

Case Report

Volume 12 Issue 1 - April 2022
DOI: 10.19080/JAICM.2022.12.555827

J Anest & Inten Care Med

Copyright © All rights are reserved by Dina Fa Alwaheidi

Acute Coronary Syndrome Following Cesarean Section: A Case Report & Review of Literature



Dina Fa Alwaheidi^{1*}, Mohd Lateef Wani^{1*}, Laith Tbishat¹, Awad Al-Qahtani², Masood Khattak² and Shabib Al Aasmi²

¹Department of Cardiothoracic Surgery, heart hospital, HMC, Doha, Qatar

²Department of Cardiology, heart hospital, HMC, Doha, Qatar

Submission: February 01, 2021; **Published:** April 05, 2022

***Corresponding authors:** Dina Fa Alwaheidi, Department of Cardiothoracic Surgery, heart hospital, HMC, Doha, Qatar

Mohd Lateef Wani MCh, Department of Cardiothoracic Surgery, heart hospital, HMC, Doha, Qatar

Abstract

Spontaneous coronary artery dissection (SCAD) is considered one of the rare causes of acute coronary syndrome. It's been related to many predisposing factors mostly connective tissue disorders, fibromuscular dysplasia in particular, traumatic and atherosclerosis as the most common etiologic factor. It occurs predominantly more in women & is been associated with stress & pregnancy. Here we present a rare case of coronary artery dissection extending to left main coronary artery in 33 years old women post elective cesarean section.

Introduction

Spontaneous coronary artery dissection (SCAD) As a rare cause of acute coronary syndrome with an angiographically reported incidence of about 0.07-1.1 % [1]. Variety of etiologic factors has been related to this potentially lethal disease such as pregnancy, connective tissue disorders, iatrogenic following coronary artery intervention & trauma. Due to its rarity; still there is lack of consensus on how & when to intervene. Our case is a young female who delivered electively vis c/s 10 days prior to her presentation & diagnosis.

Case presentation

A 33 year old patient Gravida 5 para 4 who was 10 days post elective cesarean section under spinal anesthesia, admitted complaining of severe sudden chest pain associated with shortness of breath, ECG confirmed acute massive anterior ST elevation MI & echo showed impaired LV function with 38% EF. Initial troponins were more than 5000 ng/L. She was referred for primary PCI which showed pontaneous Left main coronary artery dissection extending to left anterior descending artery (LAD) with a thrombus in the proximal left circumflex artery (Figures 1 & 2). ECG showed settlement of ST segment & chest pain started to improve; However, she had worsening dyspnea & examination revealed evolving pulmonary edema. In view of her presentation & coronary angiography; decision was to proceed for a rescue CABG.

Intra operative TEE showed EF 25 %. She underwent conventional on-pump CABG with anastomosis of left internal mammary artery to LAD & two vein grafts were anastomosed to diagonal & obtuse marginal branches. Intraoperatively, coronaries looked smooth with no signs of vasculitis or atherosclerosis. Patient was extubated 5 hours postoperatively and her post-operative course was uneventful. Reviewing her past history which was only remarkable for gestational DM with all her previous deliveries without complications. Previous hospital records showed an EF of 55-60 % for an echo which was done 2 months prior to her presentation. No family history of connective tissue disorders or cardiac related deaths or diseases.

Discussion

Pregnancy related (P-) spontaneous coronary artery dissection (SCAD) is a drastic complication of pregnancy. It can occur any time from conception till 6 weeks post-delivery. Although acute MI is considered rare amongst young females, pregnancy increases the risk 3-4 folds as per a US population-based study which showed that incidence of pregnancy related MI is about 6.2 per 100,000 deliveries [2].

In other review of 125 reported cases of pregnancy related acute myocardial infarction, Coronary artery dissection was found in 16%, thrombus without atherosclerotic disease in 21% [3]. In

a review of 222 cases, 70 % of the reported incidence of coronary artery dissection were found to occur in women with 30 percent in the peripartum period [4]. Hormonal surge & physiologic changes

related to pregnancy are contributing factors. Management method & timing depend mainly on presentation & anatomy.



Figure 1: A thrombus in the left circumflex artery (black arrow).



Figure 2: A: left coronary arteriography, showing left main coronary artery dissection extending to left anterior descending artery (white arrow).

