

Triple SARS-CoV-2, Influenza A, and Influenza B co-infection

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Background

- Co-infections, including SARS-CoV-2 and influenza, have been reported numerous times in the literature with rates varying between 0.24 to 44% according to a recent meta-analysis. (1)
- Triple SARS-CoV-2, Influenza A, and Influenza B co-infection on the other hand has only been reported once before, with our case being the first in the US. (2)

Objective

- We present a case involving triple SARS-CoV-2, Influenza A, and Influenza B co-infection to bring attention to such etiology and its potential consequences including but not limited to an increase in mortality.

Case presentation

- We present a 66-year-old female patient with a past medical history of hypertension, type 2 diabetes mellitus, and a generalized seizure disorder who presented with a 2-week history of generalized weakness, fatigue, shortness of breath, dry cough, and subjective fever.
- The patient had not been vaccinated against COVID-19 or Influenza.
- Vital signs: Oral temperature of 37.5 C, pulse of 96, respiratory rate of 16, blood pressure of 157/77 and a pulse oximetry of 90% on room air.
- Physical examination was unremarkable.
- Chest X-ray showed patchy bilateral infiltrates consistent with viral pneumonia as illustrated in figures (1) and (2).

Case presentation (continued)

- Viral testing revealed the patient to be positive for COVID-19, Influenza A, and Influenza B.
- Our hospital uses the Abbott point-of-care ID NOW COVID-19 Rapid Molecular PCR automated assay by the nasopharyngeal route, with a sensitivity of 93.3% and a specificity of 98.4%
 - There is no known cross reactivity with the influenza virus.
- Quidel Sofia Influenza A+B FIA (Fluorescent Immunoassay) test is used for detection of Influenza.
 - Sensitivity with nasopharyngeal swab is 97% for Type A and 90% for Type B. Specificity is 95% for Type A and 97% for Type B.
 - This test has shown no cross reactivity with Covid or other known respiratory viruses.



Figure (1)

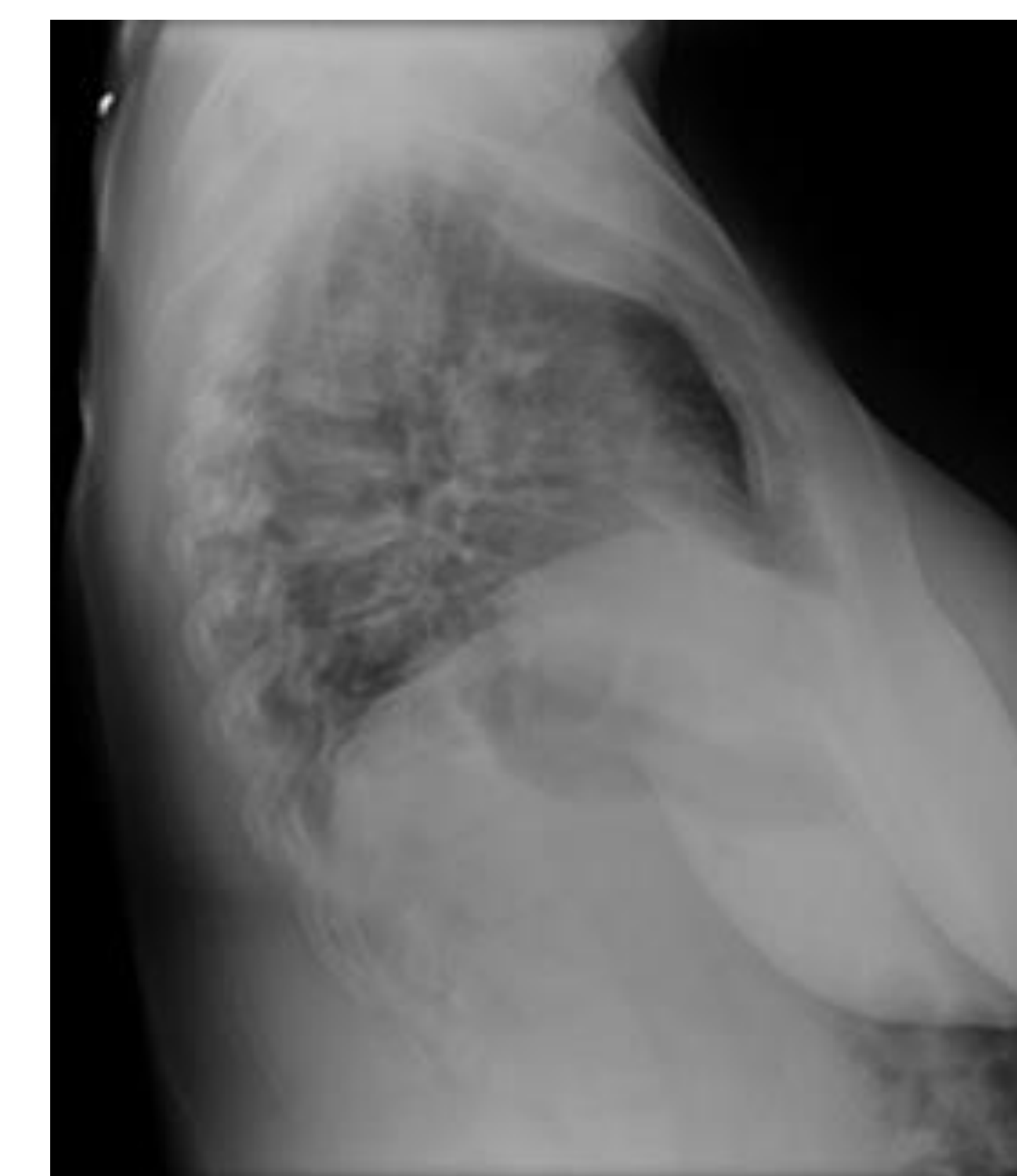


Figure (2)

AP and lateral views obtained at the time of admission showing bilateral pulmonary infiltrates, consistent with interstitial viral pneumonia.

Discussion

- Our patient was treated with supplemental oxygen, oseltamivir, and dexamethasone for a total of 5 days.
- By her second hospital day, the patient had significantly improved, no longer required oxygen supplementation, and was later discharged home.
- Studies have shown that pre-infection with influenza could lead to promotion in the infectivity of SARS-CoV-2, and such co-infections have an increased mortality. (3-4)
- Since testing was not repeated, and the tests ordered are not a 100% accurate as previously mentioned, the possibility of this patient not having a true triple infection is plausible.

Conclusion

- Fortunately for our patient, her case was relatively mild, however, this does not undertake the fact that there is an increase in mortality in such cases and caution should be taken while we navigate this relatively uncharted territory.
- It is important to recognize the implications that co-infections might carry.
- Further research and awareness are needed into such co-infections.

References

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