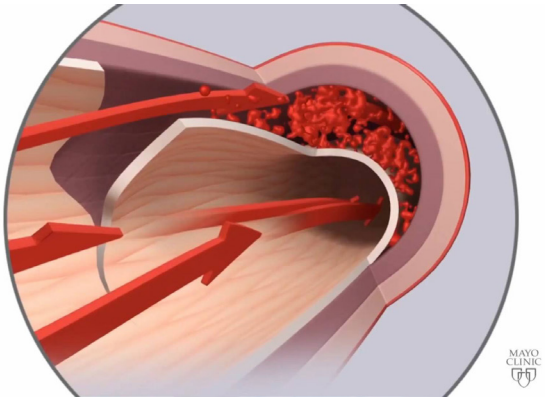
# WHAT IS A SCAD HEART ATTACK?

**Spontaneous Coronary Artery Dissection (SCAD)** is an uncommon emergency heart condition that occurs when a tear forms in one of the blood vessels in the heart. SCAD can slow or block blood flow to the heart, causing a heart attack (myocardial infarct, MI), abnormalities in heart rhythm or sudden death.




## Who Experiences SCAD?

SCAD is the #1 cause of heart attacks among women under the age of 50 years and those who are pregnant or have just given birth. Most people with SCAD are young, healthy, active women who have no family history of heart disease or personal risk factors for atherosclerosis. SCADs typically occur in people with no standard risk factors for heart attack. The average age is 42 to 52 years but it has been described in teenagers and women in their 7th decade of life. Although less common, SCAD can affect men too. Some SCAD patients have been found to have an underlying blood vessel disorder, most commonly fibromuscular dysplasia (FMD).

**What we know about SCAD:**

- Non-atherosclerotic (that is, not due to plaque) coronary heart disease
- Affects healthy individuals with few, if any risk factors
- Conservative non-invasive treatment is often best
- Arteries frequently heal without intervention
- As awareness and diagnosis have increased, the medical community is realising that SCAD is not so rare

## How is SCAD Diagnosed?

SCAD patients typically have electrocardiogram (ECG) findings and troponin level elevations consistent with heart muscle cell loss. A diagnosis of SCAD as the specific type of MI is by its typical appearance at the time of a coronary angiogram or, occasionally, by CT coronary angiography. In the case of sudden unexpected death, an autopsy may reveal SCAD. Most people (95%) treated in hospital do very well, however, chest pain and recurrent SCAD can recur (up to 30% of cases over a 10 year time frame).

## How is SCAD Treated?

Although much has been learned about SCAD in the past few years, the cause of SCAD remains obscure and no primary preventive treatment has been identified. After an episode of SCAD, strict blood pressure control and a beta-blocker drug may reduce the chance of recurrence. Accurate differentiation of SCAD from other causes of MI is crucial because the approach to acute and long term care is

different. Specifically, patients undergoing percutaneous coronary intervention (PCI) for MI due to SCAD have technical success rates that are markedly reduced compared to PCI success rates for atherosclerotic MI (62% vs 92%). Also research has noted a substantial rate of spontaneous vascular healing without intervention and suggests a role for conservative management in stable SCAD patients who have preserved coronary flow. Conservative management usually includes 4-5 days of careful inpatient monitoring. Statins do not appear to prevent another SCAD heart attack and one study found more recurrences in those taking statins. SCAD can recur, so vigilance, evaluation for associated conditions, and staying up-to-date on emerging research is also important.

**Since its inception in 2010, the Mayo Clinic SCAD Research Program has gained new insights into associated conditions and treatment approaches. Highlights and significance of findings include:**

- **Extracoronary vascular abnormalities.**
  A high rate of abnormalities in noncoronary blood vessels has been identified in patients with SCAD. These include fibromuscular dysplasia (FMD), aneurysms and additional dissections. Patients with these findings may need additional imaging and follow-up and may be at higher risk of recurrent SCAD.

- **Specialized imaging techniques.**
  Mayo researchers are defining the role and value of specialized imaging of the inside of the coronary artery at the time of SCAD to make an accurate diagnosis and guide treatment. The SCAD diagnosis can be missed if only standard coronary angiography is used.

The SCAD Research Program has demonstrated that advanced imaging techniques such as intravascular ultrasound and optical coherence tomography can not only enhance diagnostic accuracy, but also guide treatment in the crucial early minutes of a heart attack. However they may actually worsen the coronary artery tear, so should be used with caution.

- **Complications with stenting.** The program team has reported significantly lower success rates and higher complication rates when coronary artery stenting or ballooning is utilized to open artery blockages due to SCAD, compared with rates for patients with typical heart attacks. This has implications for early decision-making for treatment and highlights the need for an accurate diagnosis.

- **Selective intervention.** Mayo researchers have observed a significant rate of spontaneous healing of SCAD-affected arteries that occurs without specific intervention (medical treatment only). This has led to a change in Mayo's clinical practice, whereby in select patients with SCAD, clinicians do not intervene with stenting or bypass surgery, but instead allow them time to heal on their own.

- **Routine statin use not recommended.** Unlike atherosclerotic disease, there is no evidence that statins prevent recurrent myocardial infarction or dissection. Since there is no evidence of benefit, statins should not be routinely given to patients with SCAD, but reserved for those with hyperlipidemia.

- **SCAD incidence is not as rare** as previously believed and may be the major cause of heart attack in women under age 40 and in pregnant or postpartum women.

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**Additional Notes on Treatment from the Victor Chang Cardiac Research Institute SCAD Study:**

- For SCAD survivors who suffer from migraines, which are commonly associated with SCAD, the use of triptans as drugs to treat migraine should be avoided.

- Since it is believed that there is a hormonal link to SCAD, survivors may be directed to take a non-hormonal form of birth control and avoid taking any hormone therapies.

- Survivors will likely feel more fatigued or tired for some time after SCAD with some people taking up to 3-6 months or more to find their new normal.

- Some SCAD survivors experience mild unexplained chest pain following their heart attack

- Experiencing a SCAD heart attack can be an extremely unexpected and frightening event. Seeing that this condition often affects people who have very few or no risk factors for heart disease it can be traumatic for the sufferer and their families and counselling may be recommended.

## Cardiac Rehabilitation

Cardiac rehabilitation is definitely recommended after surviving a SCAD heart attack. Each case of SCAD will be different. It is generally recommended that SCAD survivors avoid lifting items that require you to strain or bear down. This varies depending on fitness and a person's physical build.

## References & Additional resources:


- Hayes, SN et al; Spontaneous Coronary Artery Dissection: Current State of the Science: A Scientific Statement from the American Heart Association Circulation. 2018 May 8; 137(19): e523 -®e557

- Professor Robert Graham and the Victor Chang Cardiac Research Institute SCAD Study [Graham RM et al. The mystery and enigma of spontaneous coronary artery dissection. Heart Lung Circulation 2018; 4:401-405

- 2018 scientific statement from the American Heart Association on SCAD, which provides a comprehensive overview of the condition. View the AHA statement on PubMed

- For additional resources including information for SCAD Survivors, latest medical research findings and links to join the Victor Chang Cardiac Research Institute and Mayo Clinic SCAD Research Studies available at www.SCAD Research.com.au


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