

Spontaneous coronary artery dissection in a male with ischemic stroke: A case report with brief review of literature

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ABSTRACT

Spontaneous coronary artery dissection (SCAD), also referred to as SCAD, is an uncommon emergency condition that occurs when a tear forms in a blood vessel in the heart. SCAD has emerged as an important cause of acute coronary syndrome, myocardial infarction, and sudden cardiac death, particularly among individuals with few conventional atherosclerotic risk factors and young women. It is usually seen in females with pre-existing conditions such as connective tissue disease, systemic lupus erythematosus, and the puerperium. Commonly, the patient presents with acute-onset severe chest pain coupled with autonomic symptoms such as diaphoresis, palpitations, and hypotension. SCAD presenting with ischemic stroke in a male patient is extremely rare. Hereby, we present a case of SCAD in a middle-aged gentleman who strangely presented with ischemic stroke.

Key words: *Acute infarct, Coronary artery dissection, Hypokinesia*

Spontaneous coronary artery dissection (SCAD) is defined as an epicardial coronary artery dissection that is not associated with atherosclerosis or trauma and not iatrogenic. The mechanism involved, leading to the myocardial injury occurring as a result of SCAD is the coronary artery obstruction caused by the formation of an intramural hematoma or intimal disruption rather than intraluminal thrombus or atherosclerotic plaque rupture. SCAD, which affects mostly young females during the peripartum period, is an atypical cause of acute coronary syndrome (ACS) or sudden cardiac death [1].

CASE REPORT

A 49-year-old male, a known hypertensive for more than 10 years and on medication, presented with complaint of sudden onset of weakness of the right side of the body, associated with slurring of speech. He also gave a history of chest discomfort on exertion for the past 3 months. Apart from this, he did not give any significant history. There was no history of diabetes mellitus, dyslipidemia, or tobacco intake in any form. The patient had no significant family history of premature coronary artery disease.

On admission, routine examination revealed normal body habitus, a regular pulse at 75 beats per minute, and blood pressure of 150/90 mmHg. Carotid impulses were normal and the jugular venous pressure was not raised. The cardiac examination revealed normal heart sounds with no added sounds. Respiratory system examination was within normal limits. Neurologic examination

revealed right-sided mild motor weakness and diminished touch and pain sensations. The right-sided deep tendon reflexes were brisk, and the right Babinski sign was positive.

The urine toxicology screen was negative. Carotid Doppler studies demonstrated no significant disease. Non-contrast computed tomography (CT) scan of the brain demonstrated acute infarct in the left middle cerebral artery territory. The admission electrocardiogram (ECG) showed normal sinus rhythm and features suggestive of old inferior wall myocardial infarction (age indeterminate) and left ventricular hypertrophy. Serial troponin I levels were within normal limits. Transthoracic two-dimensional echocardiogram on admission demonstrated hypokinesia in the inferior left ventricular wall with an ejection fraction of 50%. No valvular dysfunction was noted.

The patient was given antiplatelet therapy in the form of aspirin and statin orally. Glycerol was started orally to reduce the associated edema surrounding the lesion in the brain. Antihypertensive, amlodipine, and a calcium channel blocker were continued. Physiotherapy was started as early as possible and advised to continue. After neurological stabilization, a further cardiac evaluation was planned in view of his symptoms, ECG, and echocardiographic abnormality. Coronary angiography was performed using a right radial artery approach which showed features suggestive of dissection originating in the ostium of the right coronary artery (RCA) extending distally up to the posterior descending and posterior left ventricular (LV) branch bifurcation with Thrombolysis in Myocardial Infarction (TIMI)

Grade III flow. Left main, left anterior descending (LAD), and left circumflex artery were normal (Fig. 1). The patient was maintained on medical management with advice on lifestyle modification and close outpatient follow-up. On follow-up visits up to 6 months, the patient was found to be clinically stable.

