Severely ectatic left circumflex coronary artery presenting with an ST-elevation myocardial infarction: A case report

Saifuldeen Al-Qaisi, Shirin Nafisi, Sina Nafisi

ABSTRACT

Introduction: Coronary artery ectasia (CAE) is a very rare condition with unclear etiology, clinical significance, and proper management strategies.

Case Report: A 54-year-old male who had an ST-elevation myocardial infarction (STEMI) as an initial presentation of a significantly ectatic left circumflex coronary artery (LCX) with a diameter of 8mm. The patient presented to the hospital with chest pain. Upon further evaluations, he was deemed to be having an STEMI noted in the lateral EKG leads in addition to elevated troponin I level. The patient underwent left heart catheterization which revealed an ectatic LCX with a diameter close to 8 mm, with an acute thrombus and occlusion of the distal LCX and severe atherosclerosis. Percutaneous coronary intervention was done to re-establish flow to the obtuse marginal artery (OM). Subsequently, patient underwent coronary artery bypass grafting two days later. He was discharged home three days after surgery in stable condition on aspirin and clopidogrel.

Conclusion: This case is unique as it describes a significantly aneurysmal LCX which is very wide in diameter complicated with an intraluminal thrombus without a prior warning in this patient, all managed successfully. Literature provides limited information regarding optimal management of similar conditions.
Severely ectatic left circumflex coronary artery presenting with an ST-elevation myocardial infarction: A case report

Saifuldeen Al-Qaisi, Shirin Nafisi, Sina Nafisi

ABSTRACT

Introduction: Coronary artery ectasia (CAE) is a very rare condition with unclear etiology, clinical significance, and proper management strategies. Case Report: A 54-year-old male who had an ST-elevation myocardial infarction (STEMI) as an initial presentation of a significantly ectatic left circumflex coronary artery (LCX) with a diameter of 8mm. The patient presented to the hospital with chest pain. Upon further evaluations, he was deemed to be having an STEMI noted in the lateral EKG leads in addition to elevated troponin I level. The patient underwent left heart catheterization which revealed an ectatic LCX with a diameter close to 8 mm, with an acute thrombus and occlusion of the distal LCX and severe atherosclerosis. Percutaneous coronary intervention was done to re-establish flow to the obtuse marginal artery (OM). Subsequently, patient underwent coronary artery bypass grafting two days later. He was discharged home three days after surgery in stable condition on aspirin and clopidogrel. Conclusion: This case is unique as it describes a significantly aneurysmal LCX which is very wide in diameter complicated with an intraluminal thrombus without a prior warning in this patient, all managed successfully. Literature provides limited information regarding optimal management of similar conditions.

Keywords: Coronary artery, Left circumflex artery, STEMI, Coronary artery ectasia

INTRODUCTION

Coronary artery ectasia (CAE), defined as local or generalized aneurysmal dilatation of the coronary arteries to 1.5 times or more of the normal diameter of a coronary vessel, is a rare disease occurring in 0.3–4.9% of people in North America [1]. The condition is commonly asymptomatic and is normally discovered when performing tests for other conditions such as coronary artery disease, stable angina and other acute coronary syndromes [2, 3]. It can also go unnoticed and not diagnosed for many years. When identified, CAE is most commonly seen in males, the elderly and people with high BMIs [1]. Amongst symptomatic patients, chest pain and dyspnea on exertion are the most common complaints leading to hospital admission. Coronary artery ectasia...
etiology, clinical significance and optimal management are yet unclear. In this case, we report a 54-year-old male with a significantly ectatic left circumflex coronary artery with a diameter of approximately 8 mm, who presented with chest pain and was diagnosed with ST-elevation myocardial infarction (STEMI) as a first presentation of this disease entity.

CASE REPORT

We report a 54-year-old male with no significant past medical history, who presented to our hospital with one-hour history of sub-ternal chest pain. Symptoms started 1 hour earlier suddenly while the patient was at home. His chest pain was reported to be pressure like in quality, 10/10 in severity, located in the substernal area with radiation to the neck, and associated with shortness of breath and acute distress. He denied nausea or vomiting.

