



## CATAMENIAL PNEUMOTHORAX: PRESENTATION OF A CASE AND REVIEW OF THE LITERATURE

<b>Denny Marcela Achicanoy Puchana</b>	MD. Universidad de Nariño. Residente de Imagenología diagnóstica y terapéutica, Universidad Nacional Autónoma de México.
<b>Fabricio Andres Lasso Andrade*</b>	MD. Universidad del Cauca. Especialista Epidemiología, Universidad Autónoma de Bucaramanga. Residente Anestesiología y Reanimación, Universidad Nacional de Colombia. *Corresponding Author
<b>Diana Fernanda Achicanoy Puchana</b>	MD. Universidad de Nariño. Residente de Imagenología diagnóstica y terapéutica, Universidad Nacional Autónoma de México.
<b>Jorge Alejandro Cadena Arteaga</b>	MD. Especialista en Radiología. Universidad del Valle. Cali, Valle del Cauca-Colombia.
<b>Roger Stiven Cortés España</b>	MD. Universidad de Guayaquil
<b>Thanya Mariselle Lagos</b>	MD. Universidad del Valle
<b>Adriana Del Pilar Cortes Ferro</b>	MD. Universidad Pedagógica y Tecnológica de Colombia
<b>Magda Carolina Buitrago Rojas</b>	MD. Universidad de Boyaca
<b>Jesús Eduardo Martínez Medina</b>	Anestesiólogo - Universidad de La Sabana
<b>Carlos Eduardo Medina Sánchez</b>	Anestesiólogo- Universidad Nacional Autónoma de México
<b>Kimberly Tatiana Vergara Jaramillo</b>	MD. Universidad Militar Nueva Granada
<b>Juliana Stefany Villota Pepinoza</b>	MD. Universidad Cooperativa de Colombia
<b>Elizabeth Andrea Suárez Rosero</b>	MD. Universidad Cooperativa de Colombia
<b>Jennifer Helena Risueño Martínez</b>	MD. Universidad Nacional de Colombia

### ABSTRACT

Endometriosis is defined as the presence of functional extra-uterine endometrial tissue, which can suffer hemorrhage, inflammation, fibrosis and adhesion formation, causing pelvic pain and infertility. The chest is a place where the presentation of endometriosis is rare, its diagnosis is based on the clinical picture of pneumothorax without associated trauma but with cyclical presentation. The pathological study is based on the presence of stroma and endometrial glands. The management of thoracic endometriosis is medical based on hormonal treatment, and surgical management for the management of complications or resection of the ovaries and hysterectomy to avoid recurrence. We present a case of a patient with recurrent catamenial pneumothorax.

**KEYWORDS :** Catamenial pneumothorax; Endometriosis; Thoracic endometriosis; Pneumothorax

### INTRODUCTION

Endometriosis is defined as the presence of functional extra-uterine endometrial tissue, which can suffer hemorrhage, inflammation, fibrosis and adhesion formation, causing pelvic pain and infertility. Its prevalence ranges between 3-15% in women of childbearing age, especially between 24 to 29 years, but much lower in menopausal women, being only 2-5%. We present a case of recurrent catamenial pneumothorax

(1,2,8).

### Case report

A 45-year-old female patient, with a history of intrauterine curettage, and recurrent right spontaneous pneumothorax in 2 occasions, treated with closed thoracostomy. These episodes always occurred in relation to the menstruation. She was admitted due to the presence of sudden pleuritic chest

pain, referred to the right interscapular level, with progressive dyspnea of moderate effort until rest, with the need for supplemental oxygen due to desaturation, denies associated trauma, ingestion of caustics or foreign bodies, referred to the beginning of the menstrual phase 48 hours prior to admission. A chest X-ray was performed showing right spontaneous pneumothorax with total collapse of the middle and lower lobes and partially the upper lobe and the presence of a left granuloma (Figure 1). A diagnostic thoracoscopy was performed, finding firm adhesions in the lung and anterior wall of the wall, as well as an eroded diaphragm and lung collapse. Parietal pleurectomy, extensive adherenciolysis, diaphragmatic mesh placement, mechanical pleurodesis, and sublobar resection of the middle lobe and right upper lobe are considered. The result of the pathology showed endometrial tissue in the parietal pleural, middle lobe and right upper lobe, confirming catamenial pneumothorax. At 7 days of observation, a chest X-ray was performed showing subcutaneous cellular edema and a radiopaque area in the middle lobe corresponding to the site of pleurodesis, without recurrent pneumothorax or other complications (Figure 2). The patient had treatment with progestogens without new episodes of pneumothorax in the last 12 months.



