



BEING NEGATIVE FOR SARS-COV-2 AFTER FOUR WEEKS OF COUGHING REQUIRES CONSIDERATIONS OF ALTERNATIVE CAUSES

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SARS-CoV-2, infection, coughing, diaphragmatic hernia, respiratory insufficiency

LETTER TO THE EDITOR

We read with interest the article by Shanmukhappa et al. on a 73-year-old male who was diagnosed with COVID-19 but discharged from hospital despite ongoing coughing^[1]. At the second admission for coughing he presented with desaturation and new anterior abdominal wall hernia, but was discharged after eight days^[1]. At the third admission he presented with persisting coughing, dyspnoea, dizziness, right-side thoracic and abdominal pain, a diaphragmatic hernia and multiple rib fractures, which were attributed to ongoing coughing over four weeks^[1]. The study is excellent but has limitations that are cause for concern and should be discussed.

The main limitation of the study is that no explanation was provided for why the patient did not receive adequate diagnostic work-up and treatment for permanent coughing over four weeks. The patient was admitted twice, but discharged home after a few days again. Why was nobody interested in clarifying the cause of coughing and adequately treating the coughing? Why was he not intubated earlier?

Another limitation is that alternative causes of coughing were not sufficiently ruled out. The patient was regarded as having COVID-19 but there is no mention of blood test

results, in particularly inflammatory markers and D-dimer, and whether culture from the pleural effusion was positive for any virus, bacterium, fungus or parasite. Rib fractures from coughing have been particularly reported in association with infections by *Bordetella pertussis*^[2]. Was the patient a smoker?

Unwitnessed seizures and subsequent falls have not been ruled out by cerebral MRI and electroencephalography (EEG). Seizures are a common complication of SARS-CoV-2 infections^[3]. An indication for a seizure could be bruising of the right flank and dizziness on the third admission in addition to the rib fractures.

Another limitation is that neuropathy of the right phrenic nerve and related radiculitis of the cervical roots C4-5 on the right side were not definitively ruled out. Because SARS-CoV-2 infections can be complicated by radiculitis^[4], it is mandatory to rule out a proximal demyelinating lesion of the phrenic nerve.

Osteoporosis cannot be ruled out by history; it is crucial to perform bone densitometry. Osteoporosis can be present even if serum calcium and vitamin D levels are normal. Therefore, it is still possible that multiple rib fractures in the patient are due to coughing plus osteoporosis. An argument



in favour of osteoporosis is the age of the patient. Regarding osteoporosis, we should know the dietary habits of the patient and the current medication to rule out that any drug was responsible.

There is a discrepancy between the right-sided chest pain for four weeks and normal computed tomography of the ribs. We should know the cause of right-sided chest pain in the absence of fractures at that time. Was chest pain due to pleuritis? Was pulmonary embolism truly ruled out?

Overall, this interesting study has limitations that call the results and their interpretation into question. Addressing these issues would strengthen the conclusions and could improve the status of the study. Being negative for SARS-CoV-2 after four weeks of continuous coughing should prompt considerations of alternative causes. A persistent cough should be treated in time.

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