Conservative treatment is reserved for stable SCAD patients. However, Revascularization is mandatory in ongoing ischemia, hemodynamic instability & involvement of left main (LM) artery similar to our patient. LM involvement has frequently been associated with P-SCAD [5]. PCI as a first line of revascularization is challenging & mostly associated with failure to wire the true lumen or propagation of dissection with contrast injection. CABG is reserved for patients in whom PCI fails or not feasible & it's the strategy of choice in patient with LM coronary dissection. Similar to PCI there are certain technical difficulties with CABG & graft patency has been questionable due to competitive flow that happens when dissection heals.

In a 12 reported series of patients who underwent CABG, 11 out of 15 grafts were occluded at long-term follow up [6]. However, CABG should remain the treatment of choice to establish coronary flow & to salvage ischemic myocardium when PCI is unfeasible or unsuccessful. Nonetheless, few reports have mentioned that CABG can't prevent further SCAD recurrence [7]. When it comes to prognosis in terms of future pregnancy; data is lacking whether future pregnancies should be avoided or not, although limited evidence supports that risk is less with subsequent pregnancies without much information about the favorable mode of delivery after such diagnosis [8].

P-SCAD thought to be rare but it's getting more frequently reported than what was previously assumed, unfortunately neither risks nor outcome is clearly understood or can be clearly predicted which encourages a more focused multidisciplinary input to tailor the management towards survival [9]. In a recent review by the US Nationwide Readmissions Database from 2010 to 2015 about 1,873 patients with acute MI related to SCAD were identified. The majority needed revascularization including those related to pregnancy. In this retrospective analysis they have found no significant differences in the outcome for those who underwent revascularization from those approached conservatively [10]. In terms of the best mode of revascularization once it indicated; individual case reports have showed favorable outcome with CABG especially when dissection extends more proximally. Although SCAD been associated with high mortality but with early diagnosis & early revascularization reports are showing a more favorable outcome. Referring back to our patient who had typical presentation of acute MI with drop in her LV function; P-SCAD has been related with more sentinel presentation, congestive heart failure & higher peak troponins.

Conclusion

SCAD related to pregnancy is a serious complication that might end up with hemodynamic instability or even death if not managed promptly. Acute coronary syndrome due to coronary dissection should be kept in mind as a more likely diagnosis in any female in the reproductive age. With careful patient stratification & timely intervention; prognosis is favorable.

References

1. Tweet MS, Hayes SN, Pitta SR, Simari RD, Lerman A, et al. (2012) Clinical Features, Management, and Prognosis of Spontaneous Coronary Artery Dissection. *Circulation* 126(5): 579–588.
2. James AH (2006) Acute Myocardial Infarction in Pregnancy: A United States Population-Based Study. *Circulation* 113(12): 1564–1571.
3. Farb A, Tang AL, Burke AP, Sessums L, et al. (1995) Sudden coronary death: frequency of active coronary lesions, inactive coronary lesions, and myocardial infarction. *Circulation* 92(7): 1701–1709.
4. Thompson EA, Ferraris S, Gress T, Victor Ferraris (2005) Gender differences and predictors of mortality in spontaneous coronary artery dissection: a review of reported cases. *J Invasive Cardiol* 17(1): 59–61.
5. Havakuk Ofer, Goland Sorel, Mehra Anil, Elkayam Uri (2017) Pregnancy and the Risk of Spontaneous Coronary Artery Dissection. *Circulation: Cardiovascular Interventions* 10(3).
6. Binhomaid MA, Alhusain F, Al Deeb M (2021) Spontaneous Coronary Artery Dissection with Sudden Cardiac Arrest in a Female Patient During Her Postpartum Period: A Case Report and Review. *Am J Case Rep* 18: 22
7. Davis E, Wood MJ (2020) Pregnancy After Spontaneous Coronary Artery Dissection (SCAD): a 2020 Update. *Curr Treat Options Cardio Med* 22.
8. Igbokwe N, Gomersall J, Ugwoke SP, Sean Esmonde (2021) Pregnancy-associated spontaneous coronary artery dissection: multidisciplinary management, challenges, and literature review. *BMJ Case Reports* 14(12): e244851.
9. Isogai T, Saad AM, Ahuja KR, Gad MM, Shekhar S, et al. (2022) Factors Associated With Revascularization in Women with Spontaneous Coronary Artery Dissection and Acute Myocardial Infarction. *Am J Cardiol* 166: 1-8.
10. Moghadam R, Rahman T, Reiss CK (2021) Complicated Spontaneous Coronary Artery Dissection (SCAD) Culminating in Aneurysm Formation: Coronary Artery Bypass Graft Surgery Is Preferable Over Percutaneous Coronary Intervention in Peripartum SCAD. *Cureus* 13(3): e14145.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/JAICM.2022.12.555827](https://doi.org/10.19080/JAICM.2022.12.555827)

Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>