**Figure 1.** Chest X-ray. The pleural line that delimits the lung parenchyma is observed, with complete radiolucidity of the middle and lower lobe and partially of the right upper lobe in relation to the absence of a bronchovascular pattern, consistent with a left pneumothorax.



**Figure 2.** Chest X-ray. Subcutaneous cellular edema and radiopaque area in the middle lobe corresponding to the site of pleurodesis, without recurrent pneumothorax.

## DISCUSSION

The prevalence of pelvic endometriosis associated with pneumothorax is between 18% and 84%. Catamenial pneumothorax generally occurs 24 hours before or up to 72 hours after the start of menstruation, predominantly on the right side, which some authors refer to has to do with the endometrial tissue circulating in the direction of the peritoneal fluid, that is, as needles of watch inside the abdominal cavity. (4,11).

The diagnosis is based on the symptoms of pneumothorax without associated trauma but with cyclical presentation, commonly manifested with chest pain, hemoptysis, dyspnea, cough and scapular pain, which may be associated with menstruation, together with imaging findings of pneumothorax, intraoperative findings and pathologies of ectopic endometrial tissue in the thoracic cavity (5). Pleural effusion or nodular opacities can be seen on chest X-ray, and ground glass images, nodular lesions, and thin-walled cavities or bullae can be seen on chest computed tomography. The pathological study is based on the presence of stroma

and endometrial glands, however there are suggestive findings such as the presence of stroma or pulmonary parenchymal hemorrhages and macrophages loaded with hemosiderin (3,10).

It is important to take into account gynecological antecedents such as the inability to conceive, recurrent abortions among others that increase our suspicion of this pathology, as well as to exclude other frequent lung diseases such as tuberculosis or lung neoplasms. Despite this, it remains a diagnostic challenge since there are no specific diagnostic criteria and although perimenstrual symptoms are typical, sometimes the symptoms occur in the intermenstrual period, which does not exclude the diagnosis and basically makes it dependent on expertise and degree of suspicion of the treating physician as well as of a multidisciplinary team made up of a pulmonologist, radiologist, gynecologist, thoracic surgeon and pathologist to determine the diagnosis and offer the ideal treatment (1,4).

Pleural effusion or nodular opacities can be seen on chest X-ray, and ground glass images, nodular lesions, and thin-walled cavities or bullae can be seen on chest computed tomography. Despite its low specificity, CT of the chest remains the primary imaging method to support the diagnosis. Magnetic resonance imaging is considered more sensitive than computed tomography in visualizing diaphragmatic endometriosis lesions given the higher contrast resolution and better characterization of hemorrhagic lesions, including small pleural foci as hyperintense cystic lesions on T1-weighted images of the visceral or parietal pleura. MRI is a good option for the characterization of pleural endometriosis nodules and hemorrhagic pleural effusion. The differential diagnosis should be made with much more frequent pathologies such as tuberculosis and lung neoplasms, which makes their diagnosis and timely treatment much more difficult (1,5,9).

The management of thoracic endometriosis is medical and surgical. In medical management, the first line and the objective is to suppress the activity of the ectopic endometrium by means of progestogens, Danazol or gonadotropin-releasing hormone (GnRH) analogues, however, a high recurrence rate has been associated with this, approximately 50% of patients treated at six months. Surgical management consists of locating the ectopic endometrial tissue in the lung, pleura or diaphragm and resecting it using video-assisted thoracoscopy surgery (VATS) or open surgery, and performing the resection of visible bullae, repair of diaphragmatic fenestrations or salpingectomy, hysterectomy, oophorectomy and mesh placement of the diaphragm orifices according to the suspected pathophysiological theory. Post-surgical neoadjuvant hormonal treatment has shown a significant decrease in the recurrence rate of the disease and a reduction in the infertility rate (5-8).

In conclusion, catamenial pneumothorax continues to be a diagnostic challenge, which should have a high clinical suspicion based on the recurrent appearance of pneumothorax associated with menstruation, whose study is imperative for histological confirmation is essential for its treatment and thus avoid recurrences.

## Ethical standards and patient consent

We declare that the patient described in this study gave informed consent prior to inclusion in this study.

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