MSD MANUAL
Professional Version

Microvascular Angina

(Angina With No Obstructive Coronary Artery Disease [ANOCA])

*By **Ranya N. Sweis**, MD, MS, Northwestern University Feinberg School of Medicine;*
***Arif Jivan**, MD, PhD, Northwestern University Feinberg School of Medicine*
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> **Microvascular angina (previously known as syndrome X) is cardiac microvascular dysfunction or constriction causing angina in patients with normal epicardial coronary arteries on angiography.**

(See also Overview of Coronary Artery Disease.)

Patients with microvascular angina have

- Typical angina that is relieved by rest or nitroglycerin
- Normal coronary angiography (eg, no atherosclerosis, embolism, or inducible arterial spasm)

Some of these patients have ischemia detected during stress testing; others do not. In some patients, the cause of ischemia seems to be reflex intramyocardial coronary constriction and reduced coronary flow reserve. Other patients have microvascular dysfunction within the myocardium: The abnormal vessels do not dilate in response to exercise or other cardiovascular stressors; sensitivity to cardiac pain may also be increased.

This disorder should not be confused with vasospastic angina due to epicardial coronary spasm.

Prognosis is better than for patients with demonstrable coronary artery disease, although symptoms of ischemia may recur for years. In addition, patients with microvascular angina appear to be at an higher risk for major cardiovascular events than the general population (1).

The mainstay of treatment is controlling risk factors with lipid-lowering therapy and glycemic control. In many patients, traditional anti-ischemic treatment, including beta-blockers and calcium channel blockers, helps to relieve symptoms (2).

References

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2. Crea F, Camici PG, Bairey Merz CN: Coronary microvascular dysfunction: an update. *Eur Heart J* 35:1101–1111, 2014. doi: 10.1093/eurheartj/eht513