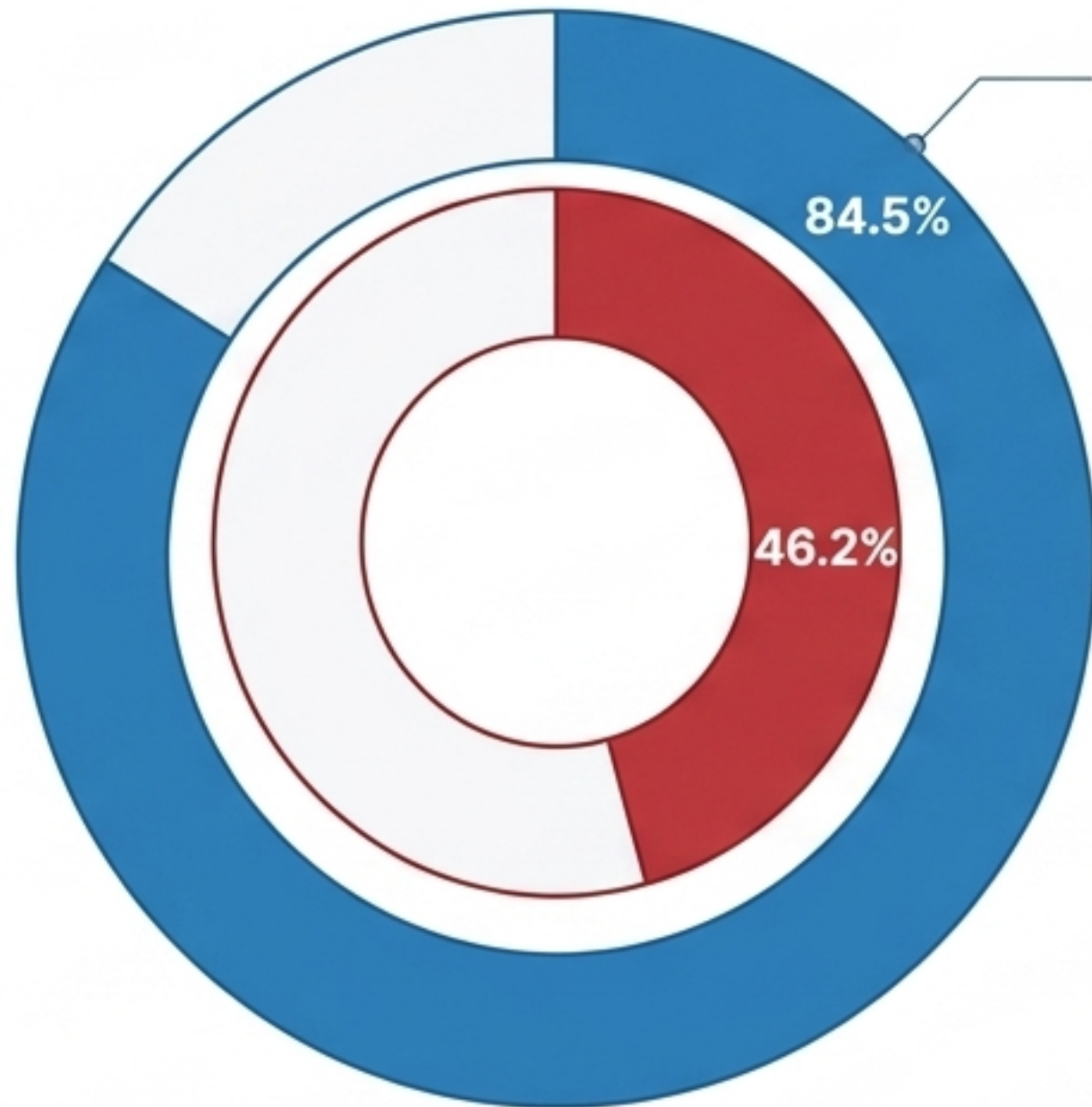


The Street View (OCT)

Shows the exact cracks in the pavement.

The HARP Study: Unmasking the Culprits in Women

Context: 116 women with MINOCA underwent both OCT and CMR imaging.



84.5%

A likely mechanism for the MI presentation was identified in 84.5% of these women. The invisible became visible.

46.2%

An OCT-defined definite or possible culprit lesion was found in 46.2% of participants.

