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**Title:** Chest computed tomographic imaging characteristics of 129 female patients with spontaneous pneumothorax

Dr. Keisuke 391 Anan kananh1@aih-net.com MD [1], Dr. Kazunori 392 Tobino tobino@juntendo.ac.jp MD [1], Dr. Takahiro 588 Haga tknhosp@yahoo.co.jp MD [2], Dr. Masatoshi 589 Kurihara kuri@tf6.so-net.ne.jp, MD [2], Dr. Noriyuki 590 Ebi nebi1@aih-net.com MD [1], Dr. Takeshi 591 Johkoh johkoht@aol.com MD [3] and Dr. Kuniaki 592 Seyama kseyama@juntendo.ac.jp MD [4]. [1] Respiratory Medicine, Iizuka Hospital, Iizuka, Fukuoka, Japan ; [2] Pneumothorax Center, Nissan Tamagawa Hospital, Setagaya-Ku, Tokyo, Japan ; [3] Radiology, Kinki Central Hospital of Mutual Aid Association of Public School Teachers, Itami, Hyogo, Japan and [4] Respiratory Medicine, Juntendo University Graduate School of Medicine, Bunkyo-Ku, Tokyo, Japan .

**Body:** RATIONALE: In female patients, the etiologies of spontaneous pneumothorax are more various than those in male patients, because diseases specific to female, such as lymphangioleiomyomatosis (LAM) and catamenial pneumothorax (CP), exist. To our knowledge, there have been no reports concerning the usefulness of the chest computed tomographic (CT) findings in female patients with spontaneous pneumothorax in the differentiation of potential causes. METHODS: We retrospectively reviewed the characteristics of the chest CT findings in consecutive 129 female patients with spontaneous pneumothorax in whom the definitive diagnosis was obtained by pathological analysis or genetic testing. RESULTS: The number of patients with primary spontaneous pneumothorax (PSP), CP, Birt-Hogg-Dubé syndrome (BHDS), and LAM were 53, 42, 19 and 15, respectively. The mean age of patients with PSP, CP, BHDS and LAM were 32.1, 38.7, 46.3 and 37.1 years old, respectively. In CP, only one patient experienced left-sided pneumothorax, however in other diseases, the laterality of pneumothorax was not seen. The characteristics of pulmonary cysts on chest CT images were quite different in the four diseases, and by these characteristics of patients, we were able to differentiate these four diseases with high probability. CONCLUSION: In female patients with pneumothorax, the chest CT scan may be useful for differentiating the etiologies.