

LETTER TO THE EDITOR

Berrin Erok

Department of Radiology, University of Health Sciences Prof. Dr. Cemil Tascioglu City Hospital, Turkey.

PJR April - June 2022; 32(2): 121-122

Dear Editor,

The subpleural sparing is a chest CT finding which is used to define pulmonary opacities abutting the pleura and sparing the extreme peripheries of the lung, typically located 1cm and less from the pleural surface. It was previously considered as a very specific feature of nonspecific interstitial pneumonia (NSIP). However, various other causes were also recognized in association with subpleural sparing, including inflammatory, infectious, inhalational or traumatic pathologies like pulmonary alveolar proteinosis (PAP), organizing pneumonia (OP), diffuse alveolar hemorrhage (DAH), vaping-associated lung injury (VALI), cracked lung, pulmonary edema, pneumocystis jirovecii pneumonia (PJP) and pulmonary contusion.¹⁻⁵ More recently, Coronavirus disease 2019 (Covid-19) pneumonia was also reported in association with subpleural sparing on chest CT scans.⁶ Although there are no specific features differentiating among underlying pathologies, additional radiological findings, medical history and clinical presentation of the patient is useful to narrow the differential diagnosis. We aimed to present subpleural sparing in two of our patients with Covid-19 pneumonia. In the first patient the subpleural sparing was present in association with a limited focal peripheral patchy ground glass opacity (GGO) and in the second patient it was present with extensive involvement resulting in white lung with Covid-19 pneumonia. The first patient was a 27 year old male patient presented with complaints of mild fever, malaise and cough 5 days after the onset. The rRT-PCR test for Covid-19 was positive. On chest computed tomography (CT) a patchy, subpleural GGO was present in the right lower lobe. Clearly spared subpleural space was noted in association with the pneumonic infiltration (Fig.1). The second patient was

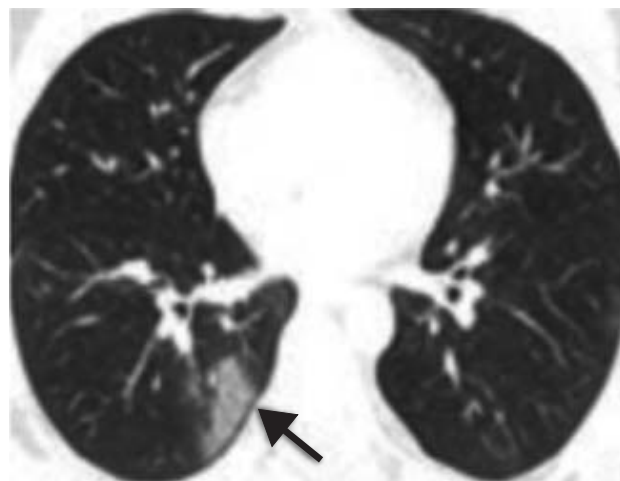


Figure 1: Axial chest CT image of a 27 year old male patient with positive rRT-PCR test for Covid-19, shows a patchy, subpleural ground glass opacity (GGO) in the right lower lobe associated with a thin spared subpleural space (black arrow).

a 78 year old female who was presented with fever and dyspnea and followed in intensive care unit (ICU) for serologically confirmed Covid-19 pneumonia. On chest CT there were bilateral extensive panlobar GGOs giving the appearance of "white lung". Thin subpleural sparing associated with the GGO in the right lower lobe was noted (Fig.2).

