Catamenial Hemoptysis*
New Methods of Diagnosis and Therapy
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Bronchopulmonary endometriosis is a rare cause of hemoptysis. We describe a woman with catamenial hemoptysis which was localized with chest CAT scanning and treated successfully with danazol. The proposed pathogenesis and manifestations of thoracic endometriosis are reviewed, and the use of new diagnostic and therapeutic modalities in its management are discussed.

Thoracic endometriosis can be manifested as catamenial pneumothorax, or catamenial hemoptysis, or an asymptomatic pulmonary nodule. All are rare conditions. We describe a woman with catamenial hemoptysis which was diagnosed clinically and treated successfully with danazol. Thoracic CAT scanning was used to localize the presumed pulmonary endometriosis. Thoracic endometriosis is reviewed, and new therapeutic modalities are discussed.

CASE REPORT

A 30-year-old woman (g2, p2) had hemoptysis coincident with the onset of her menses. She complained of expectorating approximately six tablespoons of bright-red blood over four hours. In addition, she had a history of six months of intermittent sharp right-sided pleuritic chest pain. She had undergone a dilatation and curettage for menorrhagia two years previously. Past medical history was otherwise noncontributory.

Her physical examination result was normal. Initial normal laboratory studies included a complete blood count, coagulation parameters, urinalysis, arterial blood gases, ECG, and chest roentgenogram. A ventilation/perfusion lung scan showed a matched defect in the right midlung field. After the initial episode, hemoptysis ceased. Bronchoscopic examination performed three days later was normal. A tuberculin skin test was negative.

A similar episode of hemoptysis occurred with the onset of her next menses. Chest roentgenogram remained normal, and urgent bronchoscopic study revealed blood coming from a bronchus in the superior segment of the right lower lobe. Examination of expectorated sputum demonstrated only blood; no endometrial cells were identified. A pulmonary angiogram was normal. Again, hemoptysis resolved after eight hours.

When hemoptysis recurred with her next menses, a clinical diagnosis of bronchopulmonary endometriosis was made. Therapy with medroxyprogesterone acetate (Provera), 10 mg orally three times a day, was begun to suppress ovulation. This therapy, rather than danazol treatment, was initiated due to considerations of potential side effects and expense. When therapy was initiated, the patient was considered to have mild pelvic endometriosis based on her pelvic examination. However, laparoscopy performed several weeks into treatment did not reveal evidence of pelvic implants. Provera treatment was continued for six months.

Menses and hemoptysis were successfully suppressed, but intermittent right-sided chest pain continued. After discontinuing the Provera therapy, hemoptysis recurred with her second menses. Her chest roentgenogram remained normal.

A second attempt at medical therapy was undertaken. Therapy with danazol, 200 mg orally four times a day, was begun and continued for seven months. Menses and hemoptysis were suppressed. The only adverse effect of therapy was a minor weight gain. Due to continued pleuritic pain, a chest CAT scan was obtained during treatment, the results of which were normal.

Menses resumed following completion of danazol therapy. However, in one year of follow-up, hemoptysis has not recurred. Chest pain, especially prominent at the onset of menses, continued to occur. This pain is described as a sharp pleuritic pain localized in the right lateral chest. It can be present for three to four hours at a time, and occurs every two to three days. Several chest roentgenograms have been obtained during severe bouts of pain, but a pneumothorax has not been observed.

Because of persistent chest pain, repeated chest CAT scan was performed three months after discontinuing danazol treatment. Scans were obtained at the onset of menses, when endometrial tissue would be predicted to be maximal. Multiple scans were taken at levels which corresponded to her pain. Scans revealed a parenchymal lesion in the right midlung field (Fig 1). The lesion identified corresponds to the area localized by the lung scan and by bronchoscopic examination. Failure of the previous CAT scan to disclose the abnormality may have been due to suppression of endometrial tissue during the danazol therapy. Review of previous and subsequent chest roentgenograms has not disclosed any abnormality. Chest pain has been reasonably controlled with the use of a transcutaneous nerve stimulator and intermittent use of nonsteroidal anti-inflammatory drugs.

DISCUSSION

Hemoptysis is a common clinical problem with many po-

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Figure 1. Sequential chest CAT views. Arrow indicates right midlung field lesion presumed to be pulmonary endometriosis.
tential etiologies. The initial diagnostic possibilities in this otherwise healthy woman included pulmonary infarction, bronchial carcinoma, arteriovenous malformations, and anomalous vessels. With normal diagnostic studies and recurrent episodes associated with her menses, the diagnosis of catamenial hemoptysis due to bronchopulmonary endometriosis was established.

The mechanism of ectopic endometriosis is not understood. Theories to explain endometrial tissue located within the thorax include regurgitation from the fallopian tubes with transdiaphragmatic passage of tissue, local metaplasia, and hematogenous dissemination. Once localized, the endometrial implants cause connective tissue proliferation, which leads to local fibrosis.

Most thoracic endometriosis presents as catamenial pneumothorax. Maurer et al. initially reported this entity in 1958, and approximately 60 cases appear in the literature. The diagnosis should be considered in women presenting with spontaneous pneumothorax, usually right-sided (over 90 percent), coincident with their menses. Only a third of women have associated pelvic endometriosis. Etiologies proposed for the pathogenesis of the pneumothorax include: (1) diaphragmatic defects with air entering from the genital tract and traversing the diaphragm,6,9 and (2) pleural implants of endometriosis, perhaps associated with alveolar rupture due to prostaglandins produced during menstruation. In general, therapy involves repair of diaphragmatic perforations, resection of pleural endometrial implants and ablative pleurodesis. In other cases, pleurodesis alone has been effective.

Catamenial hemoptysis is an even more rare condition, with fewer than 15 cases appearing in the literature. Our patient's presentation is similar to that previously reported. Chest roentgenograms in this condition are usually normal, and the diagnosis is made by the association of unexplained hemoptysis with the menses. Pleuritic pain, as occurred with our patient, is an unusual aspect of catamenial hemoptysis. However, chest pain associated with menses in the absence of pneumothorax has been a feature of other patients with catamenial pneumothorax. Use of chest CAT scanning to localize thoracic endometrial tissue has not been previously reported to our knowledge. The abnormality identified on chest CAT scan corresponds to the patient's chest pain and is consistent with the area identified on ventilation/perfusion scanning and by bronchoscopic study. Its subpleural extension may explain the associated pleuritic pain.

Few reports of therapy for catamenial hemoptysis are available. In two patients, endometriosis was localized by chest roentgenogram and treated successfully with resection during thoracotomy. In a third patient, hemoptysis resolved following the menopause.

Medical therapy, similar to treatment of pelvic endometriosis, has been attempted for catamenial hemoptysis. Treatment of pelvic endometriosis involves suppressing the endometrial tissue with pseudopregnancy induced by progestosterone therapy or pseudomenopause achieved with danazol administration. Danazol is a steroid hormone which affects ovarian hormone synthesis and competitively binds to cytoplasmic receptors for sex steroids in target tissues. Recently, danazol has been used successfully in the management of catamenial hemoptysis. As reported and as occurred with our patient, hemoptysis has not recurred following cessation of danazol therapy.

A thoracic endometriosis is rare. Its associated clinical syndromes should be considered in menstruating women with pneumothorax or hemoptysis. The availability of chest CAT scanning and danazol provide new techniques in diagnosis and therapy.

ACKNOWLEDGMENT: The authors wish to thank Anton K. Broms, M.D., for his participation in the care of this patient, and Kaye Soott and Louise Pinamonti for their secretarial support.

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