

A Lady with Chest Pain: Is there a Clue in the Chest Radiograph?

Deepanjan Bhattacharya, Paidi Suresh Kumar, Vishwanatha Kartik Sambaturu*, Sivadasanpillai Harikrishnan and Ajitkumar VK

Department of Cardiology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala, India

***Corresponding Author:** Vishwanatha Kartik Sambaturu, Assistant Professor, Department of Cardiology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala, India.

Received: July 19, 2021

Published: August 02, 2021

© All rights are reserved by **Vishwanatha Kartik Sambaturu**.

Abstract

Calcified coronaries is a hallmark of severe coronary artery disease and is usually diagnosed on invasive angiography. A 61 year old lady presented with acute onset central chest pain for 5 days and was diagnosed with ACS - NSTEMI. Her chest X ray revealed calcified coronaries, which was further confirmed on invasive coronary angiography. Calcified coronaries, if visualised on chest X ray, can be used as a marker of diffuse coronary artery disease with calcification.

Keywords: Coronary Artery Disease; Calcified Coronary Arteries

Introduction

Calcified coronaries is a hallmark of severe coronary artery disease and is usually diagnosed on invasive angiography.

Case Report

A 61 year old lady with diabetes mellitus and hypertension presented with acute onset central chest pain for 5 days. Her electrocardiogram showed sinus rhythm with normal axis and T wave inversion in leads I, aVL, V5 and V6, with elevated Troponin T (1146 ng/ml). A diagnosis of Non-ST Elevation Myocardial Infarction was made, and she was started on dual anti-platelet, statin, heparin and metoprolol. Echocardiography showed normal left ventricular function, with no regional wall motion abnormality. Chest X ray (postero-anterior view) showed normal cardiac size with mild pulmonary venous hypertension and calcified left anterior descending (LAD) and left circumflex (LCx) coronary arteries (Figure 1A and 1B). Coronary angiogram was performed which showed calcified LAD and LCx with all three vessels significantly diseased. She was planned for elective coronary artery bypass grafting and discharged.

Figure 1A and 1B: Chest X ray (1A) and fluoroscopy (1B) showing calcified left anterior descending (red arrow) and calcified right coronary artery (blue arrow).

Discussion and Conclusion

Coronary artery calcification (CAC) has high correlation with coronary atherosclerosis and is a significant risk factor for future adverse cardiovascular events [1]. CT coronary angiography and conventional invasive angiography are considered gold standard

for detection of CAC. Chest X ray is a very poor modality, and has a sensitivity of only 42%, with high specificity [2]. CAC triangle has been classically described to have the highest yield, whose borders are defined to be vertebral column medially, cardiac margin laterally and horizontal line at one-third the distance between left bronchus to the diaphragm along left heart border inferiorly [3,4]. LAD is the most commonly calcified vessel (93%), followed by the LCx (77%), with usual proximal vessel involvement [5]. Low kVp is required to pick up calcification, as higher exposure can lead to concealment of the calcium [6].

Ethics Approval

Waived since this is a case report.

Consent for Publication

Obtained from patient.

Availability of Data and Material

Not applicable.

Competing Interests

Nil.

Funding Support

Nil.

Bibliography

1. Liu W., *et al.* "Current understanding of coronary artery calcification". *Journal of Geriatric Cardiology* 12.6 (2015): 668-675.
2. Bartel AG., *et al.* "The significance of coronary calcification detected by fluoroscopy. A report of 360 patients". *Circulation* 49 (1974): 1247-1253.
3. Frink RJ., *et al.* "Significance of calcification of the coronary arteries". *The American Journal of Cardiology* 26 (1970): 241-247.
4. McCarthy JH and Palmer FJ. "Incidence and significance of coronary artery calcification". *British Heart Journal* 36 (1974): 499-506.
5. Souza AS., *et al.* "Chest Film Detection of Coronary Artery Calcification. The Value of the CAC Triangle". *Radiology* 129.1 (1978): 7-10.

6. Margolis JR., *et al.* "The diagnostic and prognostic significance of coronary artery calcification". *Radiology* 137 (1980): 609-616.

Volume 2 Issue 8 August 2021

© All rights are reserved by Vishwanatha Kartik Sambaturu., *et al.*