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A Case Report of Right Ventricular Infarction in A 48 Years old Patient

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ABSTRACT

Right Ventricular Infarction was first recognized in a subgroup of patients with inferior wall myocardial infarctions who demonstrated right ventricular failure and elevated right ventricular filling pressures despite relatively normal left ventricular filling pressures. The classical triad of right ventricular infarction includes distended neck veins, clear lung fields, and hypotension. We present a case report of a 48 years old male patient, a known hypertensive for 9 years, a heavy smoker for more than 10 years, also a known Gout patient, who was admitted at Wuhan union hospital department of cardiology, who presented with the chief complain of severe left sided chest pain interfering with his daily activities, which was associated with dizziness and diaphoresis, Blood pressure on admission was 80/50mmHg(hypotension) his heart rate was 99b/min, and clear lung fields on auscultation, clinical and imaging findings suggestive of Right ventricular infarction. Increasing recognition of Right ventricular infarction either in association with left ventricular infarction or as an isolated event, emphasizes the clinical significance of the right ventricle to total cardiac function, thus it is really important to have knowledge on how to diagnose RV infarction and reminding ourselves particularly through case reports because of the therapeutic implications of distinguishing patients with right ventricular dysfunction from those with the more usual clinical presentation of left ventricular dysfunction.

Keywords: RV infarction, hypotension, distended neck veins, clear lung fields, RVMI-Right ventricular myocardial infarction

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INTRODUCTION

Right Ventricular Infarction was first recognized in a subgroup of patients with inferior wall myocardial infarctions who demonstrated right ventricular failure and elevated right ventricular filling pressures despite relatively normal left ventricular filling pressures.[1] The classical triad of right ventricular infarction includes distended neck veins, clear lung fields, and hypotension.[1] Isolated RV infarction is rare: RV infarction is usually associated with inferior wall myocardial infarction. The incidence of right ventricular infarction in such cases ranges from 10%-50%.[2] The incidence of clinically evident right ventricular infarction is considerably less than that found at autopsy. One reason for the discrepancy is the difficulty in establishing the presence of right ventricular infarction in living subjects. Additionally, right ventricular dysfunction and stunning are frequently transient, such that estimation of the true incidence of right ventricular infarction is difficult.[1]The clinical sequelae of right ventricular myocardial infarction vary widely, and range from no hemodynamic compromise to severe hypotension and cardiogenic shock depending on the extent of RV[2] ischemia.[3] according to the literature, approximately 25%-50% of RV infarctions are hemodynamic ally significant.[4,5] It is important to consider a diagnosis of RVMI, particularly in the presence of an inferior wall MI. The typical triad observed on physical examination is hypotension occurring with jugular vein distention and clear lungs. Preserved left ventricular (LV) function confirms the diagnosis. A tricuspid regurgitation murmur, Kussmaul's sign (an increase in inspiratory central venous pressure, visible as jugular vein distention) and pulsus paradoxus are signs of significant hemodynamic effects due to RV ischemia. In some cases, these symptoms are not present at admission and do not occur until diuretics or nitrates are administered.[6]

CASE PRESENTATION:

We present a case report of a 48 years old male patient, a known hypertensive for 9 years, a heavy smoker for more than 10 years, also a known Gout patient admitted at Wuhan union hospital department of cardiology, who presented with the chief complain of sudden onset of severe left sided chest pain, which was associated with dizziness and diaphoresis, Blood pressure on admission was 80/50 mmHg hypotensive, his heart rate was 99, and clear lung fields on auscultation, The patient underwent the following investigations:

Initial ECG- revealed normal sinus rhythm, with ST segment elevation in leads II, III, aVF and V1, which prompted a suspicion of Right Ventricular infarction because of ST elevation in lead V1, an ECG with precordial leads on the right side was performed and revealed ST elevation on lead RV4 to RV6

