



INFERIOR WALL INFRACTION WITH ANEURYSM IN RIGHT CORONARY ARTERY: A CASE REPORT

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ABSTRACT

Coronary artery aneurysms are rare lesion with an incident rate of 1.6%. They are frequently asymptomatic. In symptomatic cases, it is usually caused by myocardial ischemia. Here we present a case of 75yrs female, admitted with persistent chest pain. She was diagnosed on admission as CHD with acute inferior wall, right ventricular, posterior wall STEMI. Aneurysm proximal to occlusion in right coronary artery was found on angiography. Urgent reperfusion therapy was performed to restore the blood flow. Patient underwent urgent PCI and stent implantation. The patient was improved and discharged successfully.

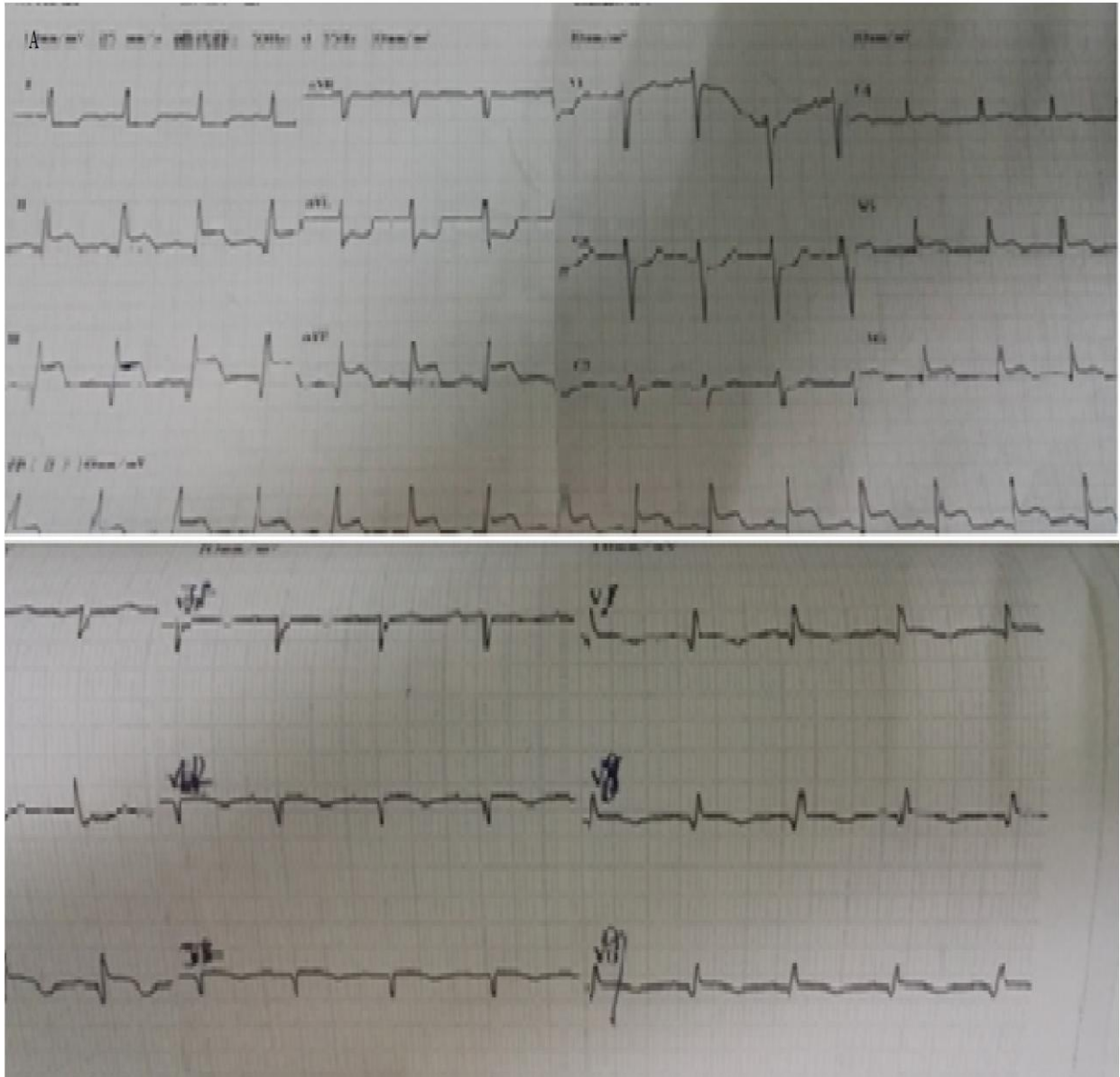
Keywords: inferior wall infraction; coronary artery aneurysm.

