



RESEARCH ARTICLE

‘OMICRON’ AS A CARDIOVASCULAR MANIFESTATION: A RARE PRESENTATION AND MANAGEMENT AT TERTIARY CANCER CARE CENTER WITH LIMITED RESOURCES

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Abstract

Severe Acute Respiratory Distress Syndrome Coronavirus 2 (SARS CoV-2) and its new variant ‘Omicron’ was propelling the surge in Coronavirus Disease (COVID-19) in India and the world over. COVID-19 is associated with various extrapulmonary manifestations leading to acute coronary syndrome (ACS) in many patients. In our case report, a 55-year-old male with carcinoma soft palate on neo-adjuvant chemotherapy and radiotherapy came to our hospital emergency in an unconscious state. Cardiopulmonary resuscitation was initiated in the emergency suite, he was revived and shifted to the critical care unit for post cardiac arrest management. Patient was hemodynamically unstable and started on vasopressor support, electrocardiogram showed ischemic changes in anterolateral leads with cardiac enzyme troponin-T was positive. A diagnosis of ACS was made and managed appropriately. The patient got stabilized over a few hours, reverse transcriptase-polymerase chain reaction (RT-PCR) test was positive for novel COVID-19. Since our institute is a L2 setting hospital with limited resources, he was shifted to a higher centre for effective COVID-19 management. ACS is a deadly manifestation in COVID-19 patients. Cancer patients are immuno-compromised with a propensity for the hypercoagulable state due to the disease itself. We suggest that ‘Omicron’ a new variant of concern leading to COVID-19 with cancer burden can aggravate extrapulmonary manifestation in a vulnerable population. We should be extra careful in the management of these patients.

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Introduction:-

Severe Acute Respiratory Distress Syndrome Coronavirus 2 (SARS CoV-2) and its variants continue to wreak havoc across India and in the process have overwhelmed many healthcare systems. ‘Omicron’ is propelling the current surge in most countries including India and is poised to replace ‘delta’ the world over. Patients infected with SARS CoV-2 usually present with symptoms related to respiratory illness. COVID-19 along with different variants have the propensity to manifest as extra-pulmonary complications. The literature regarding SARS CoV-2 is burgeoning, but little is known about the specific clinical presentation and outcomes of the patients presenting with the acute coronary syndrome. Systemic viral infections have been associated with acute myocardial infarction and inflammation, and may indeed be a pathophysiologic trigger for plaque rupture and thrombosis.^[1] Our patient presented to the emergency department in a peri-cardiac arrest condition.

Case Report

A 55-year-old male patient was brought to the emergency room of our hospital in a state of unconsciousness. Immediately monitors were attached. As the carotid pulse was not palpable, immediate CPR (Cardio-pulmonary resuscitation) started. Return of spontaneous circulation achieved, airway secured and shifted to ICU (Intensive care unit). Reverse transcriptase-polymerase chain reaction (RT-PCR) for SARS CoV-2 was sent before shifting the patient to ICU. The patient was diagnosed case of a carcinoma soft palate with ongoing treatment. The patient had received 3 cycles of chemotherapy (paclitaxel) and 2 cycles of radiotherapy. The patient had a good metabolic equivalent task score with no associated co-morbidities. During initial evaluation in the ICU, the patient was hemodynamically unstable with heart rate-132, mean arterial pressures - 90/46mmHg, temperature 99.6 F and spo2 96%. Central line inserted in the right internal jugular vein and arterial cannulation performed in the left radial artery. Initial vasopressor support with injection noradrenaline started at the dosage of 0.2µg/kg/min along with fluid resuscitation. All routine investigations along with chest x-ray were performed. Arterial blood gas analysis was done. (Table 1a) An electrocardiogram showed ischemic changes in the anterolateral leads. (Figure 1) A Cardiac Troponins-T level test was performed which came out to be positive.

Bed-side echocardiography showed moderate left ventricular systolic function with hypokinetic apex. A probable diagnosis of the acute coronary syndrome was made. The patient was managed with an initial bolus dose of injection unfractionated heparin 70 U/kg intravenously followed by a loading dose of aspirin and clopidogrel. Empirical antibiotic therapy was started to treat any potential source of sepsis. Hemodynamics stabilized over the next few hours. Vasopressor support tapered, repeat blood gas analysis showed normal acid-base balance. (Table 1b) The patient became conscious and was following commands. Tab. Ivabradine 10mg once daily was started as a rate control measure. The RT-PCR report came out to be positive the following day. As our centre is resource limited rural tertiary cancer care with only L2 facility available for management of covid patients. The patient was shifted to the higher tertiary care centre with an adequate mechanical ventilation facility for covid patients.

