Muscle Bridge; Be careful while reporting “Myocardial Bridge”

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Citation

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Abstract

A 62 – year – old lady presented to emergency department with chief complaint of repeated compressive chest pain at physical activity. In electrocardiography had only Minor ST- T change& Angiography showed narrowing at mid part of left anterior descending artery which was mainly at systole with normal caliber in diastole and good distal flow but after normalization of blood pressure & pulse Rate, the left anterior descending artery lesion became disappear in systole & diastole. Thus in this patient, hypotensive episode due to fainting and vasovagal reaction, could provoke myocardial bridge.

CASE PRESENTATION

A 62 – year – old lady presented to emergency department with chief complaint of repeated compressive chest pain at physical activity. The patient hadn't history of Hypertension, Diabetes Mellitus, Hyperlipidemia or smoking. Her Blood pressure was 120 over 70 mmHg with pulse and pulse rate was 80 beats per minute, in cardiac auscultation had LT sided S4 without any murmur, in lung examination hadn't abnormal finding.

In electrocardiography had only Minor ST- T change & transthorasic echocardiography showed ejection fraction of 55% without Regional wall motion abnormality, the valvular structures were normal.

Due to continuing chest pain, coronary Angiography was planned for her. At the start of angiography, the patient developed Hypotension & bradycardia (BP 70mmHg over pulse and Heart Rate of 40 beats per minute), which was addressed properly with hydration and atropine injection. After stabilization coronary angiography was preceded and showed left main coronary artery had none significant plaque at distal part and a narrowing at mid part of left anterior descending artery which was mainly at systole with normal caliber in diastole and good distal flow (figures 1, 2).

Figure 1

Systole (fig.1) (show narrowing of LAD)

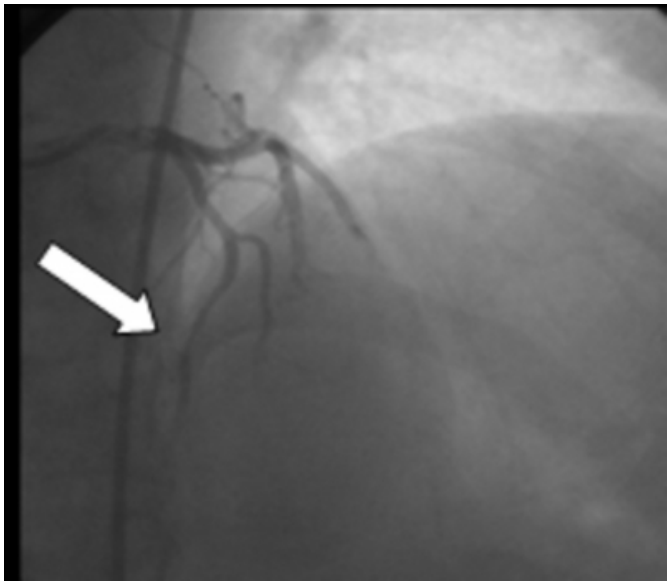
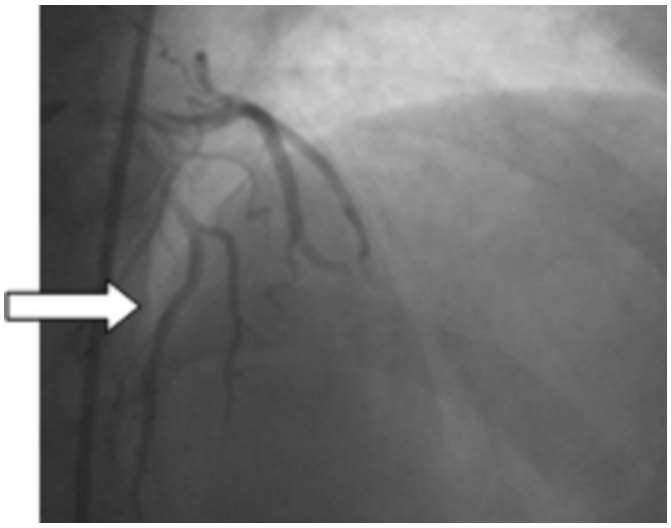


Figure 2

Diastole (fig2) (Show normal flow of LAD)



Although, this coronary Angiography had characteristic appearance for muscle Bridge, after normalization of blood pressure & pulse Rate, new projection revealed left anterior descending artery lesion became disappear in systole & diastole (fig3,4).