INTRODUCTION

Coronary artery aneurysm (CAA) is defined as a coronary dilation that exceeds the diameter of normal adjacent segments or 1.5 times the diameter of the patient's largest coronary vessel(1)^{Error! Reference source not found.}^{Error! Reference source not found.}. It's uncommon lesion, with an overall incidence of 1.6%. Incidence among individuals imaged with angiography is as high as 5% (2-4). Most commonly, these aneurysms involve the right coronary artery, followed by the left anterior descending coronary artery or left circumflex coronary artery(3). In the United States, atherosclerosis is the most common cause for coronary artery aneurysm disease; however, Kawasaki disease is the most common cause worldwide(2-4). Here we report a 75 years female presenting with chest pain whose coronary angiography revealed aneurysm in right coronary artery.

Case Presentation:

A case of 75yrs, female was admitted in cardiology department on 30th November 2015 with main complaint of intermittent chest pain since 7 days and with persistent chest pain for 5 hours at the time of admission. She denied any history of trauma, fever and cough. On physical examination, she had a pulse of 66bpm, blood pressure 135/80mmHg, Respiratory rate of 20/min and temperature of 36.1°C. On auscultation rales found bilaterally at the base of lungs. Patient had past history of essential hypertension and T2DM since 10 and 20 years respectively. Laboratory results on admission CK 1100U/L, CK-MB-121U/L, TnI-3300pg/ml, Scr-31umol/L, and normal electrolytes. EKG showed on admission II, III, AvF, V5-V9 ST elevation and I, AvL, V2, V3, ST Depression.

