Video-Assisted Thoracoscopic Surgery for Catamenial Hemoptysis*

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Catamenial hemoptysis is a rare condition, and only 36 cases have been reported since the first published case. We describe a woman with catamenial hemoptysis recurring over 8 years. The lesion was diagnosed using chest CT scan during menses and was also visualized clearly via thoracoscopy. The patient was treated successfully with a partial resection of the lung using video-assisted thoracic surgery (VATS) and has been asymptomatic for 14 months since the operation. We suggest that VATS for catamenial hemoptysis is a more effective treatment than medical therapy.

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Key words: catamenial hemoptysis; pulmonary endometriosis; video-assisted thoracic surgery

Abbreviations: GnRH = gonadotropin-releasing hormone; VATS = video-assisted thoracic surgery

Cyclic hemoptysis occurring in accordance with menses (catamenial hemoptysis) is rare, and only 36 cases have been reported since the first published case of Lattes et al.1–32 In this study, we describe a patient with catamenial hemoptysis. The lesion was diagnosed in the S3 segment of the right lung using a CT scan of the chest during menses. The patient underwent thoracoscopic partial resection of the right lung and has been asymptomatic for 14 months after surgery.

CASE REPORT

A 28-year-old woman presented with recurrent hemoptysis with the onset of menses. At the age of 17 years, she underwent an induced abortion in 1989. In 1991 (at the age of 19 years), she experienced her first episode of catamenial hemoptysis. Just after the onset of menses, hemoptysis occurred, lasted for a few days, and resolved spontaneously. For 6 years, she had recurrent hemoptysis during menses. Although hemoptysis disappeared during her first birth in 1997, this symptom appeared again after delivery. Since the start of symptoms, she has refused medication such as hormone therapy because of her wish to become pregnant again. Therefore, she was admitted to our hospital for surgical treatment in July 1999. She had no symptoms other than hemoptysis. The result of the physical examination, which included a gynecologic examination, was normal. After hospital admission, a chest radiograph showed no abnormal findings with the onset of hemoptysis during menses. During menses, fiberoptic bronchoscopy revealed no endobronchial lesions, and bleeding from the right upper lobe bronchus was detected. During menses, a CT scan of the lung revealed an ill-defined opacity in the right S3 segment (Fig 1). Since the clinical diagnosis was pulmonary endometriosis, judging from her history, we performed an operation using video-assisted thoracic surgery (VATS) on August 4, 1999. The ports inserted for VATS were 5 mm in diameter at the fourth intercostal space and 12 mm in diameter at the fifth and seventh intercostal spaces. During observation of the right thoracic cavity via thoracoscopy during VATS, we confirmed the bleeding lesion as pigments composed of several light brown spots in S3 (Fig 2). We performed a partial resection of the right upper lobe (S3), so as to remove all of the pigmented lesions, using autosuture instruments (EndoGIA; Autosuture; Tokyo, Japan) under VATS. The postoperative course was uneventful. The patient has been asymptomatic for 14 months after surgery. The macroscopic specimen showed pigments composed of several light brown spots in the resected lung (Fig 3). Microscopically, bleeding and edema were found in lung parenchyma, and the existence of macrophage, including hemosiderin, suggested repeated alveolar hemorrhage (Fig 4).
Discussion

Catamenial hemoptysis is an uncommon disease. Since Lattes et al. described a case of hemoptysis associated with menses by pulmonary endometriosis in 1956, only 36 cases have been reported in the English-language literature. Although all these cases were assigned to pulmonary endometriosis, histopathologic confirmation of the diagnosis has been obtained in only one third of the cases. Histopathologic confirmation of pulmonary endometriosis is possible when the resection of the lung is performed just before the onset of menses. In this patient, since the operation was performed during menses, pathologic findings of the resected lung did not show any ectopic endometrial tissue; however, infiltration of macrophages including hemosiderin was observed as a result of repeated bleeding in the parenchyma of the lung.

