SUPPLEMENTARY MATERIAL

I would like to include some extra information about the acquisition and image analysis technique in chest high resolution computed tomography (CHRCT).

Some articles that summarize the technique are available online:

- Rock PJ, Di Muzi B. HRCT chest. Available online: https://radiopaedia.org/articles/hrct-chest-1?lang=us. Accessed May 28, 2021.

- Elicker BM, Kallianos KG, Henry TS. The role of high-resolution computed tomography in the follow-up of diffuse lung disease: Number 2 in the Series "Radiology" Edited by Nicola Sverzellati and Sujal Desai. Eur Respir Rev. 2017 Jun 14;26(144):170008. doi: 10.1183/16000617.0008-2017. PMID: 28615307.

CHRCT is well established for diagnosing and managing many pulmonary diseases. Optimal methods of acquisition and interpretation of HRCT images require knowledge of anatomy and pathophysiology as well as familiarity with the basic physics and techniques of computed tomography (CT).

That diagnosis tool allows clinicians to evaluated diffuse lung conditions diseases that involve the lung parenchyma and airways such as: interstitial lung disease, cystic lung disease, small airways disease, pulmonary micronodules, bronchiectasis.

CHRCT is the use of thin-section CT images (≤1.5-mm slice thickness) with a high spatial frequency reconstruction algorithm to detect and characterize diseases that affect the pulmonary parenchyma and small airways. Following the development and widespread availability of multidetector CT (MDCT) scanners capable of acquiring near-isotropic data throughout the entire thorax in a single breath-hold, HRCT is generally performed using MDCT. This permits the acquisition of volumetric single breath-hold data sets, allowing spaced, contiguous, and/or overlapping HRCT images to be reconstructed. With MDCT, the volumetric data enables multiplanar (MPR) thin-section HRCT reconstruction, facilitating evaluation of the distribution of diffuse lung disease evaluation of coexisting focal lung disease and the application of postprocessing techniques, such as maximum intensity projection (MIP), minimum intensity projection (minIP), and software that uses volumetric data for quantification of features in the lungs and airways. Quantitative CT is emerging as an important technique for determining the extent of fibrotic and obstructive lung diseases and requires specific standardized protocols that will not be addressed here. An older approach to HRCT used noncontiguous inspiratory thin-section images acquired at 10-20mm intervals through the lungs. Although this method substantially reduces the radiation dose, its diagnostic value is more limited; it may have a limited role in screening individuals at risk for diffuse lung disease.