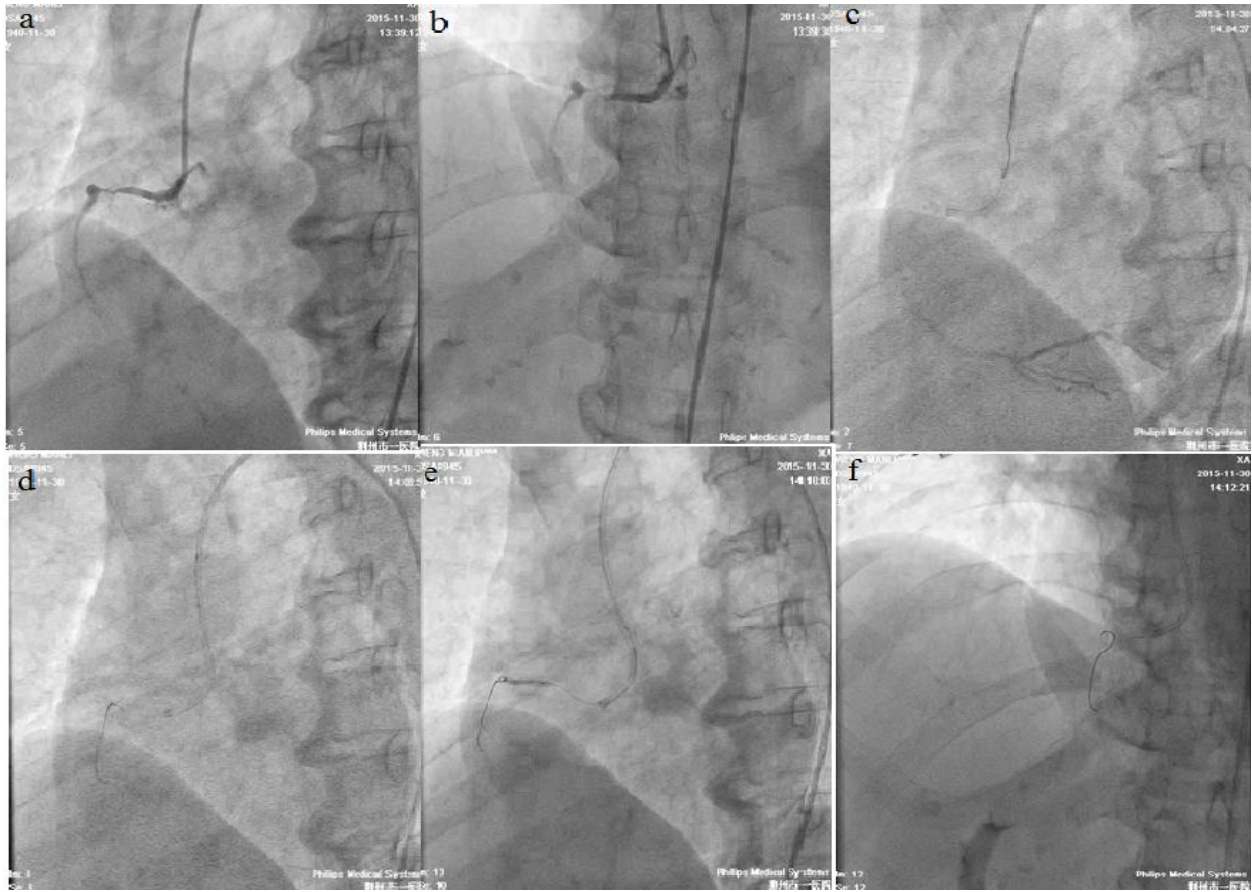


A: II, III, AvF, V5-V9 ST elevation and I, AvL, V2, V3 ST depression.

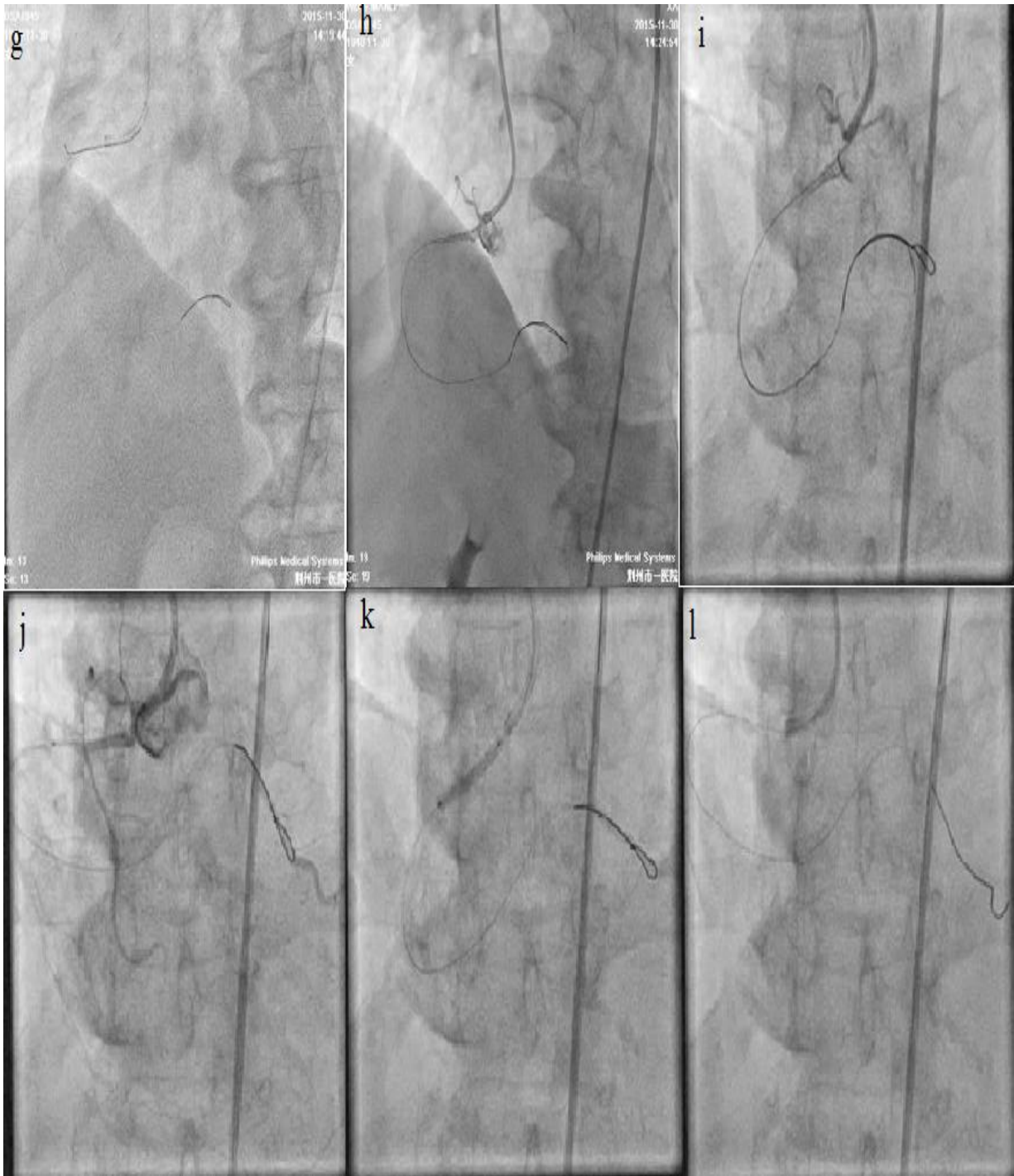
Patient was diagnosed as CHD with acute inferior wall, right ventricular, posterior wall STEMI. Patient's GRACE score was 186, which was at high risk with hospital mortality rate >3%. Pre-procedural medication such as Aspirin 300mg, Clopidogrel 600mg, Atorvastatin 20mg and tirofiban 10 ml was given Stat and decided for emergent reperfusion therapy. During angiography aneurysm was seen in right coronary artery proximal to occlusion (fig. a, b). Syntax score was 33 and TIMI blood flow nearly grade-III, so emergent PCI was preferable.

