

Spontaneous coronary artery dissection: Imaging with 64 Slice CT Scan

A Hakeem, F Shaheen, H Shafi, T Gojwari, S Rasool

Citation

A Hakeem, F Shaheen, H Shafi, T Gojwari, S Rasool. *Spontaneous coronary artery dissection: Imaging with 64 Slice CT Scan*. The Internet Journal of Radiology. 2009 Volume 12 Number 1.

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 premenopausal 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, clopidogril 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

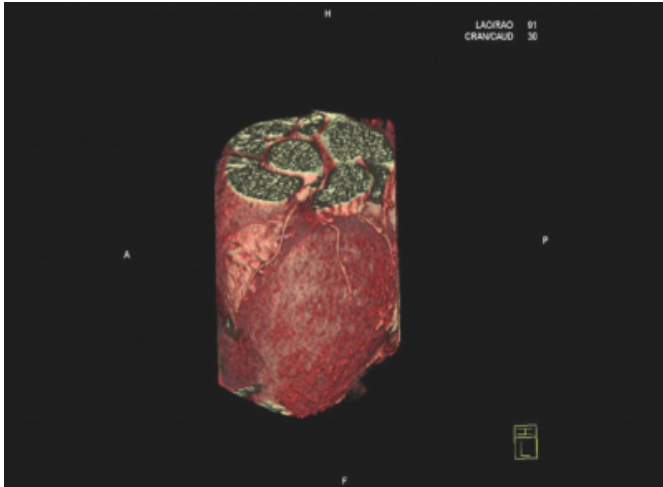
was conducted using 64 slice MDCT (Somatom Sensation 64, Siemens, Germany) using

70 ml of non-ionic contrast with 30 ml of saline chase and retrospective ECG gating. 3D

rendering showed focal thickening of LM (Fig1).

Figure 1

Fig 1: 3D Oblique cranio-caudal view showing thickening in LM artery.



Multiphase 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 sagittal plane showing spiral dissection flap in LM & LAD

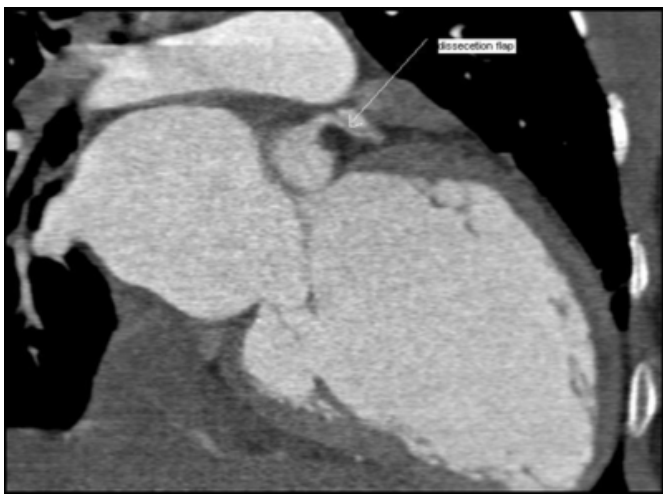
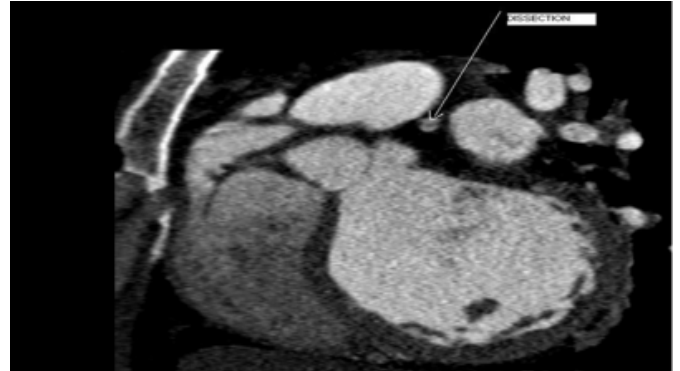


Figure 3

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

were premenopausal

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 premenopausal 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 Ultrasonography(9).

References

1. Maeder M, Ammann P, Drack G, Rickli H. Pregnancy-associated spontaneous coronary artery dissection: impact of medical treatment. Case report and systematic review. *Z Kardiol.* 2005; 94:829-35.
2. Hiasa Y, Otani R, Wada T, Tabata T, Shinohara N, Aihara T et al. Primary coronary artery dissection: its incidence and genesis studied by clinical and coronary angiographic findings. *Kokyu To Junkan.* 1990; 38:1127-31.
3. Jorgensen MB, Aharonian V, Mansukhani P, Mahrer PR. Spontaneous coronary dissection: a cluster of cases with this rare finding. *Am Heart J.* 1994; 127:1382-7.
4. Thayer JO, Healy RW, Maggs PR. Spontaneous coronary artery dissection. *Ann Thorac Surg.* 1987; 44:97-102.
5. Maeder M, Ammann P, Angehrn W, Rickli H. Idiopathic spontaneous coronary artery dissection: incidence, diagnosis and treatment. *Int J Cardiol.* 2006; 112:367.
6. Jobic Y, Avinée P, Boschat J, Jarry G, Benhaddou S, Etienne Y et al. Spontaneous and isolated dissection of the coronary arteries, apropos of 8 cases with favorable outcome. *Arch Mal Coeur Vaiss.* 1993; 86:1739-46.
7. Mahenthiran J, Revankar R, Koka V, Hoo J, Shenoy M. Spontaneous coronary artery dissection presenting as acute myocardial infarction. *J Natl Med Assoc.* 2000; 92:87-90.
8. Park SM, Koh KK, Kim JH, Yoon KH, Chung WJ, Kang WC. Myocardial infarction with huge mural thrombus due to spontaneous coronary artery dissection detected by 64-multidetector computed tomography. *Int J Cardiol.* 2008 Jul 4; 127(2):e73-5.
9. Aqel RA, Zoghbi GJ, Iskandrian AE. Spontaneous coronary artery dissection with pseudo aneurysm formation diagnosed by intravascular ultrasound: a case report. *Echocardiography.* 2004; 21:153-7.

Author Information

Aijaz Hakeem, MD

Departments of Radio- diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011.nstitute

Feroze Shaheen, MD

Departments of Radio- diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011.nstitute

Hakim Shafi, MD

Departments of Radio- diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011.nstitute

Tariq A Gojwari, MD

Departments of Radio- diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011.nstitute

Shubana Rasool, MD

Departments of Radio- diagnosis and medicine SK Institute of Medical Sciences, Srinagar, Kashmir, India 190011.nstitute