Figure 3

Figure 3: Systole (after stabilization)

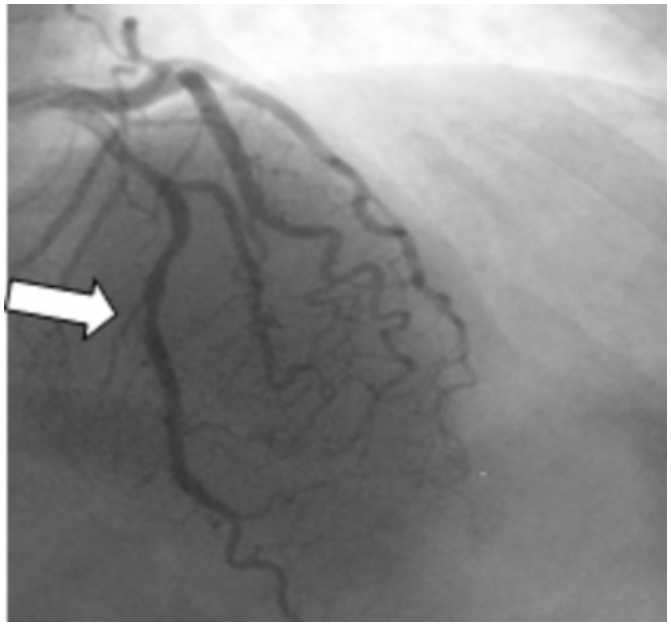
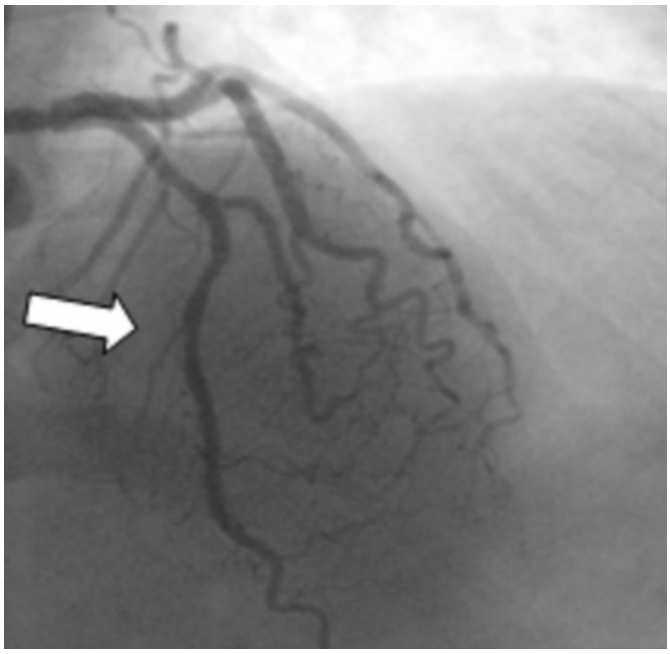


Figure 4

Figure 4: Diastole (after stabilization)



Thus in this patient, hypotensive episode due to fainting and vasovagal reaction, could provoke myocardial bridge.

DISCUSSION

Myocardial bridges are most commonly localized in the middle segment of the left anterior descending coronary artery (LAD)[1] .They are located at a depth of 1 to 10 mm[2,3] with a typical length of 10 to 30 mm [4] .

Coronary atherosclerosis in association with myocardial bridging has primarily been studied in the LAD. The segment proximal to the bridge frequently shows atherosclerotic plaque formation [4,5] .

Muscle bridge presented with Angina, myocardial ischemia, myocardial infarction, left ventricular dysfunction, myocardial stunning, paroxysmal AV blockade, as well as exercise-induced ventricular tachycardia and sudden cardiac death are accused sequelae of myocardial bridging. [6,7,8] . The current gold standard for diagnosing myocardial bridges is coronary angiography with the typical "milking effect" and a "step down–step up" phenomenon induced by systolic compression of the tunneled segment.

Decreasing intracoronary pressure by different means, such as intracoronary nitrates is the best way to induce this milking effect.This case shows that in those with baseline low blood pressure (such as those recovering the vasovagal reaction) may show a similar presentation too.

On the basis of the above mechanisms for ischemia, three treatment strategies have been explored:

Negative inotropic and/ or chronotropic agents ie;B blockers[9,10] and calcium channel blockers[11]. This generally is considered the first line therapy in symptomatic patients.

Surgical myotomy or bypass surgery[12,13]. In those refractory to medications.

Stenting of tunneled segment [14, 15].

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