



Intrapleural “Pinball” Sign in a COVID-19 Patient

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Clinical image description

A 71-year-old man, hospitalized for bilateral pneumonia due to COVID-19 infection. His condition was improving with corticotherapy and oxygen therapy but, on day 16 of his hospital stay, the patient presented right pleuritic chest pain. Lung Ultrasound (LUS) showed a pleural-based, echo-poor triangular consolidations of at least 1 cm with a central hyperechoic structure consistent with a pulmonary infarct, surrounded by a pleural effusion with punctiform internal echoes mobile and whirling in real-time (Figure 1A). This has been described as the “plankton” sign 2, when present one may rule out a transudative effusion, and should be highly suspicious of a hemothorax as the likely etiology. But in the image, there were also more hyperechoic floating elements that may be seen when locules of intrapleural gas are present. We have called this pattern “pinball sign”, since one can image how a ball strikes different targets: Diaphragm,

rib cage and lung. When we completed the exploration, in the right midclavicular line, we observed that lung sliding was abolished and bar-code sign was present, without lung pulse nor B lines, suggesting the presence of concomitant pneumothorax (Figure 1B). CTPA confirmed central filling defects in subsegmental arteries of the related to acute pulmonary embolism and a small right hydropneumothorax (Figure 2). The diagnostic thoracentesis revealed the presence of a hemothorax. The patient evolved favourably with low molecular weight heparin and he was discharged a few days later without needed a chest tube drainage. This case report shows the usefulness of LUS for the management of patients with COVID-19. LUS could reduce covid-19 nosocomial outbreaks, is easily available at bedside, real time and free of radiation.



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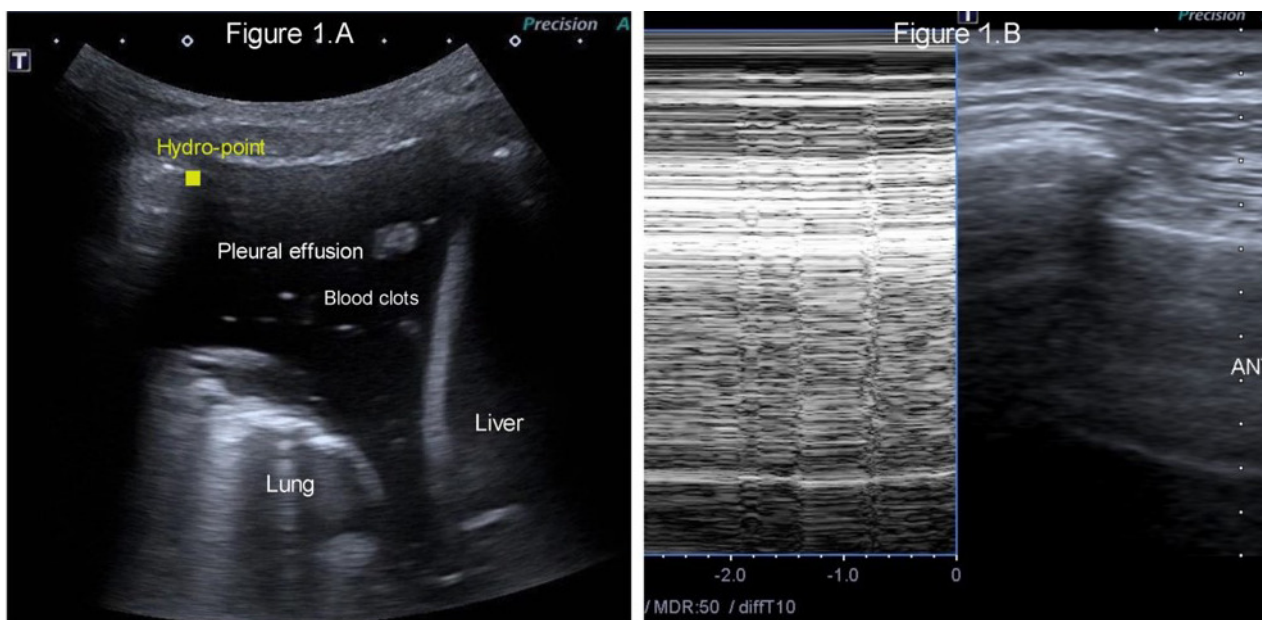


Figure 1: (A) Right pleural effusion. A 3.5 MHz convex probe was chosen and positioned in a longitudinal view at the sixth intercostal space, along the posterior axillary line, with the patient in a semi-recumbent position. It is possible to observe (from left to right) a small portion of the liver, the echogenic curvilinear diaphragm, and a pleural effusion with punctiform internal echoes which represent blood clot formation. We can also observe de Hydro-point, this sign is seen when the ultrasound probe is at the level of the air-fluid interface. (B) M mode ultrasound with 7.5 MHz linear probe, in a longitudinal view at the second intercostal space along midclavicular line, with the patient in the supine position. The absence of lung sliding are shown as the 'stratosphere sign': Parallel horizontal lines above and below the pleural line, resemble a 'barcode.'

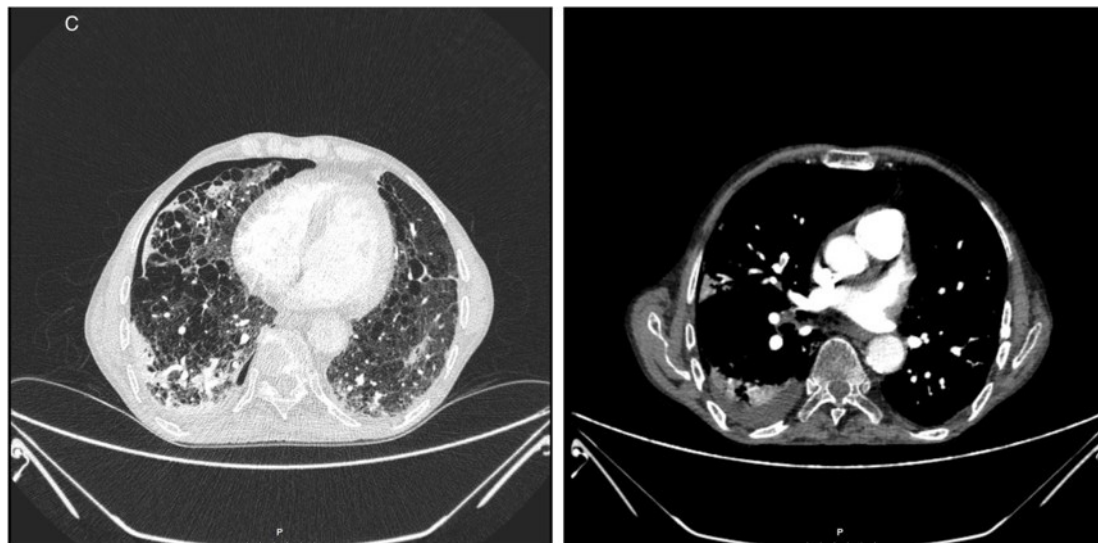


Figure 2: CTPA Low density filling defects representing acute PE in segmental branch of the right lower lobe pulmonary artery. Triangular pleural based consolidation with a truncated peak, in the right lower lobe, consistent with pulmonary infarction and very shallow right-sided pleural effusion. CTPA also shows severe centrilobular emphysema.