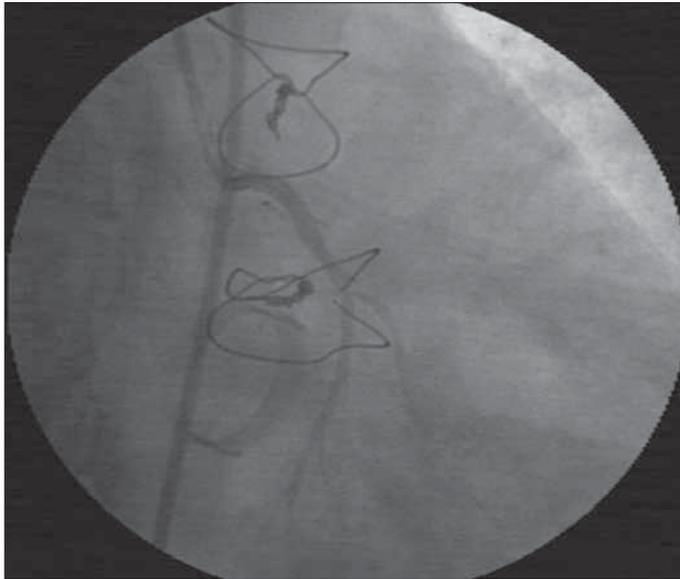


**Figure 3. Selective left coronary angiography view of total ostial occlusion of left main coronary artery**



**Figure 4. Angiography view of selective injection of left main coronary artery after implantation of 3.5x15 mm bare metal stent to the ostium of the left circumflex artery**

tried as treatment modalities (7-9). Previous reports demonstrated hemodynamically stable cases in which embolic masses were located in LAD and RCA. Distinct from previous reports LMC of our case was totally occluded and patient was admitted with cardiogenic shock. Because of hemodynamic instability, we did not perform catheter aspiration and intravascular ultrasound to exclude an atherosclerotic plaque, which cannot be detected with standard angiography. We thought that the mechanism of LMC occlusion in our case was due to non-atherosclerotic CE originated from prosthetic mitral valve because preoperative CA of patient revealed normal coronary arteries.

### Conclusion

In this report, we demonstrated the catastrophic results of LMC occlusion due to non-atherosclerotic CE in a patient with mitral valvular pros-

thesis. Although limited experiences showed that thrombus aspiration, coronary stenting and thrombolysis might be alternative treatment choices, our report demonstrated that inappropriate coronary anatomy, localization of thrombus and accompanying hemodynamic instability could make difficult to perform the appropriate treatment strategy in CE. So precise diagnosis of CE with normal coronary arteries is important to define the accurate prevalence and appropriate treatment options.

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**Çevrimiçi Yayın Tarihi/Available Online Date:** 10.11.2010

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doi:10.5152/akd.2010.170

## Unusual bridging on dual-source CT coronary angiography: right atrial myocardial bridging

*Çift-tüplü BT koroner anjiyografide nadir köprüleşme: Sağ atriyal miyokardiyal köprüleşme*

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## Introduction

Coronary artery normally courses epicardially, not infrequently, however, segments of these arteries encapsulated by myocardium. This variation and encapsulated artery is known as myocardial bridging and tunneled artery, respectively (1).

In autopsy and multidetector computed tomography (MDCT) series myocardial bridge segments were reported in ventricular muscle (2-6). Right atrial myocardial bridging with a tunneled artery embedded in the myocardium of the right atrium, is an extremely rare coronary anomaly, which has been reported only in a case previously (7).

Herein, we report dual-source computed tomography (DSCT) coronary angiography findings of two unusual cases with right atrial coronary artery bridges, which were referred to our hospital with suspicion of coronary artery disease.

## Case Reports

Patient #1 was a 37-year-old male, followed with hypercholesterolemia. His effort-electrocardiogram (ECG) test revealed suspicious positivity with ST depression on V5-V6 leads. His past family history was non-significant.

Patient #2 was a 42-year-old male followed with hypertriglyceridemia. His effort-ECG test was completely normal and his father had positive past medical history for coronary artery disease and hypertriglyceridemia.

Each patient was referred to our clinic to be evaluated with DSCT in order to rule out their coronary artery disease. Systemic physical examination findings were totally normal.