On presentation to the hospital, the patient was afebrile with a temperature of 36.7°C, had a blood pressure of 125/88 mmHg, heart rate of 85 bpm, respiratory rate of 16 per minute, and oxygen saturation was 97% on three liters of oxygen by nasal cannula.

On physical examination, the patient was in acute distress. Cardiovascular and pulmonary examinations were unremarkable with normal heart sounds. His chest was clear to auscultation bilaterally. Chest X-ray was negative for acute findings.

The past medical history of the patient was negative for any known chronic diseases. He denied any previous heart disease or surgeries. He was not on any long-term medications. He also denied smoking, alcohol, and illicit drug use.

An EKG was done in the emergency room and showed ST-segment elevation in lateral leads (I, aVL, V5-V6) consistent with STEMI. Troponin I level was 19.08 ng/mL. Subsequently, the patient was diagnosed with STEMI and was emergently transferred to the catheterization lab and a left heart catheterization with bilateral selective coronary angiography was performed, which showed extensive aneurysmal disease with ectasia of the proximal LCX with a diameter of ~8 mm with evidence of an acute intraluminal thrombus with a 100% occlusion of the distal circumflex artery, and a high plaque burden in mid-portion. Manual clot removal and angioplasty using a 2.5x12 mm balloon was done, re-establishing flow within the obtuse marginal artery (OM). However, plaque burden could not be removed. He was transferred to the intensive care unit and was started on eptifibatide and heparin drips in anticipation of a coronary artery bypass grafting surgery (CABG), and thoracic surgery service was consulted for further management. Meanwhile, the patient had an episode of sustained ventricular tachycardia (VT) and was given a bolus of 150 mg of amiodarone intravenously and was started on amiodarone infusion for 24 hours which successfully terminated the VT. He was then switched to 400 mg of amiodarone orally twice daily after finishing the infusion. Two days after initial presentation, he was taken to the operation room undergoing CABG using reversed saphenous venous graft to the OM. He had a patent foramen ovale (PFO) closure as well.

The patient survived both procedures and did well. He was transferred later back to the medical floor and his vital signs remained stable and he remained symptom free. He was discharged home three days later on aspirin, and clopidogrel and in a stable condition.

DISCUSSION

Coronary artery ectasia is a variant of coronary artery abnormality. It may be congenital or acquired [3]. It is characterized by an increased vessel wall stress and thinning of the arterial wall which causes progressive dilation and remodeling of the vessel. In a study of 10,057 patients, the prevalence of CAE was 1.5% [4]. Compared to the normal individuals, the patients with CAE are older, more frequently male (4 times more common in males than in females), and have higher rates of myocardial infarction (MI) [1, 5, 6]. Coronary artery ectasia is commonly found in patients with atherosclerosis and coronary artery disease, but the condition can occur by itself without an identifiable cause and in both cases it can cause medical and health problems.

The incidence of this condition is increased with Marfan and Kawasaki diseases as well as with multiple inflammatory and infectious diseases [7]. It can also be found transiently in patients that have undergone stent placement resulting in the stretching of the vessels [2]. The permanent dilation of the artery is thought to be mainly caused by inflammation, triggered by...
Coronary artery ectasia can be divided into four different types: Type 1) diffuse ectasia in 2–3 different vessels, Type 2) diffuse disease in 1 vessel and local disease in another, Type 3) diffuse disease in one vessel and Type 4) localized or segmental ectasia [1]. In one study of thirty-three patients with coronary artery ectasia/aneurysm (ranging from one to three vessels) but without significant stenosis, coronary artery ectasia/aneurysm was considered to lead to exercise induced ischemia, especially in the diffuse form of CAE [12]. In another study, 4993 consecutive coronary arteriograms were reviewed to identify patients with CAE and to allow the assessment of their progress over six years. Coronary ectasia was a relatively uncommon finding (overall incidence 1.4%) [5]. It was not related to the development of aortic aneurysms and did not affect the clinical outcome, results of coronary artery surgery, or symptoms [5].