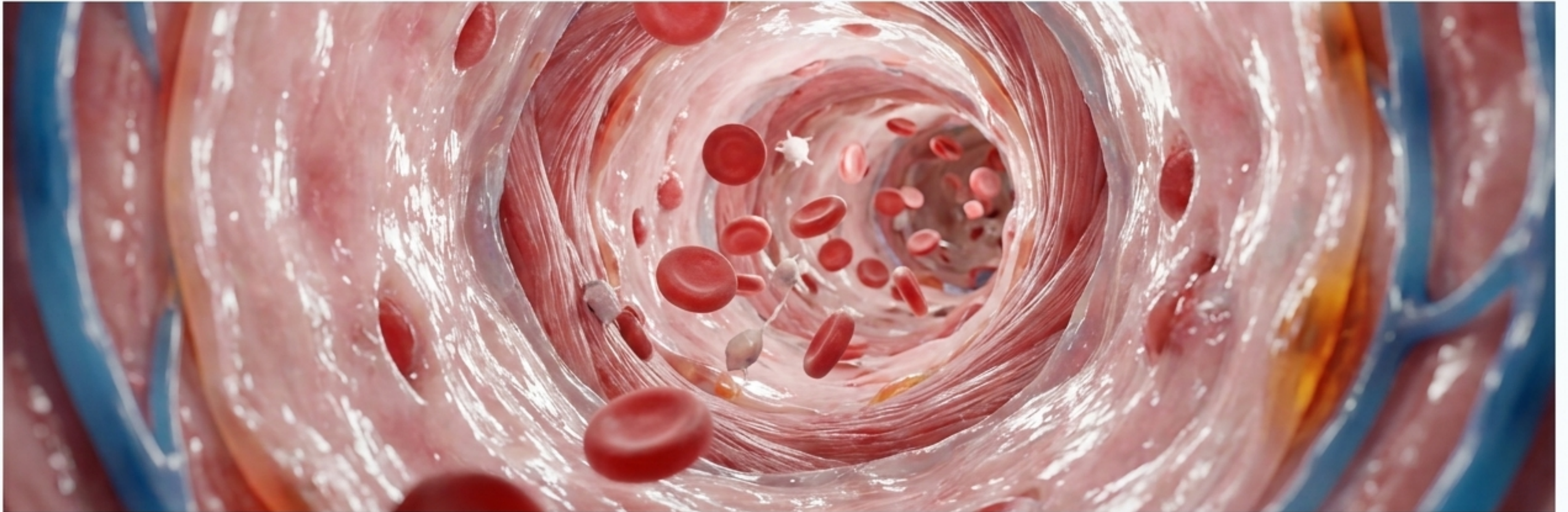
Correcting the Record:

This 46.2% refers to ANY OCT-defined culprit lesion. Treating this number as '46% plaque rupture' is incorrect and unsupported by the primary publication.

The Heart is Not a Pipe—It is a Reactive Ecosystem

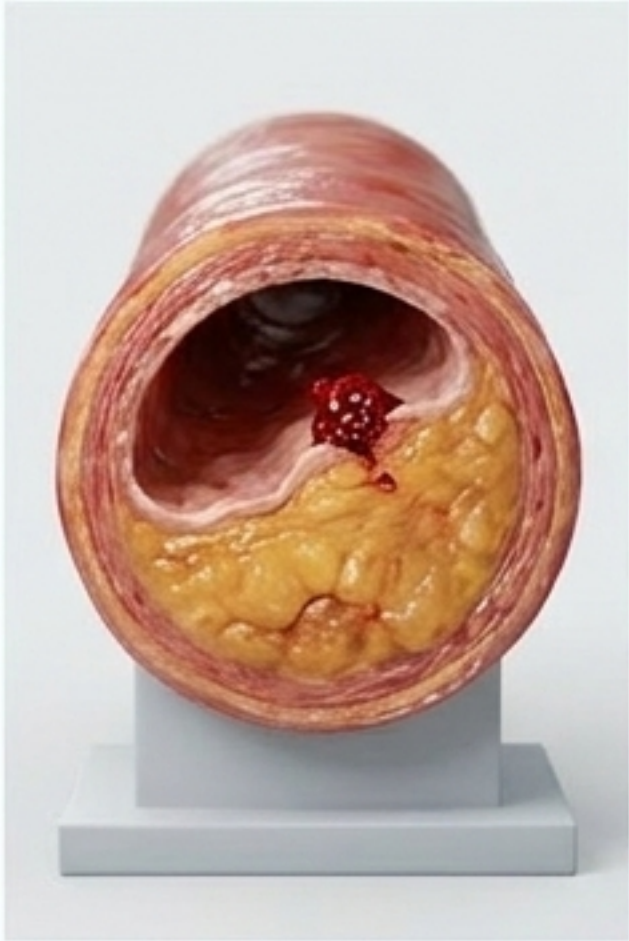
With advanced imaging, cardiology has recognized that acute infarctions without major blockages are driven by complex biological events.

The AHA framework identifies 5 distinct “hidden culprits” capable of causing severe ischemic damage in non-obstructive arteries.



The 5 Mechanisms of MINOCA

Each mechanism requires a fundamentally different therapeutic approach.



Plaque
Disruption



Coronary
Vasospasm



Microvascular
Dysfunction



Embolism /
Thrombosis



SCAD



Dispelling the 'Benign' Myth

MINOCA is NOT benign. Patients face meaningful risks of recurrent symptoms, recurrent MI, and mortality.

From Uniform to Cause-Directed Care:

- **Targeted Therapy is Vital:** Classic MI trials excluded non-obstructive patients.
- **Observational Data (SWEDEHEART):** Statins and Renin-Angiotensin System (RAS) blockers are associated with improved long-term outcomes.
- **The DAPT Question:** Routine dual antiplatelet therapy (DAPT) showed no clear overall benefit across the heterogeneous MINOCA cohort.

The Clinical Pathway: Refining the Diagnosis

MINOCA is not the end of the diagnostic journey—it is the beginning. The goal of modern cardiology is to push the patient through advanced imaging to exit with a specific, treatable, mechanism-directed diagnosis.



“A non-obstructive angiogram is not a dismissal—it is an invitation to look deeper.”

The integration of the AHA Scientific Statement and multimodal imaging (HARP) ensures that the ‘invisible infarction’ is finally seen, understood, and precisely treated.

Based on The Invisible Infarction, Curing Heart Disease, LLC.