In each case, atrial myocardial bridge was seen between mid and distal segment of right coronary arteries on DSCT scanner (Fig. 1-2). Myocardial bridges in right coronary arteries were measured as 0.2 cm (patient #1) and 0.37 cm (patient #2) in depth and 1.8 cm (patient #1) and 2.4 cm (patient #2) in length. No atherosclerotic plaque was detected in coronary arteries. Since right coronary artery was susceptible to motion artifacts, it could be optimally visualized only in 40% and 70% of reconstruction interval images. Therefore, a possible compression of myocardium in tunneled segment could not be evaluated.

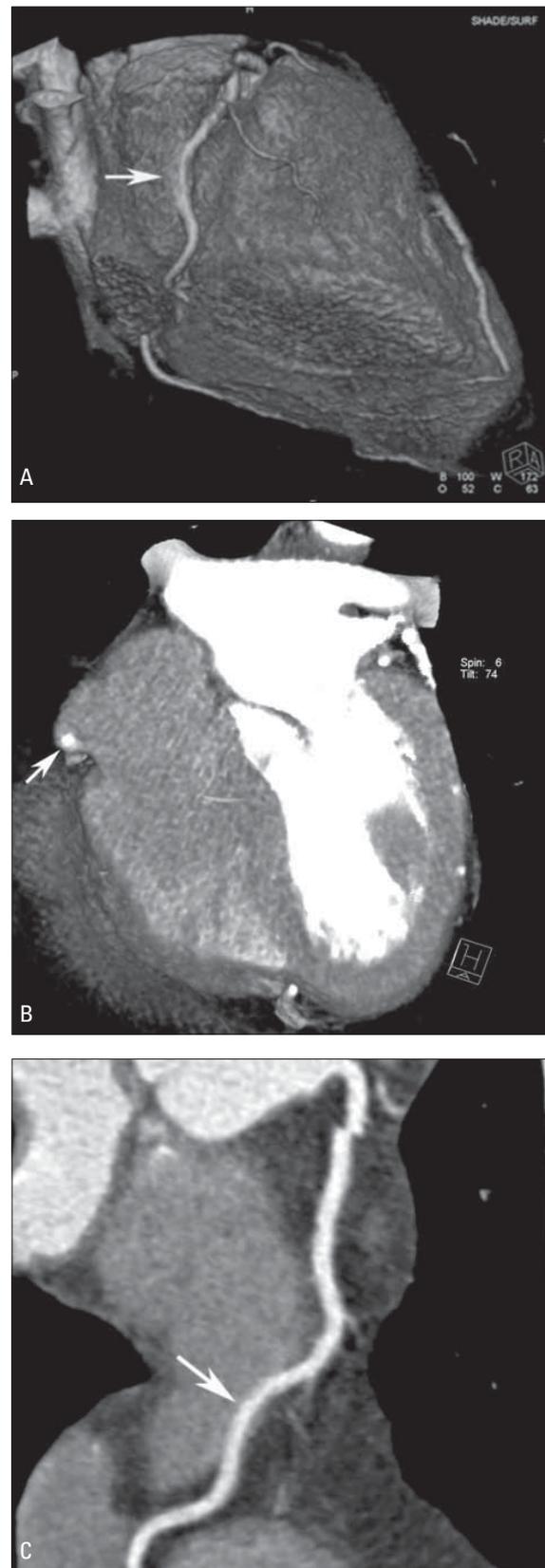
## Discussion

The clinical significance of myocardial bridging is controversial. Though in most cases with myocardial bridging there were no symptoms, it is clinically important owing to its association with myocardial ischemia and related complications (8, 9).

