Spontaneous Rupture of Right Coronary Artery Presenting as Acute Inferior MI

Avinash Murthy, Arti Singh, Jay Meizlish*

Division of Cardiology, Bridgeport Hospital, 267 Grant Street, Bridgeport, CT 06484
*Corresponding author: artisingh2060@yahoo.com

Abstract   A 73 year old female with coronary artery disease presents with chest pain, and diagnosed with inferior STEMI. Coronary angiography revealed patent left coronary system with no new disease. Right coronary artery angiogram revealed extravasation of contrast into the pericardium at the mid portion of the RCA with severe disease thereafter. We present a rare case of spontaneous coronary artery rupture of the RCA presenting as an acute MI. Few such cases have been reported thus far. Management was challenging, and not well defined in literature. Prompt recognition of this entity may contribute to optimal therapy and better outcomes.

Keywords: *spontaneous coronary artery rupture*

Cite This Article: Avinash Murthy, Arti Singh, and Jay Meizlish, "Spontaneous Rupture of Right Coronary Artery Presenting as Acute Inferior MI." *American Journal of Medical Case Reports*, vol. 2, no. 9 (2014): 198-199. doi: 10.12691/ajmcr-2-9-9.

1. Introduction

A 73 year old female with coronary artery disease presented with chest pain, and was diagnosed with inferior STEMI (Figure 1). Coronary angiography revealed patent left coronary system with no new disease. Right coronary artery (RCA) angiogram revealed extravasation of contrast into the pericardium at the mid portion of the RCA (Video 1: RCA Angiogram - LAO view showing spontaneous extravasation of contrast in the mid portion of the RCA) with severe disease thereafter. Percutaneous coronary intervention (PCI) was attempted, which was unsuccessful in containing the extravasation (Video 2: RCA Angiogram - AP view showing more obvious extravasation of contrast into the pericardium after stent placement.). At this time, she had a cardiorespiratory arrest and was resuscitated. Placement of a covered stent was not feasible given the small RCA caliber. The patient was unstable for cardiothoracic surgery; hence a prolonged balloon tamponade was performed. Bedside echocardiogram showed a hyperdynamic left ventricle, stunned right ventricle, with no pericardial effusion or tamponade physiology. She was transferred to the intensive care unit, and subsequently developed refractory hypotension. After a week, family opted for comfort measures, she passed away soon after.
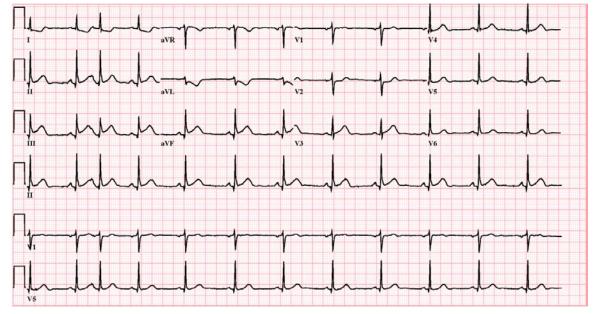

Figure 1. ECG - Electrocardiogram, showing ST segment elevations

2. Discussion

We present a rare case of spontaneous coronary artery rupture (SCAR) of the RCA presenting as an acute myocardial infarction (MI). Few such cases have been reported thus far. Incidence of SCAR is likely underreported because acute bleeding into the pericardium is often lethal (1). Given the exceedingly rare incidence of SCAR, it is understandably difficult to establish an etiological pattern. In literature, the etiology of SCAR has been broadly categorized as either due to aneurysm, atherosclerotic plaque disruption, trauma, localized infection, or disorders like Kawasaki's or Ehlers Danlos syndrome (2). While a majority of the cases of coronary artery rupture are iatrogenic and occur as a complication of PCI, SCAR has most commonly been seen in context of a ruptured coronary artery aneurysm.

Nearly all SCARs are fatal, and thus one essential problem in its diagnosis is that most patients die before even reaching the hospital or before coronary angiography can be performed to establish the diagnosis. If patientswith SCAR are able to reach the hospital, they present with features of cardiac tamponade or acute coronary syndrome (3). Coronary angiography must be emergently performed for a definitive diagnosis and immediate treatment. Iatrogenic coronary artery ruptures are treated with emergent rescue PCI or by cardiothoracic surgery in the rare event that PCI fails. Treatment of SCAR can similarly include PCI with grafted stent implantation, or various surgical options such as pericardial patch with glue, venous patch repair ligation with bypass grafting, and direct surgical repair. However, for those who are promptly diagnosed, the treatment is often surgical.Early diagnosis and emergent treatment is crucial for patient survival.

3. Conclusion

In conclusion, SCAR presenting as a MI is rare, management is challenging and not well defined. Prompt recognition of this entity may contribute to optimal therapy and better outcomes.

Learning Objectives

- Spontaneous coronary artery rupture (SCAR), a rare phenomenon, can present with either features of cardiac tamponade or acute coronary syndrome.
- SCAR is associated with atherosclerotic plaque disruption, aneurysm, trauma, localized infection, or disorders like Kawasaki's or EhlerDanlos syndrome.
- Early recognition of spontaneous coronary artery rupture will lead to prompt treatment which is often surgical and better patient outcomes.

Disclosure Statement

The authors have no competing interests and report no financial relationships or conflicts of interest regarding the content herein.

Acknowledgements

References

[1] Kaljusto, M.L., Koldsland, S., Vengen, O.A., Woldbaek, P.R., Tønnessen, T. "Cardiac tamponade caused by acute spontaneous coronary artery rupture."*J Card Surg.* 21 (3), 301-3. 2006.

[2] Shrestha, B.M., Hamilton-Craig, C., Platts, D., Clarke, A. "Spontaneous coronary artery rupture in a young patient: a rare diagnosis for cardiac tamponade."*InteractCardiovascThoracSurg*, 9 (3). 37-539. 2009.

[3] Bozkurt, E., Erol, M.K., Acikel, M., et al. "The first spontaneous coronary artery perforation due to disruption of atherosclerotic plaque."*Heart Vessels,* 19 (6). 294-296. 2004.