

SPONTANEOUS RUPTURE OF RIGHT CORONARY ARTERY PRESENTING AS ANGINA PECTORIS AND ACUTE INFERIOR MI

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ABSTRACT

We present a rare case of spontaneous coronary artery rupture of the RCA presenting as an acute abdomen and MI.

Key Words:

Spontaneous coronary artery rupture,
Spontaneous Coronary Artery Dissection,
Intramural hematoma,
Coronary artery aneurysm,
Acute coronary syndrome.

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INTRODUCTION

To define clinical presentation, diagnosis and treatment of SRCA. The result of Literature and (pub-med), we find five articles of SCAR which was matched with our article. Management was challenging, and not well defined in literature. Prompt recognition of this entity may contribute to optimal therapy and better outcomes. Bozkurt, E *et al.* Described The first spontaneous coronary artery perforation due to disruption of atherosclerotic plaque. 5 Coronary artery aneurysm (CAA) is a rare disorder, characterized by abnormal dilatation of a localized portion or diffuse segments of the

coronary artery. CAA may cause angina, myocardial infarction, sudden death due to thrombosis, embolization, or rupture.

Case

80-year-old man with severe onset of abdominal and chest pain with localization to epigastric area, 48 hours earlier, seek emergency on HRAUH. (Hazrat Rasol Akram University Hospital) ECG shows ST-T changes precordial and ST elevation more than 1 mm. The cardiologist assesses the patient for acute PCI. PCI is difficult without success, so the cardiologist decides to make emergency CT angiography Thoracoabdominal, cardiac anaesthesiologists and cardiologists stabilize the patient for CT angiography. Abdominal CT angiography shows intramural thrombosis sub duodenal in abdominal aorta with dissection.

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Cardiac CT angiography shows extravasation of RCA. Sub-epicardial hematoma compressing the right atrium and rupture of the right coronary artery. Echocardiography shows fluid in pericardium and collapse of Right Atrium of the heart, a clinical image as sub tamponade.

Gortex tubular graft. He was circulatory and respiratory stable with good kidney production. Good cardiac output and low pulmonary arterial pressure. After physiotherapy of the heart and abdominal aortic surgery, he discharges home Up to this datum, from 1973 to 2017, five cases of SCAR were

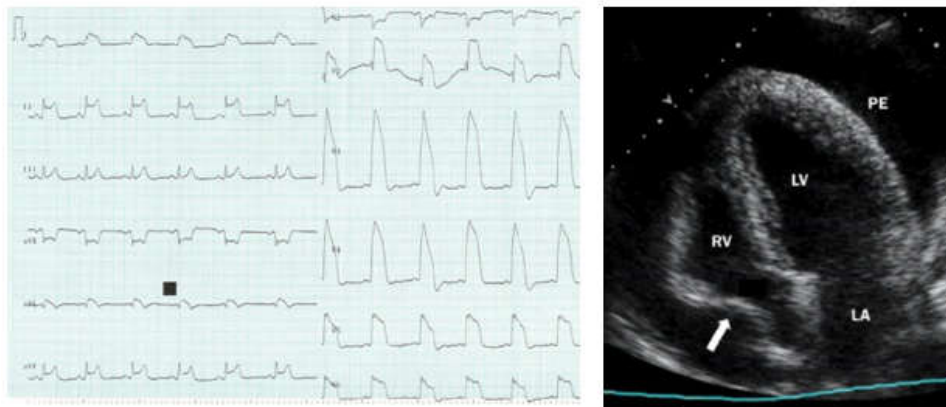


Fig. 1. ECG shows a ST-T changes precordial and Echocardiography shows fluid in pericardium and collapse of right atrium of the heart, a clinical image as sub tamponade

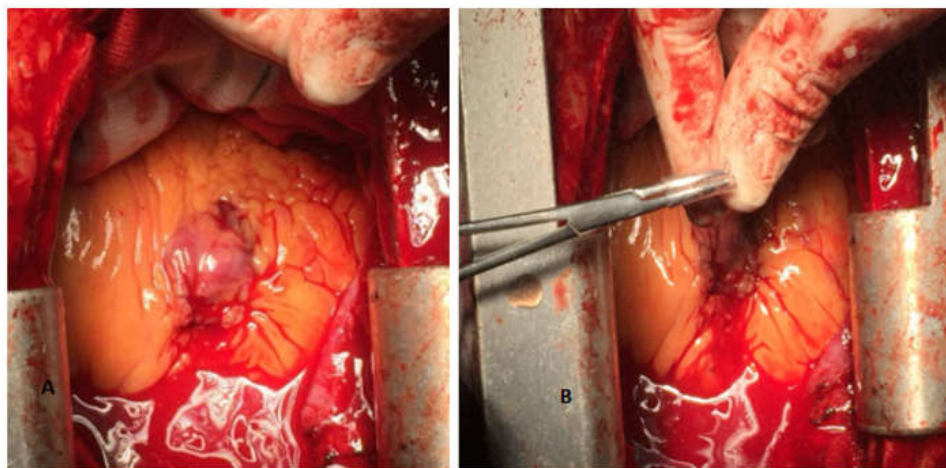


Fig. A. Sternotomy; extravasation and rupture of RCA **Fig. B.** Repair of RCA with patch of pericardium

Tab. 1. Cases of SCAR were reported by Pub-med. five articles of SCAR which was matched with our article.