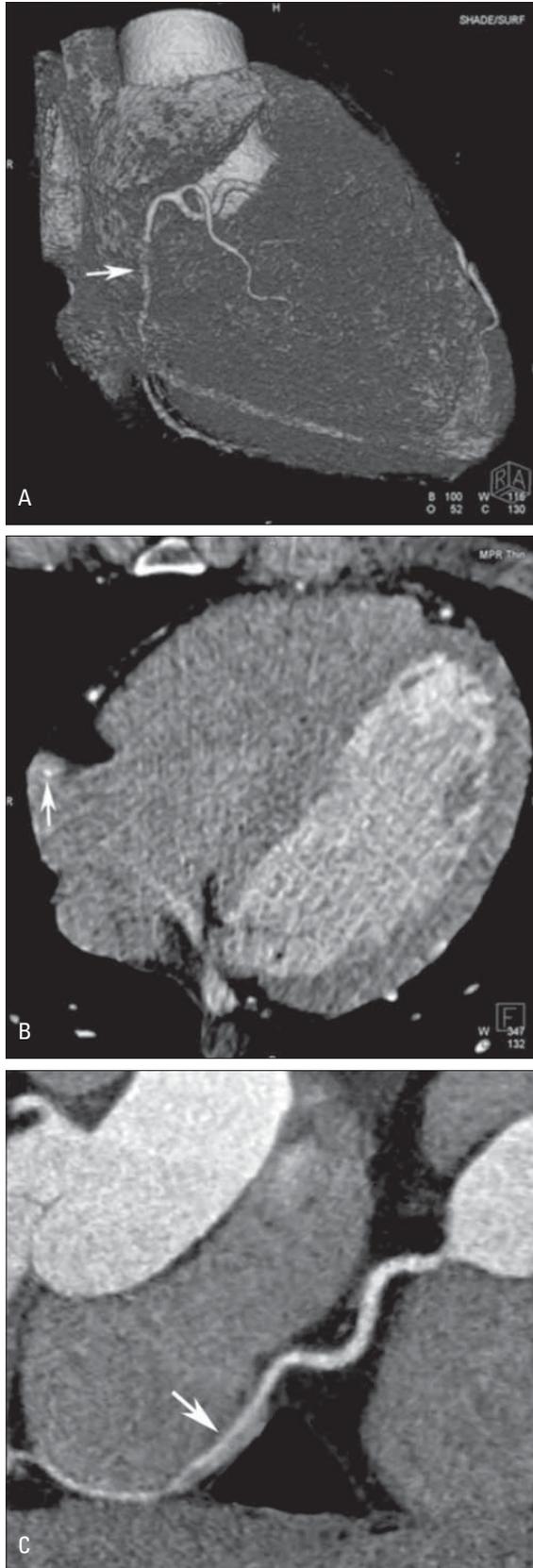
Myocardial bridging is seen with a prevalence of 0.5-2.5% on catheter angiography, which is current gold standard technique, while its rate in autopsy series varies between 15% and 85% (1, 8, 9).

MDCT, which is an alternative, fast, non-invasive technique, has been introduced for diagnosis of myocardial bridging (5-7). The prevalence of MB reported in MDCT coronary angiographic series varies between 3.5% and 38.5%, being in concordance with most pathological series but is higher than that of angiographic studies (5, 6).

Myocardial bridges are mostly seen on mid segment of left anterior descending artery, which routes within interventricular groove (9). Other main arteries and their branches are less commonly involved (3, 4, 9). All of these bridges, reported in the literature, are encapsulated by ventricular myocardium. Additionally, atrial myocardial loop has been



**Figure 1.** Volume rendered (A, B) and curved multiplanar reformation (C) images show atrial myocardial bridge (arrow) at mid-distal segments of right coronary artery after origin of acute marginal branch



**Figure 2.** Volume rendered (A), axial thin (B) and curved multiplanar reformation (C) images show atrial myocardial bridge (arrow) at mid-distal segments of right coronary artery after origin of acute marginal branch

reported in which myocardial muscle bundle derived from atrial myocardium surrounds the vessel for three quarters of the circumference and returns to atrial myocardium. Occasionally, a bridge may involve a coronary vein. However, myocardial loops and venous bridges appear to have no clinical relevance (8, 9).

Only one case of atrial myocardial bridging has been reported before (7). In this brief report, right atrial myocardial bridges were demonstrated at mid-distal segments of arteries after origin of acute marginal branch; additionally atrial myocardial muscle bundle covered the whole vessel. Since it is an extremely rare anomaly, clinical significance of this variation whether this variation compresses the tunneled segment or not are not known. Right coronary arteries were best visualized in 40% and 70% of reconstruction intervals, but they could not be evaluated in other intervals. This prevented us from evaluating vessel compression via myocardial bridge. Catheter angiogram was not performed in our cases since there was no evidence of coronary artery disease on DSCT examinations. Therefore, compression effect of atrial myocardial bridge in tunneled vessel segment could not be evaluated further in our cases.

### Conclusion

Multidetector computed tomography coronary angiography is an effective modality for diagnosis of myocardial bridge. One of its superiorities over catheter angiography is its ability to differentiate whether ventricular or atrial myocardium compresses the tunneled vessel.

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**Çevrimiçi Yayın Tarihi/Available Online Date:** 10.11.2010

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doi:10.5152/akd.2010.171