The treatment of coronary artery ectasia normally goes hand in hand with therapies of other heart disorders such as atherosclerosis and hypertension. To prevent the formation of blood clots and the blockage of the vessels, patients are commonly placed on anticoagulant and antiplatelet therapy, as well as anti-spasm therapy with calcium channel blockers such as amlodipine [1]. Stains and ACE inhibitors have also been used [13]. Yet, there are no set guidelines to date regarding the treatment strategy of this condition and when to consider surgical intervention as opposed to medical management.

**CONCLUSION**

This case is considered unique as it describes a significantly aneurysmal left circumflex coronary artery that rarely reported to be that dilated, complicated with an intraluminal thrombus with a 100% distal occlusion causing an ST-elevation myocardial infarction (STEMI) in a middle aged male patient, all managed very successfully with initial percutaneous coronary intervention (PCI) and then surgery with good final outcome. Literature provides limited information regarding optimal management or screening of similar conditions. Better understanding of the pathogenesis involved in Coronary artery ectasia is needed to provide further insight into the clinical significance and direct implications in the management/follow-up strategy of this condition.

**Author Contributions**

Saifuldeen Al-Qaisi – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Shirin Nafisi – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Sina Nafisi – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

********

International Journal of Case Reports and Images, Vol. 7 No. 10, October 2016. ISSN – [0976-3198]
Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

Copyright
© 2016 Saifuldeen Al-Qaisi et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES
1. Lin CT, Chen CW, Lin TW, Lin CL. Coronary artery ectasia. Tzu Chi Med 2008;20(14):270–4.
2. Antoniadis AP, Chatzizisis YS, Giannoglou GD. Pathogenetic mechanisms of coronary ectasia. Int J Cardiol 2008 Nov 28;130(3):335–43.
3. Hsu PC, Su HM, Lee HC, et al. Coronary collateral circulation in patients of coronary ectasia with significant coronary artery disease. PLoS One 2014 Jan 27;9(1):e87001.
4. Amirzadegan AR, Davoodi G, Soleimani A, et al. Association between Traditional Risk Factors and Coronary Artery Ectasia: A Study on 10057 Angiographic Procedures among Iranian Population. J Tehran Heart Cent 2014 Jan 12;9(1):27–32.
5. Hartnell GG, Parnell BM, Pridie RB. Coronary artery ectasia. Its prevalence and clinical significance in 4993 patients. Br Heart J 1985 Oct;54(4):392–5.
6. Li JJ, Nie SP, Qian XW, Zeng HX, Zhang CY. Chronic inflammatory status in patients with coronary artery ectasia. Cytokine 2009 Apr;46(1):61–4.
7. Sayin T, Döven O, Berkalp B, Akyürek O, Güleç S, Oral D. Exercise-induced myocardial ischemia in patients with coronary artery ectasia without obstructive coronary artery disease. Int J Cardiol 2001 Apr;78(2):143–9.
8. Zografos TA, Korovesis S, Giazitzoglou E, et al. Clinical and angiographic characteristics of patients with coronary artery ectasia. Int J Cardiol 2013 Aug 20;167(4):1536–41.
9. Varol E, Uysal BA, Dogan A, Ozaydin M, Erdogan D. Mean platelet volume has a prognostic value in patients with coronary artery ectasia. Clin Appl Thromb Hemost 2012 Jul;18(4):387–92.
10. Sezen Y, Bas M, Polat M, et al. The relationship between oxidative stress and coronary artery ectasia. Cardiol J 2010;17(5):488–94.
11. Aydin M, Tekin IO, Dogan SM, et al. The levels of tumor necrosis factor-alpha and interleukin-6 in patients with isolated coronary artery ectasia. Mediators Inflammm 2009;2009:106145.
12. Sayin T, Döven O, Berkalp B, Akyürek O, Güleç S, Oral D. Exercise-induced myocardial ischemia in patients with coronary artery ectasia without obstructive coronary artery disease. Int J Cardiol 2001 Apr;78(2):143–9.
13. Coronary artery ectasia. 2016. [Available at: https://en.wikipedia.org/wiki/Coronary_artery_ectasia]
Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.*

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.*

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

We welcome you to interact with us, share with us, join us and of course publish with us.

* Terms and condition apply. Please see Edorium Journals website for more information.

This page is not a part of the published article. This page is an introduction to Edorium Journals and the publication services.