

**Editorial****ANATOMY OF THE FISSURES PRESENT IN THE LUNG AND THEIR CLINICAL IMPORTANCE****Srijit Das***Department of Human and Clinical Anatomy, Qaboos University, Muscat, Oman*

The knowledge of fissures in the lung is important for understanding bronchopulmonary segments, intubations, performing bronchoscopic procedures, and performing lobar resections. One of the best ways to differentiate the right lung from the left is the presence of a number of fissures. The standard textbook of anatomy mentions that the right lung possesses a right oblique and horizontal fissure dividing it into three lobes, for example: superior, middle, and inferior, while the left lung has a single oblique fissure dividing it into superior and inferior lobes (Moore et al., 2014). The most important thing to ponder as an anatomist is whether a lung can be truly considered to be left or right, solely based on the presence of its fissures. We as anatomists feel that a right and left lung should not be merely identified by the presence of its fissures, as variations are common even in normal individuals. Therefore, it is better to identify a right or left lung by observing other structures present at the hilum, rather than considering the number of fissures present in each lung.

Except at the sites of the three main fissures, the lobes are formed during embryonic development by obliteration of the spaces between broncho-

pulmonary segments (West et al., 2021). The fissures in the lung are responsible for uniform expansion of the entire lung during the process of respiration. The mere absence of a fissure in the right lung may be due to various reasons. Fissures may be incomplete, especially when adjacent parenchymal fusion of the lobes occurs (Ugalde et al., 2007). An earlier study conducted on 1200 pairs of lungs, showed that oblique fissures were incomplete in 17.9% and 30.4% of the left and right lungs, respectively, while the horizontal fissures were incomplete in 62.3% of the right lungs (Medlar, 1947). Normal individuals may even have an absence of horizontal fissure or be marked by a superficial depression (Ugalde et al., 2007). The absence of fissures could also be due to obliteration. An incomplete fissure was reported to be a cause of post-operative air leakage (Craig and Walker, 2007).

There are many clinical implications of an incomplete fissure. Fusions in the later part of life could give rise to incomplete fissures. An incomplete fissure may also alter the spread of disease within the lung (Tarver, 1995). Hence, a detailed history may be needed. An example is pneumonia affecting any lobe bounded by a particular fissure. It was reported that surgeons operating on conjoined lobes encounter difficulty and additional lung staples may be required (Tarver, 1995).

Extra or accessory fissures may be present in between the bronchopulmonary segments and are congenital in origin (Muttikkal et al., 2012). Interestingly, the accessory fissures can act as anatomic barriers to the spread of inflammatory or neoplastic diseases and resemble a lesion (Muttikkal et al., 2012). In radiographs, accessory fissures can also mimic diseases such as atelectasis, scars, masses, or even loculated pleural effusion (Rigler, 1933). According to research reports, although accessory fissures are

found in 50% of the lungs, they are less likely to be identified in radiographs and computerized tomography scans (Sofranik et al., 1992).

A published study stated that there are many diseases such as malignancy, tuberculosis, actinomycosis, nocardiosis and fungal infections, which can penetrate the fissures of the lung and exhibit a different appearance (Hathur et al., 2011). Surgeons use the depth of the lung fissure to ligate the vessels. It is a challenge to deal with fused fissures during lobectomies and proper anatomical knowledge is needed. The fissureless technique is considered to be a superior approach, and while performing such, the surgeon need not dissect the lung parenchyma over the pulmonary artery, thereby reducing the chances of any air leak (Gómez-Caro et al., 2007).

To summarize, fissures in the lung are always inconstant. The right and left lungs cannot be merely identified by the presence of fissures, but rather by different structures at the hilum. Additionally, the presence of a cardiac notch and lingula may be considered to differentiate a left lung from a right one. Knowledge of normal and abnormal fissures can be beneficial for academic and clinical practice.

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