Case Report

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Right MCA Lacunar Infarct with Concomitant Right Ventricular Myocardial Infarction

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Abstract

Concomitant acute myocardial infarction and ischemic cerebrovascular accidents has been rarely reported in the literature. In this report, we are describing a 74 year old male patient previous diabetic and hypertensive who presented to ER with a H/O sudden fall at home after which he had weakness of left leg, slurring of speech and left sided hemianopia after which a screening MRI revealed a Rt sided thalamic lacunar infarct. On further probing he revealed a vague epigastric pain and ECG revealed ST elevation in Lead II,III and AVF with atrial fibrillation & CVR. After that pt was urgently shifted to cath lab for percutaneous coronary intervention. This association can best be described as "cardio-cerebral infarction". Early recognition of such cases is important and determines the patient's further management and prognosis.

Keywords: Hemianopia; Myocardial Infarction; Lacunar Infarct; Cardio Cerebral Infarct; Diabetes Mellitus.

Introduction

Concomitant occurrence of acute myocardial infarction (MI) and stroke is infrequently encountered in emergent patients.

Myocardial infarction (MI) and stroke often share the same risk factors and pathogenic mechanism. Sometimes they can occur in the same patient proximately, occurring days or weeks apart. However, the simultaneous occurrence of MI and stroke is rare and presents a diagnostic and therapeutic challenge.

Most studies had determined an increased incidence of ischemic strokes after anterior myocardial infarction on both short and long term bases. This was attributed in the vast majority of cases to embolization due to left ventricular mural thrombi or atrial fibrillation. However, the relation between ischemic cerebrovascular strokes and acute right ventricular infarction has been rarely discussed Specifically, an acute stroke can alter typical features of MI. Thus, recognition of the coexistence of these two events requires a high threshold of suspicion

Case Report

Patient 74 yr old male k/c/o DM/HTN on ayurvedic medications from one month was brought to ER with h/o sudden fall at home after which he had weakness of left side of body, slurring of speech with left sided facial weakness and left hemianopia was unable to walk by himself with vague epigastric discomfort.

At presentation in ER initial evaluation revealed BP-170/90mmhg PR-107/min PO2-100% on RA, RBS-320mg/dl. Neurological examination revealed GCS 15/15 but weakness in left lower limb, power 3/5. MRI brain screening was done which was s/o right MCA Lacunar infarct. (Figure 1). Patient was planned to be admitted under neurology and routine investigations were sent. In view of vague epigastric discomfort an ECG was done which was s/o ST Elevation in 2,3 AVF and Atrial Fibrillation, Right side ECG confirmed RVMI. (Figure 3(a) & 3(b)). Immediately cath lab was activated and cardiologist on call was informed and loading dose with Ecosprin, Clopidogrel & Atorvastatin was given.

Patient suddenly had an episode of VT which was successfully cardioverted with 150 joules (Figure 2). After A B C Stabilisation 2D Echo was done which revealed Inferio-Posterior Hypokinesia with LVEF 40%. Patient was immediately shifted to Cathlab with high risk consent.

Coronary Angiography revealed Double vessel disease for Which PTCA with 1 DES Stent to RCA was done.Procedure was uncomplicated and Patient was shifted to Cardiac ICU for observation. Neurology Opinion was sought and antiplatelets and LMWH were continued. After 2 days patient had sudden deterioration of consciousness and he became drowsy responding only to painful stimulus with GCS E2V3M5. Immediate MRI brain screening was done which revealed mid brain and right thalamic infarct (Figure 4) and ECG revealed fresh ST/T Changes in infero-lateral leads for which check angio was done which was suggestive of patent RCA stent. Neurology consult was done and a diagnosis of mid-brain infarct (cardio-embolic showers) was made.

