

Myocardial Infarction with Non-Obstructive Coronary Artery Disease (MINOCA)

MINOCA refers to patients who experience heart damage (myocardial infarction or MI) but do not have blockage in the coronary arteries. Most heart attacks are caused by large artery blockages, but MINOCA occurs in 5-6% of acute myocardial infarction cases. Patients are typically younger and more likely to be women. Oftentimes, these women have presented with the signs and symptoms of a heart attack only to be told that they did not have a heart attack because their coronary artery blockage was less than 50%.

Causes of MINOCA include:

- Plaque rupture – cholesterol plaque build-up that ruptures and reduces blood flow
- Spontaneous coronary artery dissection (SCAD) – a condition involving a tear in the small arteries of the heart that in many cases causes the coronary artery to close.
- Coronary vasospasm – the constriction of blood vessels that typically involves chest pain during periods of rest and at times, can wake you up from sleep.
- Coronary microvascular disease (CMD) – disease of the small arteries of the heart
- Coronary embolism – a blockage in a coronary artery due to a blood clot
- Takotsubo cardiomyopathy – Weaken heart related to emotional/stress event
- Myocarditis – Inflammation of the heart

SIGNS & SYMPTOMS

MINOCA patients present with similar symptoms as those with heart attack. For women, heart attack symptoms can include:

- Chest pain/ chest pressure/ chest heaviness
- Nausea
- Jaw, neck, or upper back pain
- Pain or pressure in the lower chest or upper abdomen
- Shortness of breath
- Fainting
- Indigestion
- Fatigue

Signs of MINOCA include a positive blood test for heart damage (troponin) or evidence of heart damage on electrocardiogram (ECG).

DIAGNOSIS

- Electrocardiogram (ECG) – records electrical signals traveling through the heart
- Troponin – blood test that detects heart damage
- Coronary angiogram – invasive test where a long, thin tube (catheter) is threaded to the heart arteries and injects dye to make the arteries and areas of blockage visible on X-ray
- Coronary Optimal Coherence Tomography – specialized imaging that is done at time of coronary angiogram to determine the cause of MINOCA
- Echocardiogram – sound waves (ultrasound) create images of the heart to evaluate heart function
- Cardiac MRI – a magnetic field and radio waves create images of the heart that are used to diagnose heart problems and extent of damage. This test is crucial in determining the cause of MINOCA.

TREATMENT

Treatment of MINOCA and the underlying small artery disease remains a major unmet need, but strategies do now exist that can help improve patients' symptoms and quality of life. Further research is needed to determine treatment based on underlying causes of MINOCA.

FOR MORE INFORMATION

Further research is needed to have a clearer understanding of the cause and treatment of MINOCA, ideally translating to improved care for patients. The Christ Hospital Women's Heart Center and Lindner Research Center are leading pioneering research to improve treatment of MINOCA patients.

For more information, contact the Women's Heart Center:
513-585-2140

To schedule a second opinion, please visit:

<https://www.thechristhospital.com/services/heart/second-opinion-program/second-opinion-form>

To learn more, please visit:

[TheChristHospital.com/womens-heart](https://www.thechristhospital.com/womens-heart)