Similar patterns of involvement are seen in various etiologies associated with subpleural sparing and it is usually not indistinguishable only by radiological appearance. In some of these underlying causes the presence of accompanying findings on imaging provide important clues for the most appropriate diagnosis. For example, pulmonary contusion occurs following chest trauma. It is characterized with leakage of blood into the alveolar spaces and interstitium caused by disruption of the capillaries of the alveolar walls and septa.⁷ They are more common in lower lobes and

Correspondence : Dr. Berrin Erok
Department of Radiology,
University of Health Sciences,
Prof. Dr. Cemil Tascioglu City Hospital, Turkey.
Email: drberrinerok@hotmail.com

Submitted 16 February 2022, Accepted 17 May 2022

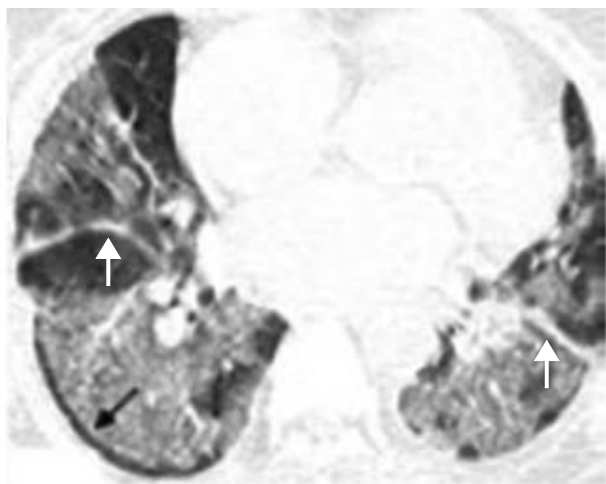


Figure 2: Axial chest CT image of a 78 year old female who were followed in international care unit for serologically confirmed Covid-19 pneumonia show bilateral extensive panlobar ground glass opacities (GGO) with the appearance of "white lung". Note the presence of thin subpleural sparing associated with GGO in the right lower lobe (black arrow).

posterior parts and there are almost always other chest and/or abdominal injuries in addition to the history of trauma. Another example is pulmonary edema in which there are usually associated cardiomegaly and pleural effusion. On the other hand, in many of the other etiologies, the radiological appearances mimic each other and the history is the most important tool to narrow the differential diagnoses, as in cases with VALI in which the common imaging finding is basilar-predominant consolidation with ground-glass opacity and lobular or subpleural sparing.⁸ The history of e-cigarette use is the most important clue in these patients. In the ongoing pandemic, atypical pneumonia of Covid-19 should also be included in the differential diagnosis of pulmonary consolidations or GGOs accompanied by subpleural sparing, either in mild focal pneumonic infiltrations or in diffuse progressive involvements.

References

1. Donnelly LF, Klosterman LA. Subpleural sparing: a CT finding of lung contusion in children. *Radiology*. 1997; **204(2)**: 385-7.
2. Erok B, Atca A.O. chest CT imaging features of early phase COVID-19 pneumonia. *Acta Medica Mediterranea*, 2021; **37**: 501-4.
3. Mehrian P, Homayounfar N, Karimi MA et-al. Features of idiopathic pulmonary alveolar proteinosis in high resolution computed tomography. *Pol J Radiol*. 2014; **79**: 65-9.
4. Travis S. Henry, Seth J. Kligerman, Constantine A. Raptis, Howard Mann, Jacob W. Sechrist, and Jeffrey P. Kanne. Imaging Findings of Vaping-Associated Lung Injury. *American Journal of Roentgenology* 2020; **214**: 3, 498-505.
5. Guilleminault L, Sigmann M, Paganin F A good night for a bad day *Thorax* 2015; **70**: 604-9
6. Prokop M, van Everdingen W, van Rees Vellinga T, et al. COVID-19 Standardized Reporting Working Group of the Dutch Radiological Society. CO-RADS: A Categorical CT Assessment Scheme for Patients Suspected of Having COVID-19-Definition and Evaluation. *Radiology*. Aug 2020; **296(2)**: E97-E104.
7. Oikonomou A, Prassopoulos P. CT imaging of blunt chest trauma. *Insights into imaging*. 2011; **2(3)**: 281-95.
8. Henry TS, Kanne JP, Kligerman SJ. Imaging of vaping-associated lung disease. *N Engl J Med* 2019; **6**: 3245-46.