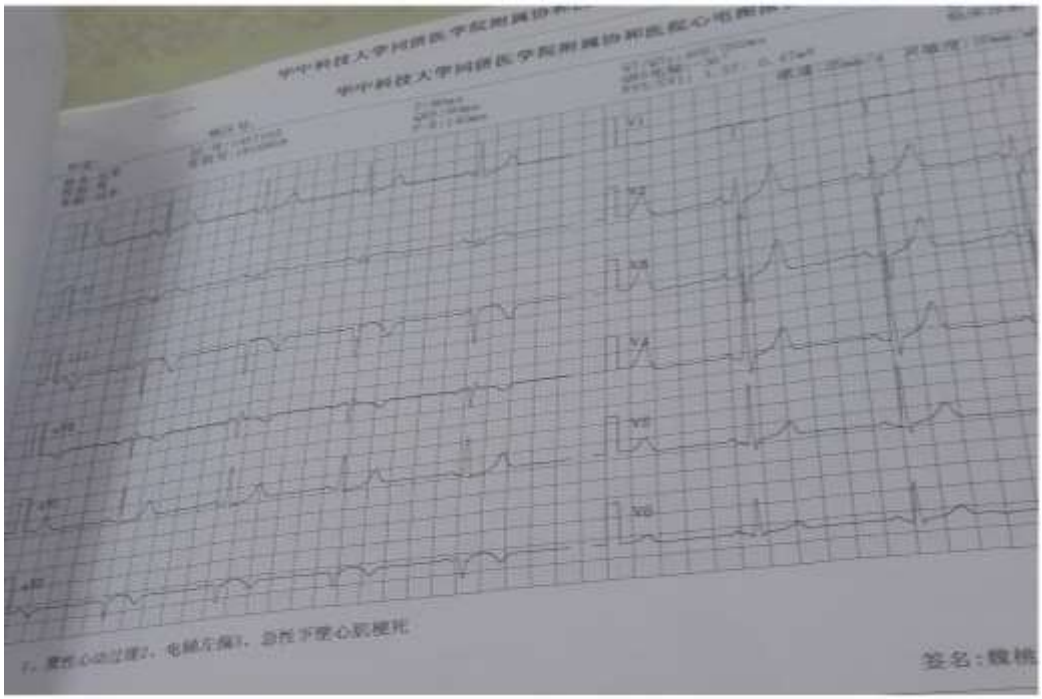

Figure 1: Initial ECG- revealing normal sinus rhythm, with ST segment changes in leads II, III, aVF and V_1

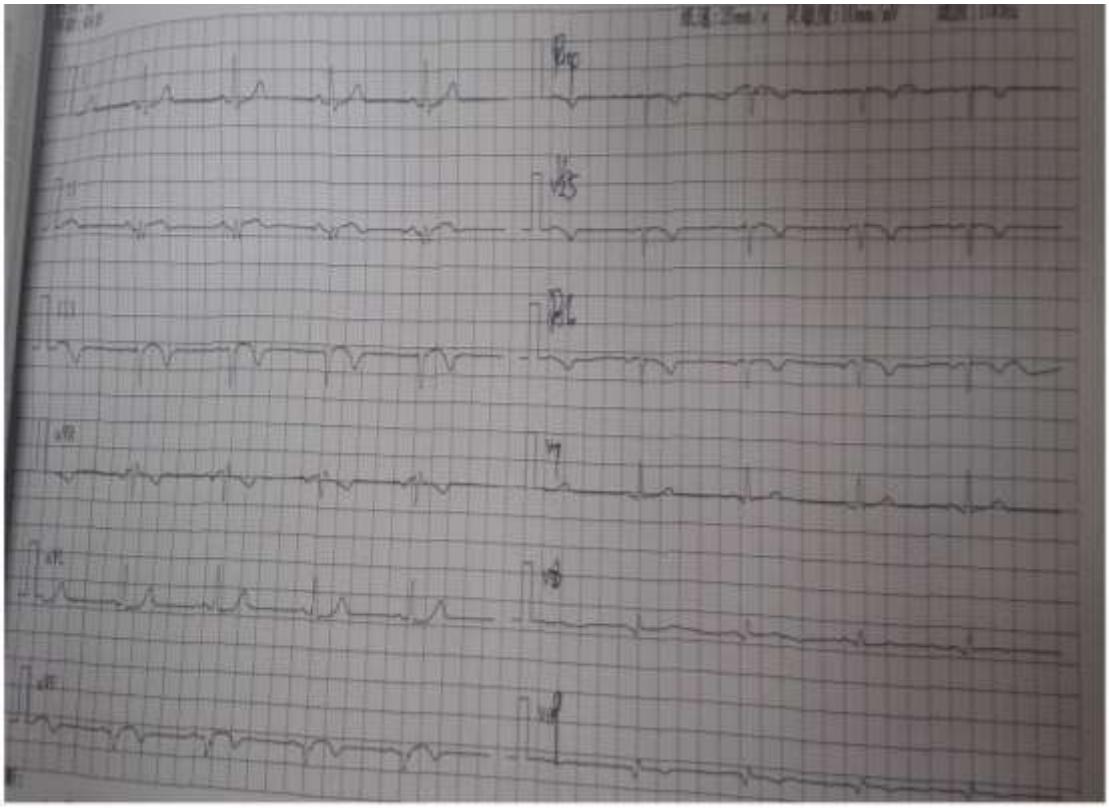

Figure 2: ECG with precordial leads on the right side showing ST changes on leads RV_4 to RV_6

Echocardiography was done and it showed inferior wall dyskinesia. CAG: revealed proximal RCA disease 99%, and LAD-70%

Other investigations: there was elevated high sensitive troponin I and CKMB, elevated CRP, the creatinine and urea were normal, also uric acid is normal. The liver function test was normal, the BNP was also normal

DISCUSSION:

From this patient who had 3 risk factors Hypertension, heavy smoking and an independent risk factor Gout which is currently being implicated in myocardial infarction even though the mechanism is not well understood, it is mostly linked to endothelial dysfunction due to hyperuricemia, furthermore GOUT is associated with systemic inflammation, studies have linked systemic inflammation to the risk of heart disease[7]

Moreover, Increasing recognition of Right ventricular infarction either in association with left ventricular infarction or as an isolated event, emphasizes the clinical significance of the right ventricle to total cardiac function, thus it is really important to have knowledge on how to diagnose RV infarction and reminding ourselves particularly through case reports because of the therapeutic implications of distinguishing patients with right ventricular dysfunction from those with the more usual clinical presentation of left ventricular dysfunction. It is very easy to miss the diagnosis of RV.

Infarction because not all will present with classical features, so a proper understanding on the clinical findings and ECG interpretation empowers a glimpse of suspicion on most cases, as the management is different particularly in RV infarction mostly presenting with hypotension thus requiring intravenous fluids.

Our patient was managed by intravenous fluids, rescue percutaneous coronary intervention was performed were flow to the RCA and LAD was restored successfully, the patient hemodynamic status improved, serial echocardiography studies revealed normal LV systolic function with mild RV dysfunction We declare there is no conflict of interest in our manuscript submitted.

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