

# Catamenial Hemoptysis and Pulmonary Endometriosis:

## A Case Report

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### Abstract

Hemoptysis can be caused by a variety of pulmonary diseases, including parasitic infections, tuberculosis, chronic bronchitis and malignancies. Rarely, pulmonary endometriosis can present with hemoptysis and pose a diagnostic problem to clinicians. Pulmonary endometriosis can easily be confused with other clinical entities, including pulmonary embolism, pneumonia and pneumothorax. Histopathologic confirmation is difficult, since the bleeding site is not easy to locate. However, a presumptive diagnosis of pulmonary endometriosis can be made with a typical clinical history. Even so, medical therapy may be problematic, with recurrence of symptoms despite hormonal ablation. We report a case of presumptive pulmonary endometriosis in a 32-year-old woman with a history of an induced abortion, who presented with catamenial hemoptysis (approximately one tablespoon per episode) occurring in the first 3 days of menstruation over an 11-month period. She was treated with an oral contraceptive for two months. No recurrence of hemoptysis was noted during 18 months of follow-up. The approach to diagnosis and treatment of pulmonary endometriosis is reviewed.

**Key Words:** Pulmonary endometriosis, catamenial hemoptysis, oral contraceptives, computerized tomography.

### Introduction

ENDOMETRIOSIS IS DEFINED as the presence of endometrial glands and stroma outside the uterine cavity. Because the growth and maintenance of these implants depend on ovarian steroids, this condition occurs exclusively in women during their reproductive years or in women receiving estrogen replacement therapy (1).

Pelvic structures, including the ovaries, cul-de-sac, broad ligaments and uterosacral ligaments, are usually involved. However, endometrial tissue can occasionally be found outside the pelvis, in the thorax, brain, abdomen and skin. Because of the preponderance of involvement of pelvic organs, the presenting symptoms usually include pelvic pain, dysmenorrhea and menstrual abnormalities. While pelvic endometriosis may affect up to one percent of women, thoracic endometriosis is a rare disorder. We report a case of

pulmonary endometriosis presenting with catamenial hemoptysis (coughing of blood coincident with the time of menstruation) which was clinically attributed to this condition. Although hemoptysis resolved after treatment of the patient with oral contraceptives, this therapy is not always curative.

### Case Report

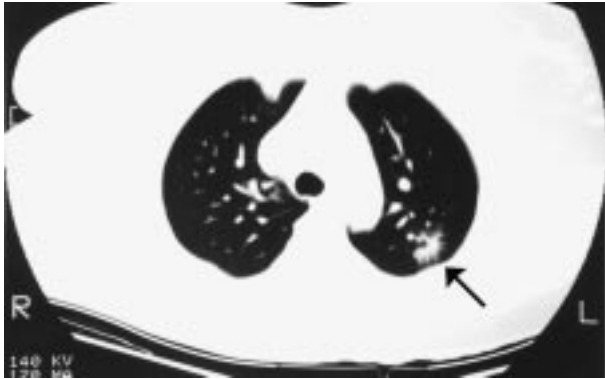
A 32-year-old woman (gravida 3, para 2) with a history of an induced abortion 3 years before, presented with catamenial hemoptysis. She described episodes of hemoptysis (approximately one tablespoon per episode) occurring in the first 3 days of menstruation regularly for 11 months. Between menstrual cycles the patient was asymptomatic. Regular menses of five days' duration occurred every thirty days. She was a nonsmoker and denied any history of lung disease. In particular, she denied fever, purulent sputum production, night sweats or exposure to individuals with known infectious pulmonary diseases. She had not traveled outside of the local area.

Results of the physical examination were normal. The patient had mild anemia (hemoglobin 11.5 g/dL). The chest x-ray was normal, but computerized tomography (CT) of the chest revealed a 1.5 cm, ill-defined infiltrate in the left upper lobe posterior segment (Figure). A bronchoscopic airway inspection did not reveal a source of bleeding. Tuberculosis skin testing and sputum acid bacilli cultures were negative. A pelvic ultra-

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Accepted for publication March 28, 2001.



**Figure.** CT scan of the chest during menstruation. An ill-defined infiltrate (arrow) is seen in the posterior segment of the left upper lobe.

sound revealed no evidence of endometriosis. A presumptive diagnosis of pulmonary endometriosis was made, based on the clinical features (see below). The patient's menses stopped temporarily during a two-month treatment with an oral contraceptive, ethinyl estradiol/norethindrone acetate (Loestrin®, Parke Davis, Morris Plains, NJ). Hemoptysis did not recur during 18 months of follow-up.