The pathogenesis of pulmonary endometriosis is not well understood. Park postulated that pulmonary endometriosis was assigned to the filter function of the pulmonary vascular network with trapping of endometrial particles from the pelvic organ, which is a process similar to pulmonary embolism. The hematogenous dissemination of the endometrium was thought to be caused by uterine procedures involving curettage or cesarean section. In the present case, the patient’s history of an induced abortion can support the microembolization theory.

A diagnosis of catamenial hemoptysis is usually delayed because of failure to associate the patient’s symptoms with menses. It is most important to take a complete patient history to make an accurate diagnosis.

Location of the pulmonary endometriosis is difficult to confirm. Although chest radiography is useful and may reveal solitary or multiple pulmonary nodules with cyclical changes in size, it usually shows normal findings. In this case, the finding of the chest radiograph obtained during menses was normal.

Chest CT scans are more useful than radiographs for locating pulmonary endometriosis. Lesions that are not found using chest radiography can be clearly detected. A CT scan of pulmonary endometriosis may demonstrate ill-defined or well-defined opacities, nodular lesions, thin-walled cavities, or bullous formations. In this patient, the CT scan taken during menses showed consolidation surrounding an ill-defined nodule in the right upper lobe (S3), and we confirmed the location of pulmonary endometriosis.

Although diagnostic bronchoscopy should be performed during menses, it is very difficult to detect the bleeding lesion using bronchoscopy. This is because in most cases, pulmonary endometriosis is more commonly detected in the distal pulmonary parenchyma than in the mucosa of the large bronchi. In such patients, we found that bleeding by pulmonary endometriosis was detected in the right upper bronchus, but definite histologic evidence of endometriosis could not be obtained.

Treatment of pulmonary endometriosis may be medical or surgical. To date, medical treatment involving danazol and gonadotropin-releasing hormone (GnRH) analogs has been recommended as the first choice in pulmonary endometriosis. Danazol is a synthetic steroid with antiestrogenic and weakly androgenic effect. However, side effects of danazol therapy are often observed, involving weight gain, climacteric symptoms, and virilization. Since GnRH analogs inhibit the release of GnRH from the pituitary gland, the level of sex hormones decreases.
Medical treatment is expensive, and the symptoms often recur after it is discontinued.\textsuperscript{21} Furthermore, since these drugs may cause sterility, patients who wish to conceive sometimes refuse to undergo these hormone therapies.

In the past, several cases of resection of lung by thoracotomy were performed.\textsuperscript{1,32} Surgical treatment by thoracotomy was so invasive that it could not be recommended as a first choice.\textsuperscript{7} However, technologic advances in surgical procedures have made this a less invasive and safer method.

Because VATS was developed in association with an improvement in video camera technology and development of percutaneous endoscopic staplers, this method may be a safer treatment and advantageous for some procedures in reducing postoperative analgesic requirements and shortening hospital stay. Furthermore, the bleeding lesion in the lung can be visualized clearly with video-assisted thoracoscopy. VATS can certainly be a successful therapy for pulmonary endometriosis, because, in this case, hemoptysis had disappeared 14 months following surgery. Resection of the lung should be performed so as to remove all of the pigmented lesions. However, pleural manifestations are often difficult to treat surgically because the lesions tend to be multifocal.\textsuperscript{35} Therefore, a single focus of bleeding must be definitively located by using CT scan before surgery. When lesions are multiple or when their location cannot be detected, hormone therapy or oophorectomy should be considered as an alternative treatment. We suggest that VATS for catamenial hemoptysis is a minimally invasive technique and is a safe and effective method, and that the diagnosis and location of pulmonary endometriosis should be confirmed using chest radiography and CT scanning before surgical treatment.

**REFERENCES**


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**Figure 3.** Macroscopic sections of a lesion removed by partial resection of the right S3 showing pigments composed of several light brown spots.

**Figure 4.** Microscopic section of a lesion in the resected lung showing bleeding, edema, and macrophage including hemosiderin in parenchyma of lung (hematoxylin-eosin, original \( \times 400 \)).
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Minimally Invasive Techniques