1-	<i>Keskin M et al;</i> 6 Spontaneous Right Coronary Artery Rupture and Acute Cardiac Tamponade in Behçet's Disease. <i>Coronary involvement in Behçet's disease is extremely rare and it can bring devastating consequences when it occurs.</i>
2-	<i>Hansch A et al;</i> 7 Spontaneous rupture of the right coronary artery. <i>A case of spontaneous coronary artery rupture in a 65-year-old woman.</i>
3-	<i>Kim KH et al;</i> 8 Sub-epicardial hematoma compressing the right atrium: spontaneous rupture of the right coronary artery. <i>A 28-year-old man, diagnosed 3 years ago with Behçet disease</i>
4-	<i>Wan S et al;</i> 9 Cardiac tamponade due to spontaneous rupture of right coronary artery aneurysm. <i>A case of acute cardiac tamponade caused by spontaneous rupture of a right coronary artery aneurysm is reported. The aneurysm, which was present distally, was ligated during operation. Postoperative angiography suggested the aneurysm was congenital.</i>
5-	<i>ADAMS CW et al;</i> 10 Spontaneous rupture of the right coronary artery. <i>A case is reported of spontaneous rupture of the right coronary artery in a 75-year-old woman with hypertension and hypoplasia of the aorta and coronary vessels.</i>

Patients undergoing emergency cardiovascular consultation and accepted for surgery. The patient passes through sternotomy at the same time laparotomy to decompress the tamponade, after decompressing of cardiac tamponade we find even a rupture of RCA (see figure). On laparotomy, we find also intramural hematoma with localization in descending abdominal aorta. RCA was repaired with patch of pericardium and suture. Abdominal Aorta was repaired with

reported by Pub-med. In literature, SCAR is associated with atherosclerotic plaque disruption, aneurysm, trauma, localized infection, or disorders like Kawasaki's or Ehler-Danlos syndrome. 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 (1). The result of Literature and (pub-med), we find five articles of SCAR which

was matched with our article. *Keskin M et al* on Epub 2016 May 25, Reported a case of SCAR and cardiac tamponade in a patient with Behçet's Disease.

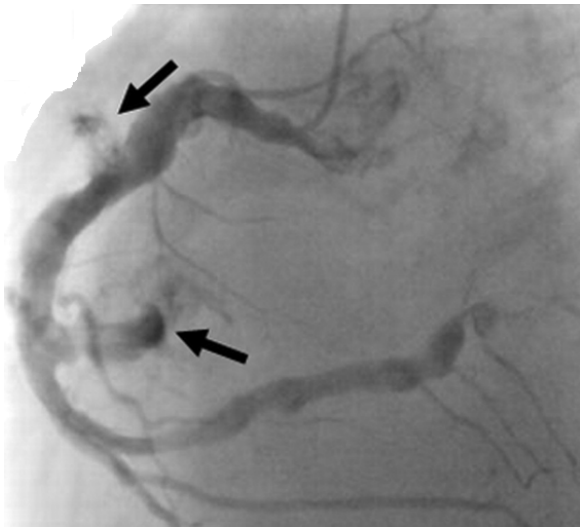
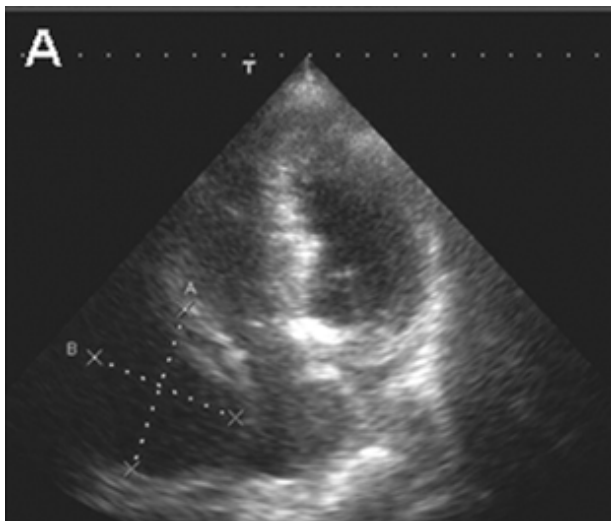