DISCUSSION

Spontaneous dissection of the coronary artery, first described in 1931 by Pretty [2], is a rare condition that generally presents as an ACS or sudden cardiac death (SCD) with high mortality [3]. The prevalence of SCAD is 0.10–0.24% of all coronary artery disease patients undergoing coronary angiography [4]. It predominantly occurs in young females with women-to-men ratio 2:1. SCAD is found to be associated with connective tissue disorders, Kawasaki disease, atherosclerosis, blunt chest trauma, systemic lupus erythematosus, cocaine abuse, pregnancy, and the puerperium. In men, the RCA is more commonly involved, whereas the left anterior descending artery is mostly involved in women [5].

Dissection of the left main coronary artery is rare [6]. The provocative event of SCAD is generally an intimal tear which allows the entry of blood into the media of the coronary artery. An important substrate for this to develop is vessel wall weakness. The dissection plane distorts the architecture of the coronary artery which results in mechanical obstruction of the true lumen by geometrical malalignment and by hematoma formation. Myocardium supplied by the affected artery may become ischemic or infarcted coronary blood flow is sufficiently compromised [7].

The clinical picture of SCAD ranges from rarely asymptomatic presentation to ACS and sudden cardiac death [8]. However, commonly patients present with acute onset severe chest pain coupled with autonomic symptoms such as diaphoresis, palpitations, and hypotension. SCAD presenting as ischemic stroke is extremely rare [9]. Multivessel dissection or involvement of the left main coronary artery signifies poor prognosis [10]. On the other hand, male gender and atherosclerosis as etiology have a better prognosis [4]. Approximately 50% of the patients show recurrence of coronary dissection within 1–2 months.

Coronary angiography generally confirms the diagnosis of SCAD which shows one of the following features such as an intimal flap, two separate communicating lumens, multiple dissecting lines, or coronary aneurysm communicating with the

lumen. Imaging techniques such as intravascular ultrasound and optical coherence tomography give more detailed morphological information [11]. In addition, multidetector CT can be used for the follow-up evaluation of patients with SCAD.

No clear-cut guideline exists for the management of patients with SCAD. It is generally guided by clinical symptoms, location, and extends of the dissection and hemodynamic status of the patient. For stable patients, in whom dissection is distal, conservative management is a possible approach [12]. Medical treatment is favored in patients with <50% luminal stenosis and TIMI 2–3 flow [13]. Recommended medical management includes nitrates, β -blockers, and calcium channel blockers intended to reduce coronary vasospasm. For single vessel, proximal dissection with the compromised flow and suitable coronary anatomy, percutaneous intervention with stenting is the treatment of choice [14], whereas coronary artery bypass grafting is the treatment for symptomatic SCAD involving multivessel or left main coronary artery [15]. For patients with flow limitations by platelet thrombi, antiplatelet therapy can be used [16]. However, the role of long-term antiplatelet therapy for patients with SCAD, where stenting is not done, is not known [17]. Similarly, utilization of heparin, thrombolysis, and glycoprotein IIb–IIIa inhibitors is controversial [18]. Due to the increased risk of bleeding, fibrinolysis is not recommended [16].

CONCLUSION

SCAD is a rare disease mostly seen in women with no cardiac risk factors. The disease is rare in men and usually involves the RCA, whereas the LAD artery is mostly involved in women. The management strategy has to be based on the clinical presentation, additional findings, and morphological details during an invasive assessment.

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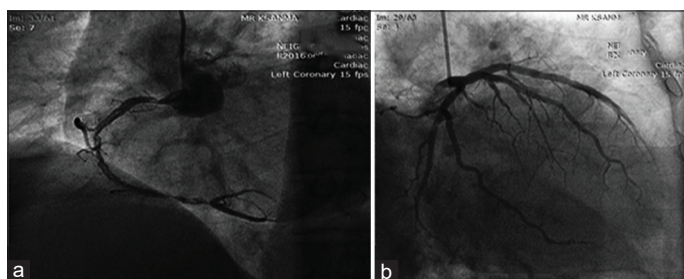


Figure 1: (a and b) Coronary angiogram showing dissection in the right coronary artery and normal left main, the left anterior descending, and the left circumflex artery

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