Easier Understanding of Pleural Indentation on Computed Tomography

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A 65-year-old man with adenocarcinoma of the lung was admitted to our hospital. Chest computed tomography (CT) revealed a tumor with deep pleural indentations and a massive effusion (Picture 1A). After chest tube drainage of the effusion, CT revealed three sections of the lung deeply lobulated by the indentations, following the inflow of air from the tube (Picture 1B).

Pleural indentation is a well-known imaging sign on CT that suggests a possible pleural invasion by peripheral lung cancer, especially adenocarcinoma (1, 2). However, young physicians often have trouble understanding the mechanism of pleural indentation (Picture 1C). First, pleural retraction is caused by contractile changes within the tumor. Second, a linear or triangular strand between the tumor and chest wall is formed by compensatory expansion of lung tissues to fill the dead space between two areas of retracted visceral pleura. Thus, the strand reflects the combination of two areas of retracted visceral pleura, which are involved by the tumor at the bottom of the retraction.

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The comparison between Picture 1B and Picture 1C will be more educational and help young physicians to understand the mechanism of pleural indentation at a glance.

References


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