

# Myocardial Infarction with Non-Obstructive Coronary Arteries (MINOCA) – Now trending in Guidelines

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## Abstract

Myocardial infarction with non-obstructive coronary arteries (MINOCA) is defined as non-obstructive (< 50% stenosis) infarct-related artery (IRA) demonstrated in coronary angiography in a patient with acute myocardial infarction (AMI). MINOCA patients may have problem in epicardial coronary artery, microvasculature or myocardium. A few additional tests, besides coronary angiography, may provide the etiological diagnosis of MINOCA. Since the prognosis is not great, MINOCA should be managed like AMI.

**Keywords:** Myocardial infarction with non-obstructive coronary arteries; MINOCA; Non-obstructive coronary arteries;

## Short communication

Myocardial infarction with non-obstructive coronary arteries (MINOCA) is a new entity recently trending in the field of interventional cardiology. According to the latest 2017 ESC guidelines, MINOCA is a working diagnosis and is defined as non-obstructive (< 50% stenosis) infarct-related artery (IRA) demonstrated in coronary angiography in a patient diagnosed to have acute myocardial infarction (AMI) as per Universal AMI criteria [1, 2].

Around 1-14% of patients with acute myocardial infarction (AMI) may have non-obstructive coronaries in coronary angiography [3, 4]. MINOCA occurs commonly in young women with dyslipidemia. The following are the mechanisms for causing MINOCA: (1) Plaque rupture, erosion, embolism or coronary dissection involving epicardial coronary arteries; (2) Coronary vasospasm leading to imbalance between oxygen supply and demand; (3) Coronary micro vascular spasm; and (4) Myocardial injury like myocarditis or Takotsubo syndrome [1, 5].

A few additional tests, besides coronary angiography, may provide the etiological diagnosis of MINOCA. A detailed echocardiography may be performed initially. Apical ballooning in left ventricular angiography may suggest Takotsubo cardiomyopathy but normalization of findings during follow up is required for the diagnosis. Intravascular Ultrasound (IVUS) and Optical Coherence Tomography (OCT) may unravel coronary dissection, thrombosis, plaque rupture, plaque fissure etc. Provocative spasm tests with acetylcholine or ergonovine are

useful to rule out coronary artery spasm. Pressure studies may reveal coronary micro vascular dysfunction. Cardiac MRI may identify subendocardial infarction, myocarditis etc by providing information like wall motion abnormalities, delayed myocardial enhancement infarction, presence of edema, myocardial scar/fibrosis etc. Further useful investigations would be blood tests like D-dimer to rule out the possibility of pulmonary embolism, screening for thrombophilia disorders and inflammatory marker levels; screening for substance abuse like cocaine; endomyocardial biopsy for fulminant myocarditis etc [1].

The 1-year mortality of MINOCA is 3.5% and hence patients with MINOCA should not be ignored as those with non-obstructive coronary disease because the prognosis is not great.3 Patients with MINOCA should be managed like AMI patients with single-vessel disease or double-vessel disease.

## References

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