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Pulmonary endometriosis: an unusual cause of hemoptysis

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TO THE EDITOR:

A 29-year-old woman was referred to our hospital with a 5-month history of cough and monthly episodes of hemoptysis lasting 2-3 days. The hemoptysis was associated with her menstrual cycle. Her medical history was significant in that it included two induced abortions. Physical examination and laboratory test findings were unremarkable. Chest CT performed during the menstrual period showed two small cavitary nodules, containing ground-glass opacities, one in each of the lower lobes (Figures 1A and 1B). Another chest CT, acquired two weeks later (between menses), demonstrated that those abnormalities had resolved, except for a small thin-walled cavity in the right lower lobe (Figures 1C and 1D). Fiberoptic bronchoscopy performed during menstruation showed fresh blood at the entrance of the right lower lobe bronchus. The diagnosis of pulmonary endometriosis was suspected. The patient underwent video-assisted thoracoscopic surgery with resection of both nodules. Histopathological examination revealed uterine endometrial cells with stromal components (findings typical of endometriosis). The postoperative course was uneventful. At this writing, the patient has been asymptomatic for more than 18 months after surgery, without adjuvant pharmacological treatment.

Endometriosis is characterized by the presence of endometrial tissue at sites other than the uterine cavity. This condition most frequently affects women of reproductive age with a history of pelvic surgery, childbirth, or surgical procedures involving the uterine cavity.[1-3] Thoracic endometriosis, involving the pleura and pulmonary parenchyma, can occur, manifesting as the well-recognized clinical entities of catamenial pneumothorax, catamenial hemothorax, and catamenial hemoptysis, as well as nodules in the pleura or lung. Although the CT findings of thoracic endometriosis are relatively nonspecific, CT continues to be the first-line imaging method, because it can be used to rule out other diagnoses and map lesions for surgery. Examination by CT is more sensitive during menses, because lesions may vary in size or even disappear during other phases of the menstrual cycle. The images acquired by CT can also show pneumothorax, hydrothorax, or hydropneumothorax. Recurrent spontaneous pneumothoraces occur between 24 h before and 72 h after the onset of menses. The right hemithorax is involved in more than 90% of all forms of thoracic endometriosis.[4]

Studies have shown that magnetic resonance imaging (MRI) plays an important role in the evaluation of patients with thoracic endometriosis, given that it is better able than is CT to characterize hemorrhagic tissues and to detect endometriotic nodules. In addition, MRI is quite useful in detecting hemoglobin degradation products at the level of the diaphragm or the pleural cavity, which, in the context of endometriosis, is of great value. Endometriotic nodules exhibit distinctive blood components that may appear hyperintense on T1- and T2-weighted images, in some cases being accompanied by hemorrhagic pleural effusion, which can also show a hyperintense signal on T1-weighted images. Endometriotic nodules are commonly hyperintense when they are located on the pleural surface, although their signal intensity can differ between T1- and T2-weighted images.[4-6] One of the most rapidly evolving techniques in the MRI field is diffusion weighted imaging (DWI). In some cases, the restricted diffusion seen on DWI could be useful for the detection of small endometriomas, which show variable degrees of restricted diffusion, depending on the age of the lesion.[4,5] Therefore, MRI is a viable option for the characterization of pleural endometriotic nodules and hemorrhagic pleural effusion.[4-6]