### Discussion

The present case demonstrates clinical features suggestive of pulmonary endometriosis. Because the specific sites of pulmonary endometriosis are difficult to localize for biopsy, a histopathologic diagnosis was not made in this case. Rather, a presumptive diagnosis of pulmonary endometriosis was based on classic clinical features. Given the characteristic presentation of this disease, the diagnosis remains presumptive. Thoracic endometriosis is a rare disorder. Since its initial description in 1956 (2), approximately 110 cases have been reported. The four presentations of thoracic endometriosis are catamenial pneumothorax, catamenial hemothorax, catamenial hemoptysis and pulmonary nodules. Catamenial pneumothorax, the most common form of thoracic endometriosis, occurs in 73% of patients (3). Catamenial hemothorax is less common (14%), followed by catamenial hemoptysis (7%) and lung nodules (6%). The mean age at presentation is 35 years (range 19–54 years). Pleural implants are found in less than 15% of patients at thoracic surgery. Diaphragmatic defects and/or parenchymal cysts or blebs occur in approximately 25% of cases.

Symptoms of thoracic endometriosis typically occur within 1–2 days of the onset of menses.

The most common symptom is chest pain, which occurs in 90% of patients. Dyspnea is less frequent, occurring in about one-third of patients.

Several theories address the pathogenesis of endometriosis. The most popular hypothesis is that viable, benign endometrial glands and stroma reflux to the abdominal cavity during menstruation through the fallopian tubes, implanting outside the uterus (4), and fail to be cleared from the peritoneal cavity, via normal mechanisms (1, 5). Endometrial tissue can then move into the thoracic cavity, either through congenital defects in the diaphragm — more commonly found on the right side (6–10) — and/or through microembolization through the pelvic veins (11–13).

Obstetrical and gynecological procedures that disrupt endometrial blood vessels and lymphatics may allow lymphovascular entry of endometrial tissue. This observation is linked with the common association of pulmonary endometriosis and certain forms of endometrial trauma. Our patient had had an induced abortion 3 years before the onset of hemoptysis.

Thoracic endometriosis should be suspected when a woman of child-bearing age presents with recurrent episodes of chest pain, pneumothorax or hemoptysis. It may be difficult to confirm the diagnosis histologically by demonstrating endometrial tissue in the lungs. However, the diagnosis can be made by pleural fluid cytology or needle aspiration of lung masses, or from cytology specimens from bronchoalveolar lavage (14, 15). The diagnosis is usually established on clinical grounds, but is often delayed because the temporal association of symptoms with menstruation may not be recognized or appreciated.

The chest x-ray in pulmonary endometriosis is often normal. CT scanning reveals ill-defined local infiltrates, well-defined nodular densities and cystic lesions which may change in size during the menstrual cycle (16). Magnetic resonance imaging (MRI) is superior to CT in detecting pulmonary endometriosis (3). Bronchoscopic examination of the airways often reveals normal findings, but in rare instances endometrial tissue may be seen on endobronchial biopsy. Angiography is of little value in establishing the diagnosis (17).

Treatment of pulmonary endometriosis aims at abolishing or suppressing the endometrial tissue and preventing further pelvic seeding. Medical treatment, when effective, supports the diagnosis if pathologic confirmation of endometriosis cannot be obtained. Medical therapy centers on suppressing the function of the ectopic endometrium by disrupting ovarian estrogen secretion. Agents such as oral contraceptives, prog-

estin, danazol or gonadotropin-releasing hormone agonists can be used therapeutically (3, 18). However, recurrence rates greater than 50% have been reported with hormonal therapy (18), due to incomplete suppression of ectopic foci and the possibility of perpetual pelvic seeding. Chemical pleurodesis is effective in preventing catamenial pneumothorax and hemothorax. Pleurodesis can be achieved via tube thoracostomy and the application of talc, or with surgical procedures utilizing pleural abrasion and partial pleurectomy with or without talc. Monthly chest pain may persist even after pleurodesis. Pelvic symptoms which are unresponsive to hormonal manipulation can be treated with gynecologic surgery, including hysterectomy with bilateral salpingo-oophorectomy. However, there may be recurrences if estrogen replacement therapy is used postoperatively, since it may reactivate quiescent thoracic endometrial tissue implants (19–22).

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