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Honeycombing

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A 34-year-old female patient presented with complaints of dry cough, dyspnea, and weight loss. She reported frequent episodes of heartburn and regurgitation. Physical examination revealed bilateral crackles, microstomia, and muscle hypotrophy. A CT scan of the chest showed multiple cysts, predominantly in the inferior and posterior portions of the lungs, as well as dilation of the distal esophagus (Figure 1).

CT findings included multiple cysts, located predominantly in the posterior subpleural lung bases, stacked upon one another in layers, and sharing walls, characterizing honeycombing. Dilation of the distal esophagus was also observed.

Histologically, honeycombing consists of lung cysts resulting from distal airspace destruction by fibrosis of the lung parenchyma, with loss of acinar and bronchiolar architecture. In summary, honeycombing indicates the presence of pulmonary fibrosis and is an important criterion for the diagnosis of usual interstitial pneumonia. Honeycombing can be idiopathic, therefore indicating idiopathic pulmonary fibrosis (IPF), or secondary to a number of diseases, including hypersensitivity pneumonitis (HP), sarcoidosis, asbestosis, drug reaction, and connective tissue diseases (particularly rheumatoid arthritis and scleroderma).

Certain clinical and CT features can assist in narrowing the differential diagnosis. A diagnosis of asbestosis can be made on the basis of occupational history and the presence of pleural plaques. In cases of sarcoidosis, honeycombing is predominantly found in the upper lobes and perihilar and peribronchovascular regions, being commonly associated with calcified hilar and mediastinal lymph nodes.

A diagnosis of IPF is made by excluding other causes of honeycombing, which is typically subpleural and located at the lung bases in cases of IPF. It is difficult to differentiate between IPF and chronic HP. A history of antigen exposure (e.g., being a bird fancier, being exposed to household mold, and using bird feather pillows) associated with CT findings of subacute HP (ground-glass opacities, poorly defined centrilobular nodules, and areas of decreased attenuation because of air trapping) are suggestive of chronic HP. In addition, chronic HP rarely involves the lung bases, typically affecting the upper lobes.

In patients presenting with a dilated and atonic esophagus, as was the case in our patient, honeycombing is suggestive of scleroderma. Age is also an important factor; our patient was 34 years old, and most of the patients who are diagnosed with IPF are over 50 years of age. Microstomia and muscle hypotrophy are common findings in patients with scleroderma.

In conclusion, interstitial pneumonias are often difficult to diagnose, and, in many cases, a definitive diagnosis can only be made by means of a multidisciplinary approach, with the involvement of pulmonologists, radiologists, and pathologists.

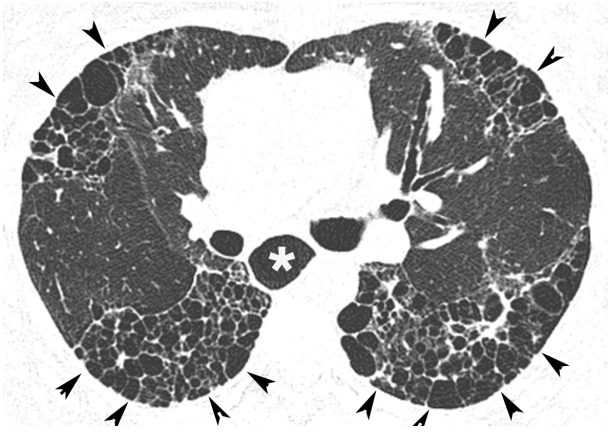

Figure 1. Axial CT scan of the chest at the level of the lower lobes, showing multiple subpleural cysts that share walls and stack upon one another in layers, predominantly in the inferior and posterior portions of the lungs (arrowheads). Note dilation of the distal esophagus (asterisk).

RECOMMENDED READING

1. Muller NL, Silva CI, editors. Imaging of the Chest. Philadelphia: Sauders-Elsevier; 2008.

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