

Anchoring Bias in the Era of Covid-19 Pandemia Case Report

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Background

- SARS-CoV-2 (Covid-19) has become the culprit for many cases of acute respiratory failure.
- Covid-19 may cause lung injury with respiratory failure leading to high mortality in patients over the age of 60 with comorbidities such as obesity, diabetes mellitus and cardiovascular diseases¹.
- Acute mitral regurgitation (MR) is a common cause of severe respiratory failure. The typical presentation of acute MR can come on suddenly and include dyspnea, chest pain that radiates to the neck, weakness, dizziness, and signs of shock².
- Physical examination findings suggestive of MR can be subtle, and the overall clinical presentation can be mistaken for pneumonia, sepsis, or nonvalvular heart failure³.
- Delays in the diagnosis and surgical intervention of severe MR can carry an in-hospital mortality of almost 80%⁴.

Objective

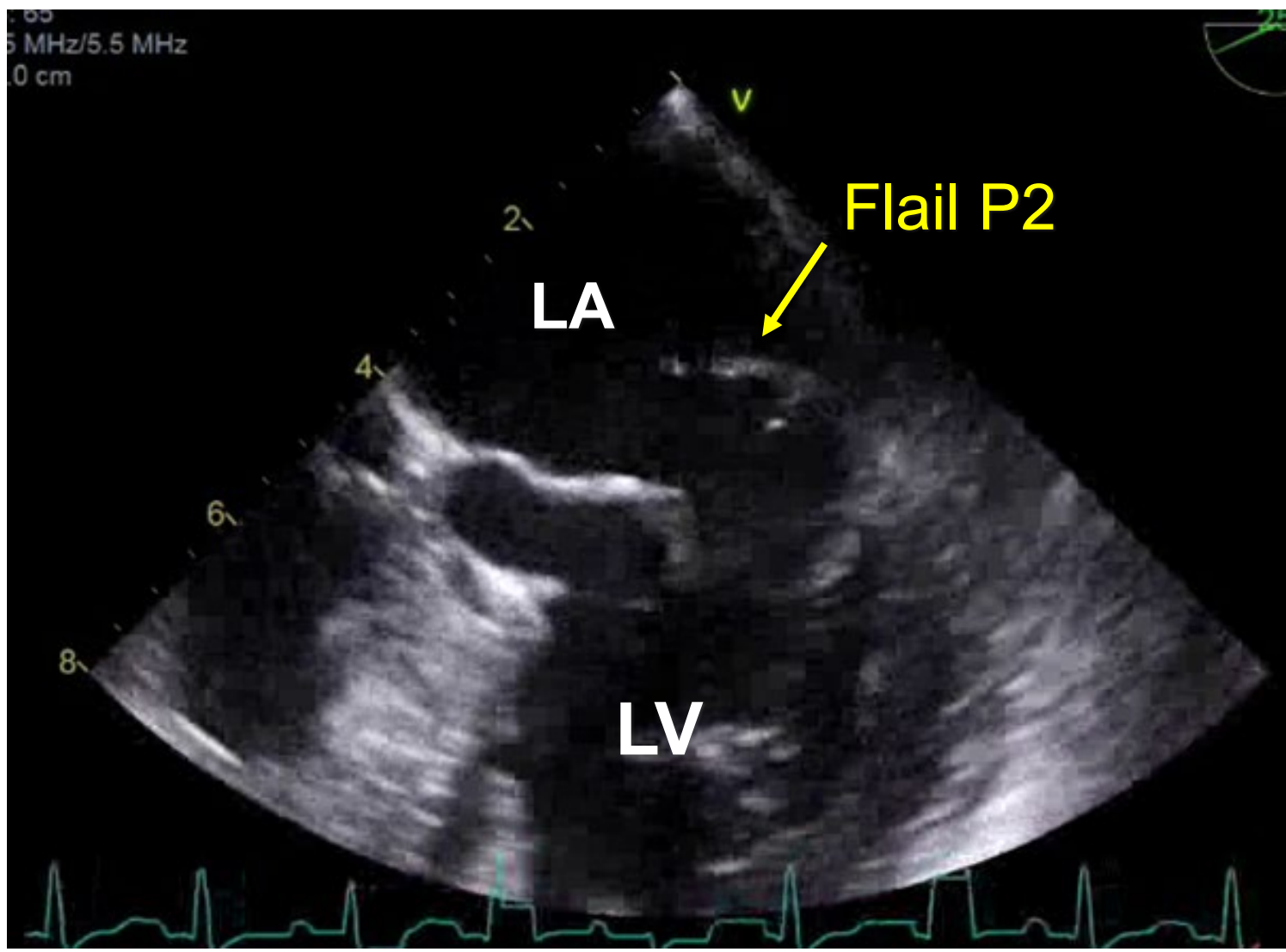
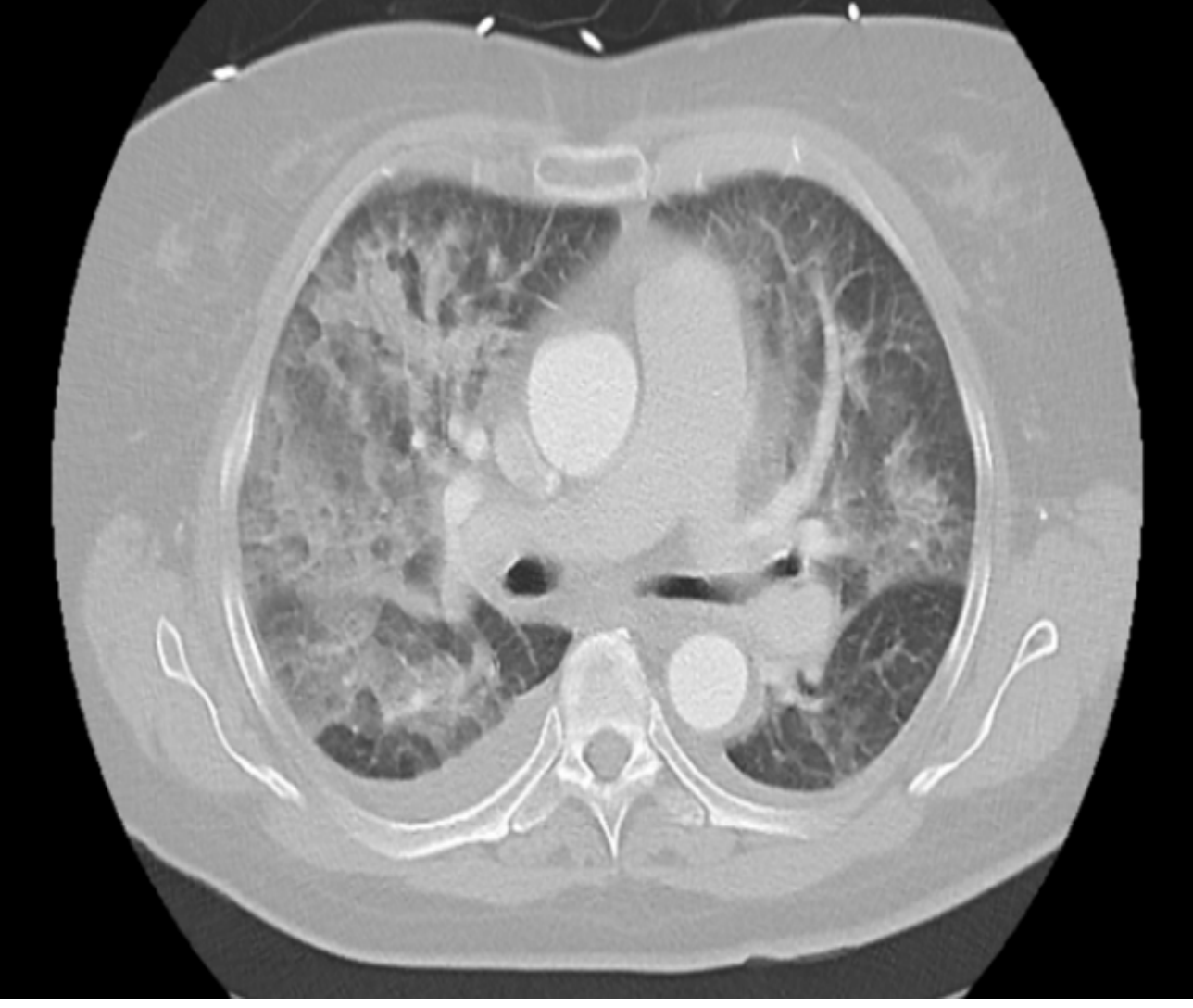
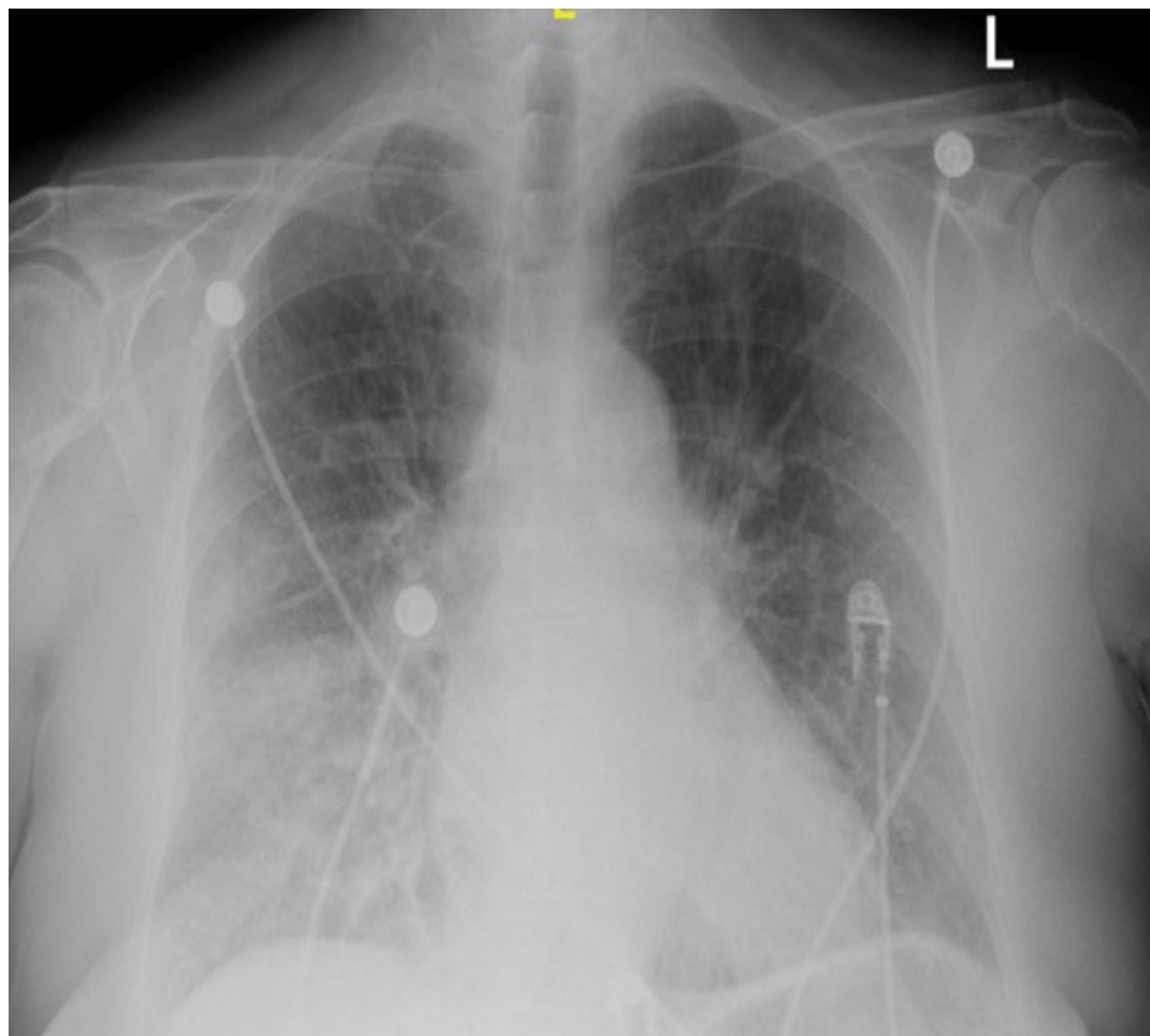
- We discuss a case of rapidly decompensating acute respiratory failure in a patient, initially treated for Covid-19, who was later found to have acute severe mitral regurgitation secondary to a flail posterior leaflet from a torn chordae tendineae.

