**PHASIC COMPRESSION OF LEFT CIRCUMFLEX CORONARY ARTERY DURING ATRIAL SYSTOLE**

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*Introduction*: Phasic coronary artery compression is a rare phenomenon. The incidence is not known as very few cases have been reported. Aside from spasm or myocardial bridging, this condition is often related to acquired changes to the anatomy of the surrounding heart chambers exerting physical pressure in conjunction with contractility. Recognizing and understanding this phenomenon is important, as treatment approach will vary widely based on etiology.

*Case*: 55-year-old male with multiple cardiac risk factors presented with new onset exertional dyspnea. Chest radiograph revealed bilateral pulmonary congestion, and cardiac biomarkers were normal. Electrocardiogram and echocardiography showed left atrium dilation, left ventricular ejection fraction 15-20%, with elevated filling pressures. Angiography showed non-obstructive disease. Interestingly, phasic, inside-out compression of the proximal left circumflex was noted during late ventricular diastole (Fig. 3, Video 1). Compression occurred in phase with atrial contraction. Patent flow without any compression was noted during atrial diastole. Following guideline directed medical therapy and cardiac rehabilitation, the patient’s status improved. Repeat echocardiogram one year later demonstrated left ventricular ejection fraction 40-45% with decreased atrial dilation.

*Discussion*: The authors describe phasic, inside-out compression of the proximal portion of left circumflex artery associated with a dilated left atrium, occurring during atrial contraction. Phasic compression of the proximal segment correlated with ballooning of the lateral and posterior regions of the atrial wall towards the atrioventricular groove in atrial systole. The circumflex artery can be seen collapsing from the interior circumference of the vessel wall. The vessel location nearest the left atrium in the atrioventricular groove most likely resulted in compression during the ballooning of a dilating wall segment. Coronary artery compression from a variety of mechanisms can ultimately lead to development of ischemia, infarction, and heart failure. Careful analysis of angiography is necessary for identifying and treating the underlying mechanism of coronary artery compression.

