

CASE STUDY

Right Coronary artery Myocardial Bridging

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SUMMARY

We present 2 cases of right coronary artery (RCA) bridging on coronary CT angiography using MDCT. This is the first study in Pakistan. We assess the incidence, location morphology, and clinical association in the Pakistani population. It is hard to diagnose myocardial bridging of RCA bridging because it's a rare condition.

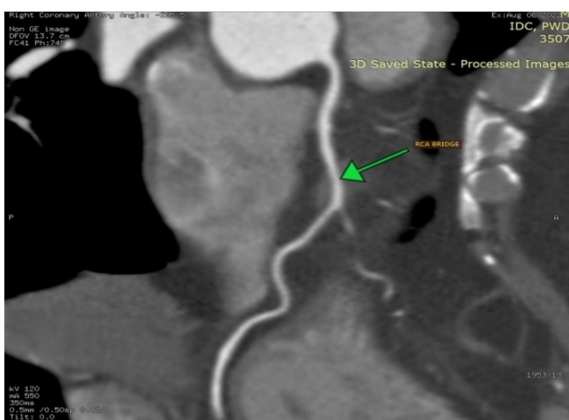
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INTRODUCTION

Myocardial bridge (MB) is a non-atherosclerotic anatomical anomaly of coronary arteries, giving upward thrust to ischemic events¹. The chief coronary arteries run along the grooves and the heart epicardial surface¹. Within such normal distribution, in some topics a coronary vessel deepens into the myocardial wall for a variable period and runs wound through muscle bundles. This is known as the myocardial bridge². The coronary arteries may also run into the myocardium for variable distance and then become apparent on the coronary heart surface. When a muscle opposes the intramyocardial phase of the epicardial coronary artery it is referred to as a myocardial bridge whereas coronary artery running within the myocardium is called a tunneled artery³. The myocardial bridges have been named with regard to clinical literature and the most commonly affected artery is the anterior interventricular branch of the left coronary artery⁴. Coronary MDCT angiography has been used in the assessment of coronary anomalies among patients and has been described as a wholly non-invasive diagnostic technique.

CASE PRESENTATION 1:

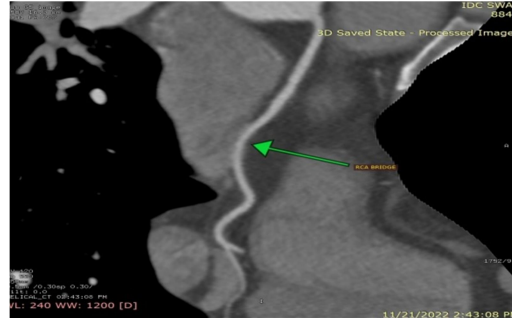
A 39-year-old, hypertensive for 10 years, non-diabetic, strong family history of IHD, complains of shortness of breath on exertion. He underwent coronary CT angiography after referral. The coronary CT angiography was performed using a 128-slice CT scanner, followed by a contrast-enhanced CT coronary angiogram at 0.625 mm thickness with retrospective gating. The heart was in sinus rhythm with 55 bpm. Low-dose non-contrast was enhanced. In the examination, the right coronary artery was co-dominant. Mid RCA shows a short superficial bridge. Rest of the RCA, acute marginal, and PDA were normal.



CASE PRESENTATION 2

A 56-year-old hypertensive, non-diabetic with a history of atypical on and off chest pain since the last 3 years. Pain worsens when

patient is alone or sitting after meal. Apprehension and palpitation were also on and off. He underwent coronary CT angiography to rule out coronary artery disease. Low-dose non-contrast calcium-scoring cardiac CT was performed using a 128-slice CT scanner, followed by contrast-enhanced CT coronary angiogram at 0.625 mm thickness with retrospective gating. The heart was in sinus rhythm with 55 bpm. In the examination, there was a dominant right coronary artery. There was a deep bridge in mid-RCA showing minimal narrowing. Other acute marginal, PDA, and PLV were also normal.



DISCUSSION

A myocardial bridge was first described in 1922 with the aid of Clinicians and appeared as a simple variant of coronary artery anatomy. A myocardial bridge is a common finding in cardiac examinations, with the occurrence depending on the study approach⁵. The prevalence of tunneled fundamental coronary arteries identified at autopsy (5.4-85.7%) is appreciably different from that determined on angiography (0.5-12%)⁶. The condition is especially restrained to the left anterior descending coronary artery. However, some instances of RCA bridging have currently been pronounced on CT coronary angiography^{7,8}.

There is disagreement among scholars on the scientific importance of MB. A counselled association between myocardial ischemia and myocardial bridges increases their clinical relevance⁹. Possible reasons for the differences of incidence on autopsy and angiography are tunneled vessel length, systolic compression level, and coronary heart rate¹⁰. The original concomitants for prolonged segments of tunneled vessels, systolic morbidity of the tunneled segment, and tachycardia can also contribute to myocardial ischemia. Myocardial bridge before the assessment of the improvement of atherosclerosis within the phase of the coronary artery proximal to the bridge the myocardial bridge ought to be categorized as an anatomic risk factor inside the context of coronary artery disease.

CONCLUSION

Myocardial bridging of RCA is a rare condition. However, bridging of both RCA and LAD is extremely rare. Medical doctors should be vigilant to diagnose and coronary CT angiography MDCT is a best tool for the detection of myocardial bridging.

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1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.
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