Case Presentation

- A 62-year-old female with a past medical history of supraventricular tachycardia and hypothyroidism presented to an outside hospital with chest pain and dyspnea that began that morning.
- Symptoms began as spasms in the neck and throat followed by chest pain radiating to the upper back, worsened by the supine position and relieved by sitting upright.
- Patient denied any fever, cough, loss of taste, loss of smell, abdominal pain, or diarrhea, but did report she was a health care worker with exposure to Covid-19.
 - Initial vital signs:* temperature of 36.5 C, blood pressure of 130/79, pulse of 114, respiratory rate of 16, and an oxygen saturation of 90% on room air.
 - Physical exam:* Coarse rhonchi noted on auscultation of the lungs bilaterally. Cardiovascular exam was unremarkable.
 - EKG:* normal sinus rhythm with no acute ischemic changes, no ST-elevated myocardial infarction, and a normal QRS complex.

Investigations

- Labs:* elevated D-dimer of 2083, elevated troponins of 0.046 and 0.092
- Rapid Covid-19 test x2 negative, Covid-19 PCR test negative
- Chest X-ray:* right lung alveolar infiltrates and bilateral perihilar interstitial prominence without consolidation
- Chest CT:* severe bilateral infiltrates with small bilateral effusions



- Transesophageal echocardiogram (TEE):* revealed flail P2 segment of the mitral valve from a torn chordae tendineae with severe mitral regurgitation and a hyperdynamic left ventricle

Treatment

- Patient was initially treated for Covid-19 with Remdesivir and coalescent plasma prior to obtaining TEE, and oxygen supplementation was escalated.
- Within less than 24hrs, she was intubated and transferred to ICU.
- Veno-venous extracorporeal membrane oxygenation (VV-ECMO) was initiated and a left ventricular assist device was implanted to support the left ventricle.
- Following improvement in oxygenation, the patient underwent mitral valve replacement with bioprosthetic valve, removal of the left ventricular assist device, and VV-ECMO decannulation
- Patient made a full recovery and was discharged home after a 14-day hospital stay.

Discussion

- Many factors oriented the diagnosis toward Covid-19: history as a healthcare worker with Covid-19 exposure, rapidly deteriorating respiratory status, both imaging modalities suggestive of bilateral pneumonia, and elevated d-dimer with normal leukocytes.
- On chest x-ray, Covid-19 pneumonia often appears as bilateral patchy opacities. Chest CT, which has 95% sensitivity in early diagnosis of Covid-19, reveals ground-glass opacities⁵.
- While acute MR commonly presents with dyspnea and hemodynamic instability, a small portion of patients may present with dyspnea alone, making misdiagnosis for other pulmonary causes more likely.
- Acute MR can result in flash pulmonary edema, which can mimic pneumonia on chest CT⁶.
- Anchoring bias, one of the most common cognitive biases, occurs when an individual places great value on a certain piece of information, the anchor, which then influences how the individual processes subsequent data⁷.
- In our case, anchoring bias to Covid-19 occurred when the treatment plan focused on the respiratory distress and imaging suggesting pneumonia while ignoring other key findings to reject a diagnosis of Covid-19, ultimately delaying further diagnostic testing such as the echocardiogram.

Conclusion

- The differences on chest radiograph, CT, and laboratory investigations, although subtle, are an important reminder to consider other non-pulmonary pathologies when investigating dyspnea in order to avoid potential misdiagnosis.
- Awareness to anchoring bias is necessary in order to prevent future delays in life-saving treatment, especially during the Covid-19 pandemic.

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