

Breakthrough COVID 19 infection in a fully vaccinated patient presenting with STEMI due to multi vessel coronary thrombosis

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Background:

- A prospective cohort study in 2020 showed increased thrombotic complications, including myocardial infarction and pulmonary embolism in severe cases of SARS Co-V 2 infection [1] [2]. However, Complications in asymptomatic COVID-19 patients are rare and none reported in a fully vaccinated patients.

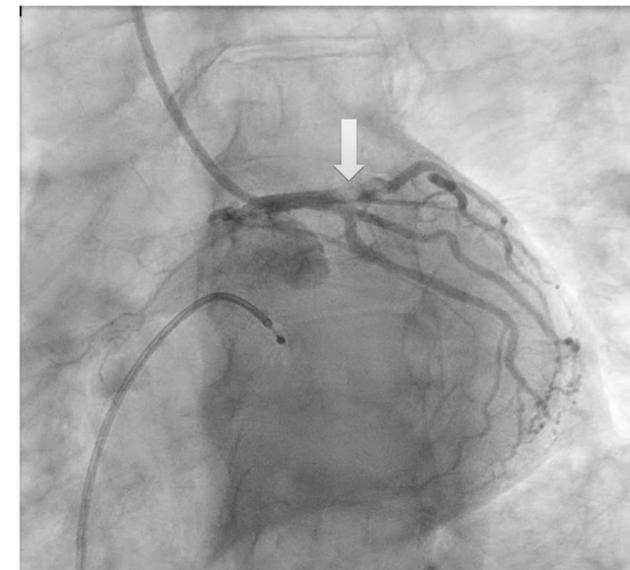
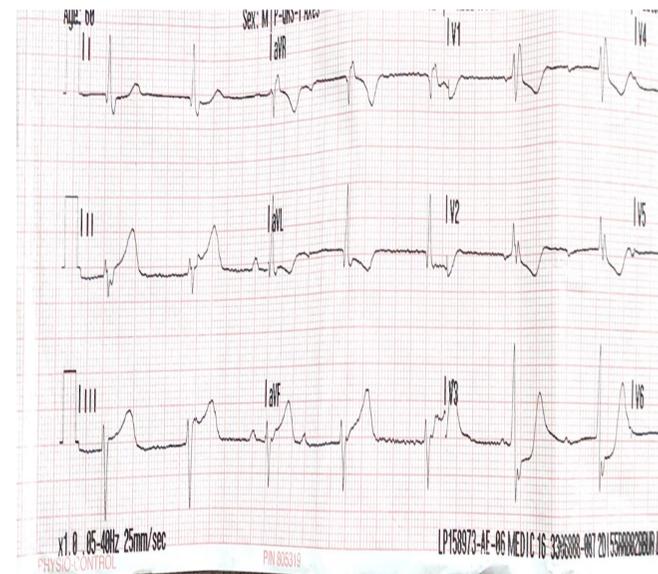
Patient Presentation:

- A 60-year-old African-American man with no past medical history presented with Syncopal episode.
- EMS events: Initial EKG showed complete heart block with slow escape rhythm, so transcutaneous pacer was started.
- Arrival to ED: He was conscious but diaphoretic. Stopping the pacer to evaluate underlying rhythm revealed no escape rhythm. Patient started to lose consciousness, so pacer was turned on again.

Intervention:

- Transvenous pacemaker was inserted, coronary angiogram revealed proximal LAD thrombosis with TIMI 0, also revealed mid-distal RCA thrombus with TIMI 2 flow through distal PDA and PLA which were occluded with thrombus.
- Balloon angioplasty was performed and given distal thrombus embolization manual aspiration thrombectomy done and retrieved few clots. Patient started on GP2b3a inhibitor and received ticagrelor, intracoronary adenosine, nicardipine and nitroprusside .
- Heart block resolved with heart rate in the 80s after treatment, so temporary pacemaker was turned off. Stent was deployed in proximal LAD. Repeat angiography of RCA revealed complete resolution of RCA thrombus with complete patency of distal PDA and PLA.
- His COVID test came back positive even though he was fully vaccinated with mRNA vaccine 34 days before his presentation, and he is asymptomatic from COVID standpoint.

Figure 1: EKG showing inferior STEMI with AV dissociation, Figure 2: LAD occlusion



Discussion:

- What we believe unique about this patient presentation is that he developed breakthrough COVID 19 infection that was associated with life threatening multi-vessel thrombus formation in LAD and RCA despite the fact he was fully vaccinated and in absence of preexisting CAD or plaque burden.
- While breakthrough COVID 19 infection can still happen in fully vaccinated patients. To our knowledge this is the first case in which fully vaccinated patient developed COVID related coronary thrombotic complications presenting as a STEMI in two different coronary arteries.

References:

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