

Menstrual History is Important for Diagnosing Catamenial Pneumothorax and Hemoptysis

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Abstract

Endometriosis is a chronic inflammatory gynecologic disease. Problems associated with endometriosis include dysmenorrhea, dyspareunia, and infertility. We managed two patients between March 2001 and December 2011 with extrauterine endometriosis. The first was a 37-year-old unmarried woman who was admitted for recurrent pneumothorax that was consistent with her menstrual cycle. She had received a gonadotropin-releasing hormone (GnRH) analogue injection and tibolone to prevent menopausal symptoms such as hot flashes for the past 2 years and had no recurrent pneumothorax. A 22-year-old woman arrived at the hospital with hemoptysis during menstruation, which had been occurring for the past 5 months, and chronic iron deficiency anemia. After one GnRH analogue injection per month, the hemoptysis and anemia resolved. Catamenial pneumothorax is a rare occurrence with ectopic endometriosis. Diagnosis and management are extremely crucial and difficult for the gynecologist. Our data provide an aid for managing patients with catamenial pneumothorax.

Keywords: Endometriosis; Catamenial pneumothorax

Introduction

Endometriosis causes infertility in 10-15% of reproductive-age women [1].

Endometriosis is defined as the presence of ectopic endometrial tissue on an extrauterine site. The most common site is the ovary, but more distant locations have been re-

ported. The etiology of endometriosis is uncertain, but retrograde menstruation, metastatic changes, and endometrial cell migration via the blood and lymphatic system are presumed causes. Extrauterine endometriosis, such as in our cases of catamenial syndrome, is not correlated with common gynecologic problems including dysmenorrhea, infertility, pelvic pain, or dyspareunia. A pulmonologist or thoracic surgeon first diagnosed these patients, as most women are not initially evaluated for menstrual cycle problems. Our two patients had symptoms correlated with the menstrual cycle, including hemoptysis and pneumothorax.

Case 1

A 37-year-old woman (gravida 0, para 0) was admitted to our hospital with a history of right side chest pain and recurrent pneumothorax. She had undergone a myomectomy 7 years prior and had received five injections of gonadotropin-releasing hormone (GnRH) analogue therapy for endometriosis. Two years after the myomectomy, she had a chest drain inserted for spontaneous pneumothorax consistent with menstruation.

The patient underwent a right-sided video-assisted thoracoscopic pneumonectomy. During the thoracoscopic surgery, blebs and a bulla were found with no evidence of endometriotic implants or diaphragmatic lesions. One month after the pneumonectomy, a recurrent right-sided pneumothorax developed during menstruation. GnRH analogue injections were initiated and discontinued after 5 months. Three months after the GnRH analogue injections, the pneumothorax recurred. It was revealed that breathlessness and chest pain had started on the second or third day of her period and had gradually subsided over the next 4 - 5 days. She had received GnRH analogue injections and tibolone (1.25 mg Livial 1, Organon Italia, Rome, Italy) over the course of 2 years for preventing menopausal symptoms, such as hot flashes, and had no recurrent pneumothorax.

Case 2

A 22-year-old woman arrived at our hospital with hemoptysis during her period that had been occurring for the past

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5 months. The patient was para 0-0-0-0 and did not have a significant family history. A medical doctor evaluated the patient for iron deficiency anemia and hemoptysis 5 months previously. After menarche, she had experienced chronic iron deficiency anemia.

A biopsy by bronchofibroscopy and bronchial washing were negative. The vocal cords, trachea, and carina were normal. The apical segment of the right upper lobe contained old blood clots. A transtracheal echocardiography was negative and chest computer tomography (CT) and a heart CT scan revealed no abnormal findings. The following lab results were reported: white blood count, $17.35 \times 10^3/\mu\text{L}$; hemoglobin/hematocrit, 8.3 g/dL/27.9%; platelets, $347 \times 10^3/\mu\text{L}$; total iron binding capacity, 382 $\mu\text{g/dL}$ (normal finding); iron, 20 $\mu\text{g/dL}$ (low level); and unsaturated iron binding capacity, 362 $\mu\text{g/dL}$. A sputum test and antimycoplasma IgM and IgG tests were negative. Creatine kinase-MB, troponin I, brain natriuretic peptide, triiodothyronine, free thyroxine, and thyroid stimulating hormone levels were all normal. Catamenial hemoptysis was presumed. A transvaginal ultrasonography revealed no other abnormal findings in the uterus or ovaries, but she had dysmenorrhea. Monthly GnRH analogue injections were administered, and 4 months later no hemoptysis was observed.

Discussion

A recurrent pneumothorax concurrent with at least two menstruation cycles suggests a diagnosis of catamenial pneumothorax (CP) [2]. The right side of lung is more frequently affected (90%) in CP [1]. Catamenial hemoptysis is much rare as compared with CP and is diagnosed when hemoptysis co-occurs with menstruation. In our case report, old blood clots were observed by bronchoscopy; however, the most important guideline for the diagnosis of catamenial hemoptysis is if the patient's menstrual history is consistent with hemoptysis.

After a differential diagnosis examining the causes of recurrent hemoptysis, catamenial hemoptysis was confirmed. Catamenial hemoptysis is often confused with pulmonary arteriovenous malformation; therefore, some cases require confirmation by bronchial cytology [3].

Bronchial cytologic confirmation for catamenial hemoptysis was < 30%, since catamenial hemoptysis was mostly present as pleural sites of thoracic endometriosis [3].

Without a previous history of endometriosis and confirmation by video-assisted thoracic surgery, CP and thoracic endometriosis with recurrent endometriosis during the menstruation cycle may be diagnosed [1]. When attempting to distinguish between iatrogenic pneumothorax and CP, CP and thoracic endometriosis remain underdiagnosed. Therefore, it is important to obtain a history regarding scapular or thoracic pain during menstruation and pelvic surgery for endometriosis, such as in our case [2]. Pulmonology or emergency medical doctors or thoracic surgeons may be the first to encounter or observe the CP and catamenial hemoptysis. As such, they should determine whether the menstruation cycle correlates with the symptoms. Three characteristics of CP occurrence are as follows: a diaphragmatic perforation, endometrial implants, and the level of prostaglandin F 2α in the blood [4].

The first treatment of choice for CP is 6 months of hormone therapy. If a recurrence occurs after hormone therapy, surgical procedures such as diaphragm resection and chemical pleurodesis are second choice treatments [4]. It is important to obtain a menstrual history when evaluating a patient with CP or catamenial hemoptysis. After a diagnosis of CP or catamenial pneumothorax is made, the gynecologist should evaluate the patient for pelvic endometriosis. Prompt diagnosis and medical management are extremely important for preventing recurrence based on the menstruation history and a pelvic organ evaluation.

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