Spontaneous coronary artery dissection: Imaging with 64 Slice CT Scan
A Hakeem, F Shaheen, H Shafi, T Gojwari, S Rasool

Abstract
Spontaneous coronary artery dissection is being increasingly detected with more liberal use of diagnostic modalities like coronary catheterization. The unique demographic features of this cohort of patients like younger age and lack of traditional risk factors make prompt diagnosis vital part of the management. Use of latest a non-invasive imaging modality like 64 slice CT in the diagnosis of these patients together with increasingly successful treatment with drugs shall go in along way in ensuring conservative management of most these patients.

INTRODUCTION
Spontaneous coronary artery dissection usually affects young people predominantly pre-menopausal females with absence of coronary risk factors like, smoking, increased cholesterol, hypertension etc. One subset of patients of SCAD occurs during pregnancy or within few weeks of delivery whereas the other subset constitutes patients both male and female with majority being females and usually without any traditional risk factors of coronary artery disease.

PRESENTATION
A 48 year old premonopausal female with no evident risk factors of ischemic heart disease presented with acute chest pain. ECG revealed acute anterior wall infarct without any significant hemodynamic abnormality. Patient was thrombolysed and put on conservative therapy including antiplatelet drugs, clopidogrel and beta blockers. In view of the clinical features, acute coronary syndrome was suspected. As the patient’s condition was improving she was reluctant to undergo coronary catheterization. In view of improving conditions, patient was offered CT coronary angiography. CT angiography was conducted using 64 slice MDCT (Somatom Sensation 64, Siemens, Germany) using 70 ml of non-ionic contrast with 30 ml of saline chase and retrospective ECG gating. 3D rendering showed focal thickening of LM (Fig 1).
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**Figure 1**
Fig 1: 3D Oblique cranio-caudal view showing thickening in LM artery.

Multiplanar reconstructions revealed spiral dissection of left main coronary artery extending into the left anterior descending coronary artery (Fig 2&3).

**Figure 2**
Fig.2: MPR in oblique sagital plane showing spiral dissection flap in LM & LAD

**Figure 3**
Fig.3: End on view of LM showing the dissection flap.

Multiphase reconstruction with functional study of left ventricle showed hypo kinetic anterior wall.

No intramural thrombus formation was seen. No congenital anomaly of coronary origin was revealed. The patient is asymptomatic on six months follow-up.

**DISCUSSION**
Spontaneous coronary artery dissection is rare cause of acute coronary syndrome and presents usually in patients without any risk factors associated with coronary artery disease. One subset of patients is pregnancy related wherein SCAD occurs during pregnancy or within few weeks postpartum. (1). Other subset of patients includes both female and male patients with predominance of the female patients again without any risk factors. The patients usually present with acute coronary syndrome of MI or angina. In a series of 5400 cases of suspected IHD undergoing coronary angiography, primary SCAD was found in 23 cases, 12 in RCA, 10 in LAD and one in LCX.(2). In another series (3), 10 patients were detected in three year period, most of whom...
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were premonopausal women. All of these patients survived on follow-up with full recovery in 7 patients on medical therapy. Thayer JO et al (4) reported 85 cases of SCAD in a review of literature till 1987. Another series of 5054 angiograms revealed 5 cases of coronary dissection all of whom were women of premonopausal age. (5). Most of these patients were treated conservatively with drugs and were found to be asymptomatic on follow-up at 22 months to 3.8 years. In two large series (2&6), most of patients with SCAD had single vessel involvement of RCA followed by LAD. Few patients needed acute intervention like PTCA(2&7) and further smaller number needed CABG. Most of the case reports of spontaneous coronary artery dissection have been found on conventional angiography. There are few reports of diagnosis of coronary artery dissection by MDCT using 64 slice CT scan (8) and one report of diagnosis by Intravascular Ultrasound(9).

References

1. Maeder M, Ammann P, Drack G, Rickli H.
4. Thayer JO, Healy RW, Maggs PR
Spontaneous coronary artery dissection.

J Int J Cardiol. 2006; 112:367.
Spontaneous and isolated dissection of the coronary arteries, apropos of 8 cases with favorable outcome.
7. Mahenthiran J, Revankar R, Koka V, Hoo J, Shenoy M.
Spontaneous coronary artery dissection presenting as acute myocardial infarction.
Myocardial infarction with huge mural thrombus due to spontaneous coronary artery dissection detected by 64-multidetector computed tomography.
Spontaneous coronary artery dissection with pseudo aneurysm formation diagnosed by intravascular ultrasound: a case report.
Author Information

Aijaz Hakeem, MD
Departments of Radio-diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011

Feroze Shaheen, MD
Departments of Radio-diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011

Hakim Shafi, MD
Departments of Radio-diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011

Tariq A Gojwari, MD
Departments of Radio-diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011

Shubana Rasool, MD
Departments of Radio-diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011