Pleural endometriosis is more common than is pulmonary endometriosis.[1-3,7,8] In most cases, pulmonary endometriosis is thought to result from embolization of endometrial tissue to the lung parenchyma. Rupture of the capillaries or alveoli within the lesion during menstruation can result in hemoptysis or pneumothorax. In addition, blood invades the interstitium of the lung and spreads to the surrounding area. Absorption of the hemorrhagic lesions then occurs between menstruations.[1-3,8] The diagnosis of pulmonary endometriosis is established on the basis of recurrent hemoptysis that is synchronized with the menstrual cycle, together with persistent, pathologically confirmed foci of endometriosis. Symptoms manifest during menstruation and then disappear.[1,2,7,8] On CT, pulmonary endometriosis may be characterized by small areas of consolidation or ground-glass attenuation, nodular lesions, or thin-walled cavities, the appearance of which change over the course of the menstrual cycle. These findings can be presumed to represent pulmonary hemorrhage. The size and severity of the lesions during menstruation differ significantly from those in the period between menses.[1,3,8] Histopathological findings include uterine endometrial cells with features of proliferative or secretory endometrium.[8] Treatments include hormonal therapy and surgical resection. Surgical resection is considered to be the most effective treatment, although it is generally considered only when hormonal therapy fails.[1,3,7] The successful management of pulmonary endometriosis requires accurate diagnosis and lesion

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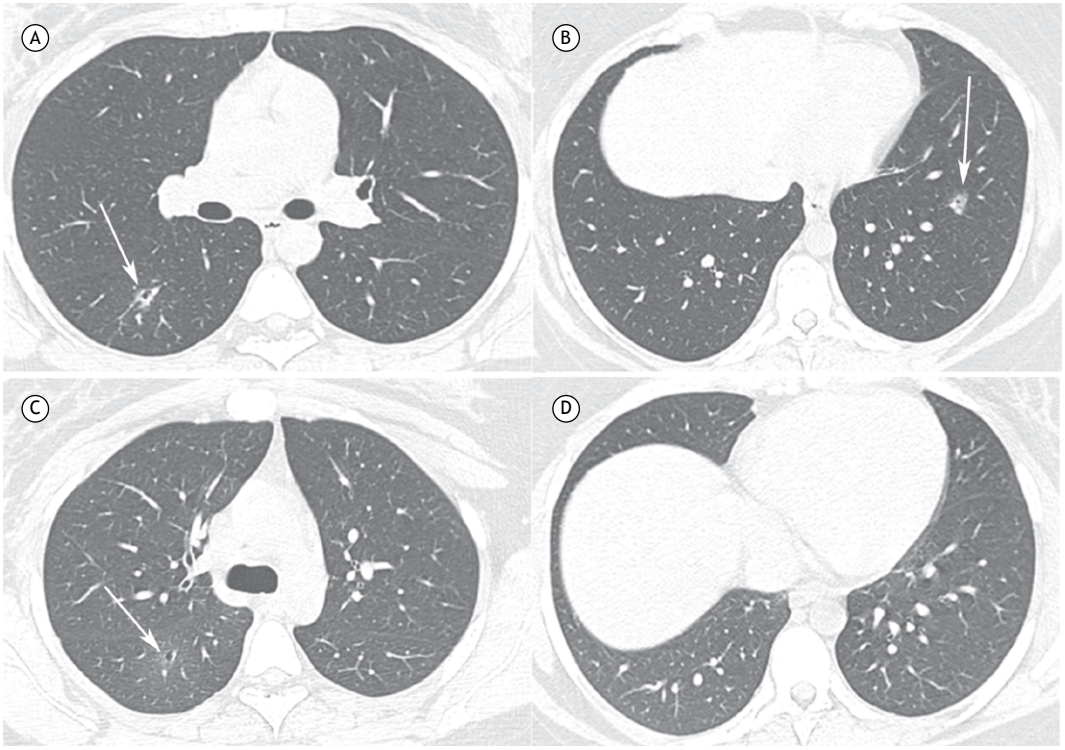

Figure 1. In A and B, chest CT scans acquired during the menstrual period, showing thickening of the nodule wall and the presence of another nodule with a similar appearance in the left lower lobe (arrows). The nodule in the left lower lobe was not evident in the image acquired between menses (in D). In C and D, chest CT scans acquired two weeks after menstruation, showing a small cavitary nodule located in the apical segment of the right lower lobe (arrow in C).

localization. The acquisition of CT scans during and two weeks after menstruation can help confirm the diagnosis and can facilitate the localization of parenchymal pulmonary endometriosis.

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