Fig. 2. A Spillage of contrast media into the hematoma with two entry sites in the proximal and middle part of the ecstatic right coronary artery (arrow)



A. Echocardiographic 4-chamber view showing a pericardial mass (measurement)



B. Rupture of the ecstatic right coronary artery with spillage of contrast media (arrow) into the hematoma (asterisk) in axial orientation

Hansch A et al; In their conclusion demonstrated that spontaneous coronary artery rupture is a rare disorder that is mostly associated with a known underlying disorder (eg, Ehlers Danlos syndrome) and even more rarely not associated with any known underlying disease (Shrestha, 2009; Motoyoshi, 2002; Moonen, 2008). Possibly some cases are not recognized as bleeding in the pericardium because coronary rupture is a relatively common life-threatening disorder (Moonen, 2008). *Kim KH et al*; In their conclusion demonstrated, of SCAR is a rare complication in patients with Behçet disease.

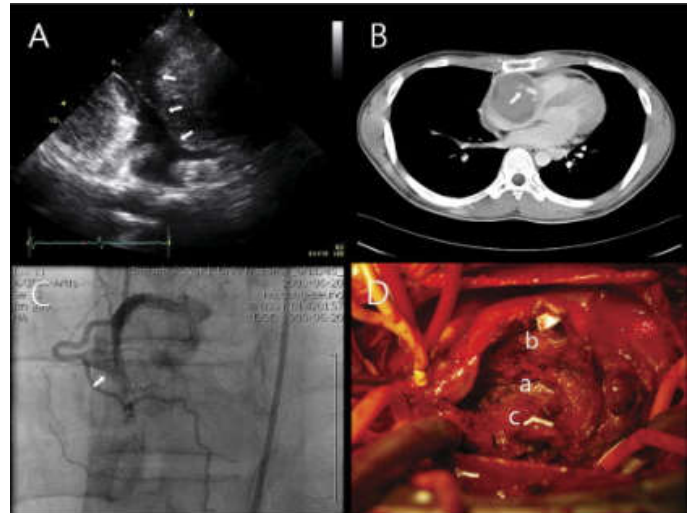


Fig. 3. Kim KH et al; A 28-year-old man, diagnosed 3 years ago with Behçet disease, (A, white arrow). Extravasation suggested it was a hematoma caused by rupture of the right coronary artery (B, white arrow). Coronary angiography showed total occlusion of the right CA and extravasation from the proximal portion of the CA (C, white arrow)

DISCUSSION

Most 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. Few such cases have been reported thus far. Incidence of spontaneous coronary artery rupture (SCAR) is likely underreported because acute bleeding into the pericardium is often lethal (Kaljusto, 2006). Spontaneous coronary artery rupture (SCAR), is a rare phenomenon, but 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

Treatment of SCAR

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. Coronary angiography must be emergently performed for a definitive diagnosis and immediate treatment. Treatment of iatrogenic coronary artery ruptures are treated with emergent rescue PCI or by cardiothoracic surgery in the rare event that PCI fails (Elsayed, 2009). However, for those who are promptly diagnosed, the treatment is often surgical.

Tab. 2. Table of 6 RCA ruptures

Case report by	symptom	previous diseases	Rupture	ECG	
1-Keskin M et al; 6	Acute Cardiac Tamponade	Behçet's Disease	RCA	ST-T changes precordial	Coronary involvement in Behçet's disease is Spontaneousrupture
2-Hansch A et al; 7	chest pain	Unknown	RCA	Unknown	
3-Kim KH et al; 8	Acute Cardiac Tamponade	Behçet disease	RCA	ST-T changes precordial	A 28-year-old man, diagnosed 3 years ago with Behçet disease
4-Wan S et al; 9	chest painand Acute Cardiac Tamponade	congenital rightcoronaryartery aneurysm.	RCA	ST-T changes precordial	The aneurysm, was present distally to RCA
5-ADAMS CW et al; 10	Acute Cardiac Tamponade	hypertension and hypoplasia of the coronary vessels.	RCA	ST-T changes precordial	hypoplasia of the aorta
S Zeraatian	severe onset of abdominal and chest pain	Hypertensionand Abdominal Aortic dissection	RCA	ST-T changes precordial	atherosclerotic plaque disruption

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. The most 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. In literature, SCAR is associated with atherosclerotic plaque disruption, aneurysm, trauma, localized infection, or disorders like Kawasaki's or EhlerDanlos syndrome. If patients with SCAR can reach the hospital, they present with features of cardiac tamponade or acute coronary syndrome. Early diagnosis and emergent treatment is crucial for patient survival.

Disclosure: The authors declare no conflicts of interest.

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