TABLE 1: ARTERIAL BLOOD GAS ANALYSIS

VALUE	1a	1b
Ph	7.04	7.41
Paco ₂ (mmHg)	60.1	30.1
PaO ₂ (mmHg)	421	123
Lactate(mmol/L)	6.1	1.9
HCO ₃ (mmol/L)	15.6	28.7
CtO ₂ (Vol%)	16.8	13.4
SO ₂	99.4%	97.9%

1a- At Presentation in ICU ABG; 1b- After Resuscitation ABG

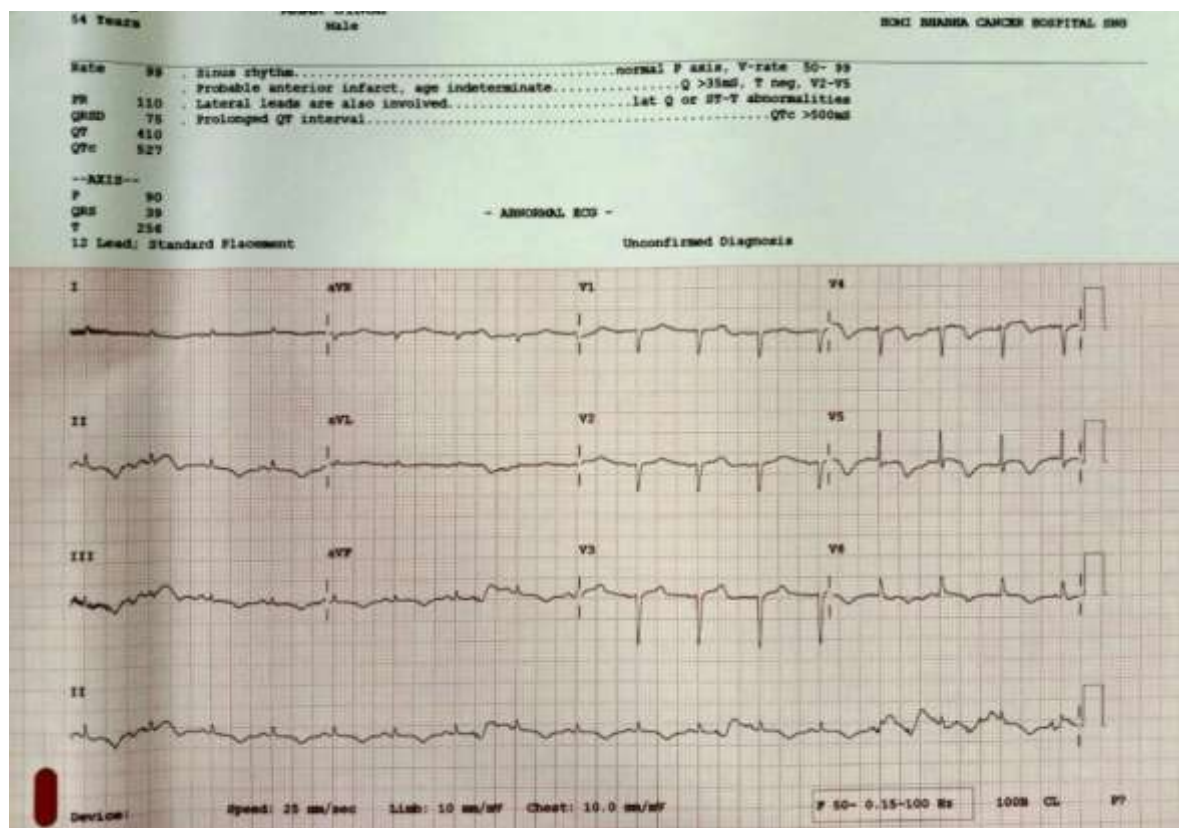


Figure 1:- ECG showing ischaemic changes.

Discussion:-

Cancer patients are regarded as a highly vulnerable group due to weakened immune systems caused by both tumor growth and anti-cancer treatment.^[2,3] Our patient had minimal or no respiratory symptoms. The incidence of extrapulmonary complications viz. acute myocardial infarction in COVID-19 cancer patients is 3.6%.^[4] SARS Cov-2 generates a prothrombotic state with higher thrombotic complications.^[5] Its platelet interactions result in platelet activation and degranulation in COVID-19, further potentiating the pro-thrombotic vascular milieu.^[6] Relative to venous thromboembolism, arterial thrombus formation is more likely to be due to platelet activation and endothelial dysfunction. It also leads to systemic inflammatory response and activation of the coagulation cascade.^[7] Commonly, patients developed cardiovascular complications after the diagnosis of Covid-19 disease. Very rarely, patients presented with acute cardiovascular symptoms like our patient. Studies have shown that Covid-19 infection can worsen existing cardiovascular problems or can precipitate new cardiovascular problems.^[8] Cancer patients already have a hypercoagulable state thereby increasing the risk of pro-thrombotic events. The most common cardiovascular complication in Covid-19 so far reported is an acute myocardial injury which is defined as an increase of troponin I above the 99th percentile in most of the studies. There are roughly 8-12% of cases reported that have shown significant troponin elevation.^[9]

Conclusion:-

Extra-pulmonary manifestations of COVID-19 are common and life threatening. ACS is a well-recognized cardiac manifestation in patients with COVID-19 especially in high-risk cancer patients. We should be extra careful in diagnosing all the possible extra-pulmonary complications, especially in cancer patients, with evolving new variants (Omicron) of SARS CoV-2, we should treat our patients promptly.

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