We delivered 6F3DRC to RCA and PILOT50GW was passed through the aneurysm (fig. c, d). MAVERICK 2.08×15@10atm balloon was inflated but guide wire recoils and had difficulties to deliver to the distal segment (fig. e, f). Fine micro-catheter of 1.8F was inserted to support PILOT50 for delivery and

exchanged with BMW 300cm (fig. g). PILOT 50 was redelivered successfully to the distal segment (fig. h, i). A stent BUMA 2.5×15mm@14atm was positioned precisely proximal to the aneurysm and deployed (fig. j, k). Blood profusion was restored in RCA supplying territory (fig. l). Chest pain was relived with no further sign and symptoms of heart failure.

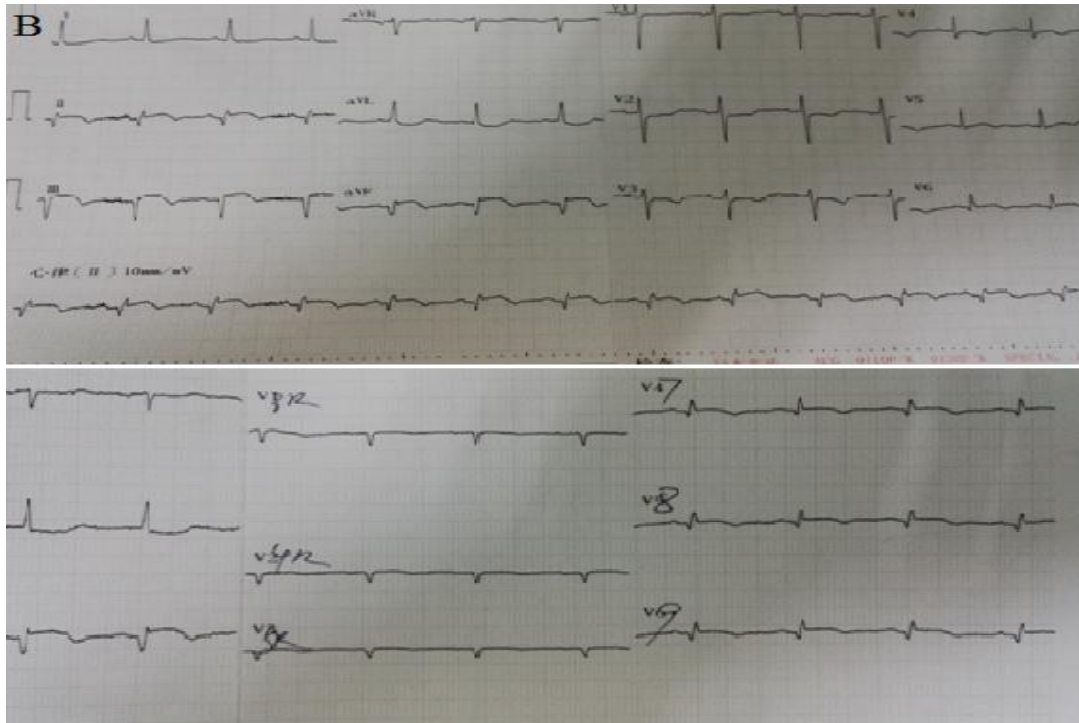


Figures: Right coronary artery proximal aneurysm with stenosis (a, b), 6F3DRCCG; Run-through GW; PILOT50GW (c, d), Maverick2.0×15mm balloon@10atm inflated (e) and wire winds in aneurysm (f).



Figures: fine cross micro-catheter of 1.8F was used to support PILOT 50 for delivery and exchanged with the BMW 300cm and then delivered PILOT 50 again (g), shows pilot 50 delivered to distal (h, i); Buma2.5×15mm@14atm positioned and deployed (j, k) Final outcome of stent placement (l).

Post Procedure EKG/Immediately



DISCUSSION

Coronary artery aneurysms are uncommon lesions. They occur in males more frequently than females. The most affected coronary artery is the RCA. They are frequently asymptomatic. In symptomatic cases, it is usually caused by myocardial ischemia. Causes of CAA include atherosclerotic disease, unusual vascular conditions (Kawasaki disease, Takayasu's aortitis), genetic syndromes (Loeys-Dietz syndrome), iatrogenic or traumatic causes (cardiac catheterization, surgery) and from infectious processes (5, 6).

Coronary artery ectasies appears when the atherosclerotic process affects both the intima, forming luminal stenosis or occlusions, and the media and adventitial parts of the vessel wall resulting in arterial remodeling and dilatation(7). Although it has been suggested that ectasies is commonly a variant of obstructive coronary artery disease, its pathogenesis remains poorly understood (8). Systemic hypertension; inflammatory stimuli such as tobacco, hyperhomocysteinemia, acceleration of the atherosclerotic process and or interference with the normal cross-linking of collagen and chronic Epstein-Barr virus infection; genetic factors including HLA-DR B1×13, DR16, DQ2, and DQ5, and MMP-3 and MMP-3 gene(MMP-3 5A allele) disruption, and insertion/deletion polymorphism of angiotensin-converting enzyme (ACE DD genotype); increased inflammatory response in the vessel wall; and activation of matrix metalloproteinase are possible factors in the vessel-wall weakening that induces CAE(4, 9-13).

Patients with coronary artery aneurysms commonly present with angina pectoris, dyspnea, edema, or sudden death, but it is difficult to say whether these are manifestations (signs and symptoms) of the coronary artery aneurysms or of the usually accompanying coronary atherosclerosis, coronary thrombosis,

coronary stenosis, coronary vasculities, acute myocardial infarctions, or old myocardial infarction(14). Coronary artery aneurysms may rupture to the pericardial cavity, and may lead to cardiac tamponade and death, but rare.

Coronary angiography can provide the most accurate diagnosis and accurate availability of coronary artery involvement. It explore well to its site and size of the aneurysm, the distal vascular bed situation or whether any coronary artery fistula. CTA is another choice of diagnostic of aneurysm.

Management strategies depend on the underlying disease process. A coronary angiogram was immediately performed to assess the possibility of mechanical reperfusion. Aneurysm was found proximal to stenosis. Stent was implanted and blood flow was restored. Graft stent with membrane might be another choice for the case. If the stenosis is severe and multiple vessels are involved, CABG is the choice. Conservative treatment with dual anti-platelet therapy, plus beta-blocker and statin for asymptomatic patients can be given.

CONCLUSION

CAAs are an uncommon and often accidental finding. CAAs are usually associated with atherosclerosis in adults. Angiography is the gold standard for diagnosis. The optimal therapy for patients with CAAs is unknown and depends on underlying disease process. In our case stent was implanted and blood flow was restored.

ABBREVIATION:

CABG: Coronary artery bypasses grafting

RCA: Right coronary artery

CAA: Coronary artery aneurysm

PCI: Percutaneous coronary intervention

CHD: Coronary heart disease

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