



Spontaneous Coronary Artery Dissection: Current State

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Spontaneous Coronary Artery Dissection: Current State of the Science: A Scientific Statement From the American Heart Association. *Circulation* 2018;Feb 22:[Epub ahead of print]. [↗](#)

The following are key points to remember from the American Heart Association Scientific Statement on spontaneous coronary artery dissection (SCAD):

1. SCAD is thought to be caused by either an intimal tear, which allows blood to enter and generate a false lumen, or a spontaneous hemorrhage arising from the vasa vasorum within the vessel wall. In several cases, the intimal rupture site was not identified.
2. Initial presentation can be severe, with cardiogenic shock in 2-5%, and ventricular arrhythmias or sudden cardiac death in 3-11%. Chest pain and elevated cardiac enzymes along with ischemic changes are characteristic of the presenting acute coronary syndrome (ACS).
3. The diagnosis of SCAD must not be missed. Some patients are discharged prematurely based on their young age and lack of cardiovascular risk factors.
4. Coronary angiography is recommended as a first-line diagnostic imaging method for early invasive management of ACS. Intravascular ultrasound (IVUS) and optical coherence tomography (OCT) can aid the diagnosis, but carry the risk of iatrogenic extension of the dissection.
5. There are several angiographic appearances:
 - Type 1: classic appearance of multiple radiolucent lumens or arterial wall staining
 - Type 2: diffuse stenosis. 2A includes normal segments. 2B is diffuse narrowing from prox/mid segments to the distal artery.

- Type 3: focal or tubular stenosis; this can be confused with a typical atherosclerosis pattern.

Understanding the different appearances, especially the long smooth narrowing type 2 pattern, can help prevent misdiagnosis as coronary vasospasm, normal coronaries, atherosclerotic disease, thromboembolism, or takotsubo syndrome.

6. IVUS and OCT can be used to assist in the diagnosis; however, there is a risk that these interventions can extend the dissection, cause iatrogenic dissection, and/or occlude the true lumen.
7. Coronary computed tomography angiography provides lower spatial and temporal resolution than coronary angiography, and negative results must be interpreted with caution.
8. Conservative management should be considered in clinically stable patients without high-risk anatomy. Extended inpatient monitoring for 3-5 days is recommended. In patients with ongoing ischemia, left main artery dissection, or hemodynamic instability, urgent intervention with percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) can be considered.
9. PCI for treatment of SCAD is associated with an increased risk of complications and technical failure. The risk of iatrogenic dissections and extension of dissections can be reduced by avoiding deep catheter engagement, noncoaxial positioning of catheter tip, catheter dampening, and strong contrast agent injection. Femoral access is preferred due to higher risk of iatrogenic dissection by radial access in a retrospective study.
10. Interventional PCI strategies include: 1) long drug-eluting stents that cover the 5-10 mm on each edge of dissection; 2) direct stenting without balloon predilation; 3) balloon angioplasty alone; 4) cutting balloon fenestration to decompress the false lumen (perform with caution); 5) multistent approach by sealing distal and proximal ends first; and 6) bioresorbable stents.
11. CABG is appropriate for left main and proximal dissections, PCI complications, or ongoing ischemia. One study reported a high rate of venous and arterial conduit failure, likely due to the subsequent healing of the native SCAD vessels causing competitive flow and graft occlusion.
12. Systemic anticoagulation with heparin should be avoided after the diagnosis of SCAD. Dual antiplatelet therapy is recommended after PCI. In patients managed medically, most experts recommend aspirin for at least a year, and some also recommend clopidogrel for a few months to a year.
13. Statin therapy is not recommended routinely after SCAD. It should be used in patients with other indications.
14. Recurrent chest pain is common, even in the absence of recurrent ischemia. Chest pain sometimes occurs at predictable times of the menstrual cycle, possibly related to endothelial and microvascular dysfunction. This pain may be responsive to long-acting nitrates or calcium channel blockers.
15. Pregnancy after SCAD should be managed by a multidisciplinary team. Careful planning for labor and delivery is important, but vaginal delivery is generally recommended.

16. Cardiac rehabilitation is important for SCAD survivors. Severe restrictions in activity and weight lifting are not necessary, but extreme high-intensity exercise should be avoided.
17. Extracoronary imaging from the brain to the pelvis that includes extracranial carotid arteries and renal arteries is important given the high coprevalence with fibromuscular dysplasia.
18. Although the yield from routine genetic testing is low, referral to a genetic counselor with experience in arteriopathies should be considered.

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