Fig. 1: MRI diffusion image showing right sided lacunar infarct

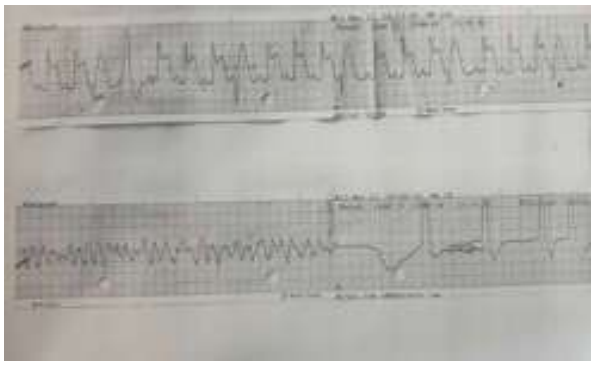

Fig. 2: Showing the VT Rhythm strip and sucessfully reverted

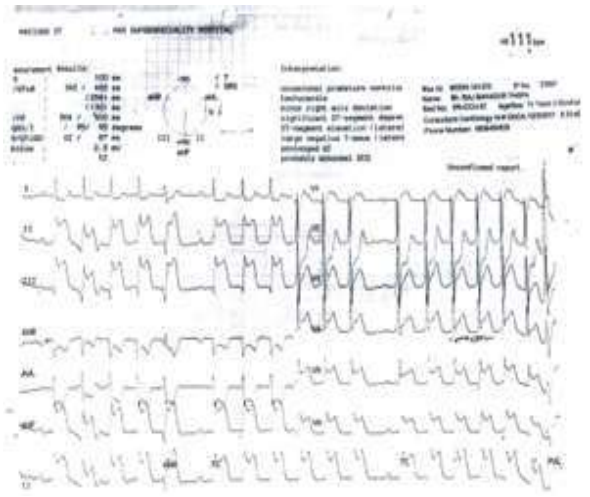

Fig. 3a: Initial 12 lead ECG showing S Televation-II, III, AVF & V4

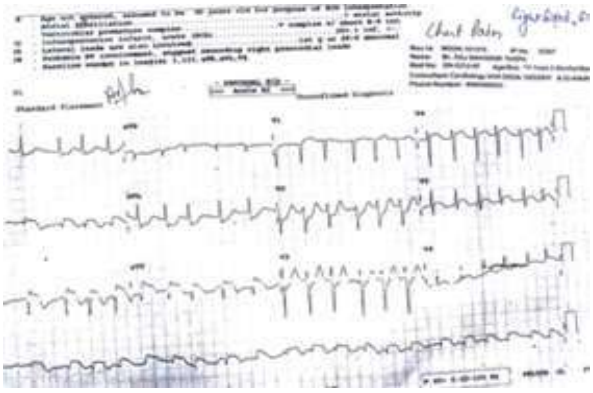

Fig. 3b: Right sided ECG showing S Televation-II, III, AVF & V4

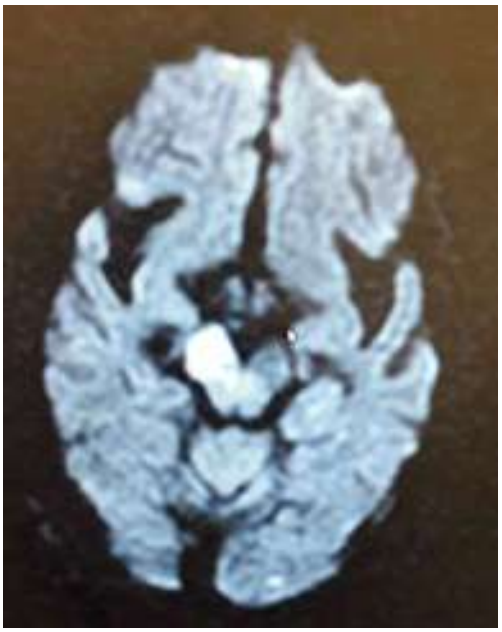

Fig. 4: Showing Right MCA infact in the repeat MRI

LMWH was discontinued and dual antiplatelets were started.

Patient was managed in neurology with dual antiplateletes and was discharged with a GCS of E3V2M6 and a left sided weakness with power of 3/5 in both upper and lower limb.

Discussion

Concomitant acute myocardial infarction and ischemic cerebrovascular strokes has been rarely reported in the literature Since heart disease and stroke share common risk factors and pathophysiology, acute cerebral ischemic events may happen concurrently with MIs. In a review of studies that included approximately 2,900 patients who had an acute stroke, Kerr et al. [1] found that 20% had elevated troponin levels within 7 days of the stroke. In 2013, the American Heart Association and American Stroke Association published guidelines advising that all patients who present with acute cerebral ischemia have an emergent ECG and baseline troponin level [2]. This was in response to evidence that even low positive troponin levels have been associated with an increased risk of mortality [3]. Positive troponin levels are especially important because fatal and nonfatal stroke post-MI events have been found to be increasing in frequency for women, even though there has been a significant overall reduction in post-MI mortality [4]. Patients who have an ischemic stroke concurrently with an acute MI or soon after have an overall poorer clinical prognosis [5].

For emergency physicians (EPs), this is a "chicken or the egg" scenario. It is difficult to determine which came first: the MI or the cerebral ischemia. Similar risk factors can result in an acute embolic event from revascularization, atrial fibrillation without proper anticoagulation, or a poorly functioning left ventricle [6]. It is important to remember that regardless of the order of occurrence, the incidence of ischemic stroke is markedly increased in conjunction with an acute MI [7]. Several theories have been advanced regarding the relationship between ischemic stroke and acute MI. One theory proposes that elevated troponin levels could be related to a large catecholamine release after a cerebral ischemic stroke, resulting in subsequent myocardial injury or cardiomyopathy [7]. However, this theory remains controversial.

Conclusion

Common risk factors for cardiac and cerebral ischemic events may result in a patient presenting with both acute MI and an acute cerebral ischemic event. There have not been sufficient clinical studies to determine the best decision-making process for these patients. Therefore, patients with this complicated presentation must be assessed on an individual basis. Current treatment options are varied and are based according to history of the present illness, time of presentation to the ED, and the available resources within the hospital.

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