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Post Myocardial Infarction Papillary Muscle Rupture In The Context Of Coronavirus Disease-2019 Pandemic

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Cover Page Footnote

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Post Myocardial Infarction Papillary Muscle Rupture in the Context of Coronavirus Disease-2019 Pandemic

Nooraldaem Yousif*, Vinayak Vadgaonkar, Helen Saunders, Mohammad Amin, Habib Tareif, Fuad Abdulqader

Mohammed Bin Khalifa Cardiac Centre (MKCC), Bahrain Defence Force - Royal Medical Services (BDF-RMS), Military Hospital, Riffa, Kingdom of Bahrain

A 53-year-old hypertensive man was referred to our cardiac centre with acute inferolateral ST-segment elevation myocardial infarction (STEMI), lysed in non-PCI capable hospital three hours previously, complicated with cardiogenic shock secondary to papillary muscle rupture (PMR) and acute severe mitral regurgitation. On arrival, blood pressure was 75/40 mmHg with maximum inotropic support. Physical exam revealed a holosystolic 4/6 murmur loudest at the apex with diffuse rales over both lungs. ECG showed persistent ST elevation in the inferior leads with 2:1 atrioventricular block (Panel A). In view of the ongoing coronavirus disease 2019 (COVID-19) pandemic, he was initially admitted to a negative pressure airborne infection isolation room and prompt nasopharyngeal swab for Xpert® Xpress SARS-CoV-2 gene test was sent to expedite a timely informed treatment decision. The result was negative within one hour during which time bedside intra-aortic balloon pump (IABP); left radial arterial line and right subclavian central line were inserted with full personal protective equipment (PPE). Coronary angiogram via right radial approach showed minor coronary artery disease of the left coronary system and the culprit lesion to be a

subtotal occlusion of the dominant distal right coronary artery. IABP remained in situ with optimum positioning (Panel B and C). The patient was immediately transferred to the cardiac OT. Intraoperative TOE confirmed ruptured posteromedial papillary muscle with flail anterior mitral leaflet and severe eccentric mitral regurgitation (Panels D and E). Complete rupture of the posteromedial PM was not amenable for repair hence emergency mitral valve replacement with bioprosthetic valve and coronary artery bypass grafting was performed. The hemodynamics improved dramatically post-operatively, inotropes were discontinued and the IABP was removed.

Papillary muscle rupture is a very rare but often catastrophic complication of acute myocardial infarction. In the setting of the current COVID-19 pandemic, management is rendered extremely challenging. Ensuring prompt optimum patient management while balancing this with safety of the cath lab and theatre staff requires advance planning and preparation for such a scenario. Furthermore, while time to surgical intervention remains a priority, it is felt that the outcome in our patient was not adversely affected by the extra time taken to secure the staff and workplace prior to cath lab, TOE and surgical intervention.

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* Corresponding author at: Interventional Cardiologist, Mohammed Bin Khalifa Cardiac Centre (MKCC), Bahrain Defence Force - Royal Medical Services (BDF-RMS), Military Hospital, Riffa, Kingdom of Bahrain.
E-mail address: dr_nooraldaem@hotmail.com (N. Yousif).



