

Catamenial pneumothorax: A rare diagnosis

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Section: Chest imaging

Area of Interest: Lung

Procedure: Computer Applications-Detection, diagnosis

Imaging Technique: Conventional radiography

Special Focus: Acute Case Type: Clinical Cases

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Patient: 34 years, female

Clinical History:

A 34-year-old female patient presented with sudden onset of shortness of breath and left-sided chest pain for 2 days. She had a history of multiple episodes of similar symptoms every 30-40 days for the past 4 years and it was always followed by menstruation. A chest radiograph was performed.

Imaging Findings:

The frontal chest radiograph revealed a left-sided pneumothorax for which Tube-thoracostomy was done. A previous radiograph showed a dense homogeneous opacity in the right middle and lower zone obliterating the right heart border and right dome of the diaphragm suggesting right-sided pleural effusion with chest tube drain in situ.

Discussion:

Catamenial pneumothorax (CP) is defined as recurrent pneumothorax (at least two episodes) occurring between the day before and within 72 hours after the onset of menstruation. It may affect up to one-third of women with spontaneous pneumothoraces [1]. It is encountered in 3-6% of spontaneous pneumothorax cases among menstruating women [2]. There is right side preponderance [3, 4, 5]. It usually involves the right side (85-95%) and can be left-sided or bilateral [2]. It is associated with diaphragmatic perforations and/or thoracic endometriosis [2].

Thoracic endometriosis syndrome (TES) is the presence of endometrial tissue in or around the lung. Although endometriosis in general can affect up to 15% of women in their reproductive years, TES remains an exceedingly rare condition [6, 7].

TES occurs almost exclusively in the right hemithorax (approximately 95% of cases) [8, 9]. Although congenital diaphragmatic hernias are far more common on the left side, congenital diaphragmatic defects, particularly fenestrations, are known to occur more commonly on the right, leading to the right-sided predominance of TES [10]. CP is responsible for only 2.5% to 5% of cases of women with spontaneous pneumothorax [11, 12] even though it accounts for 73% of the cases of TES [6]. The first case of CP was described by Maurer et al. [13] in 1958, but the term catamenial pneumothorax was not introduced until 1972. [14] CP is typically defined as spontaneous and recurrent pneumothorax occurring within 72 hours from the onset of menstruation. [8, 11] According to Karpel et al, [15] the number of recurrent pneumothoraces can range from 2 to 42 per patient.

Three theories have developed to explain this entity. The first is transdiaphragmatic passage, or movement, of air

from the vagina to the peritoneum via the fallopian tubes, and subsequently to the thorax via diaphragmatic fenestrations. This is thought to occur during the menstrual cycle when the cervical mucus plug is absent. [5, 7, 13].

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second is air leakage triggered by sloughing of the endometrial implants located on the pleura. [5, 7] The third proposes a hormonally mediated mechanism in which high levels of prostaglandin from thoracic endometrial implants cause vascular and bronchiolar vasoconstriction, leading to ischaemic injury and ultimately causing alveolar rupture and

subsequent air leakage. [5] Another theory that has been proposed as a cause of catamenial pneumothorax is the spontaneous ruptures of blebs.

Teaching points

Whenever a female patient in the reproductive age group present with chest pain or recurrent pneumothorax; it's worthwhile to record an elaborated mensuration history and evaluate for catamenial pneumothorax.

Differential Diagnosis List: Catamenial pneumothorax, Primary spontaneous pneumothorax, Iatrogenic pneumothorax

Final Diagnosis: Catamenial pneumothorax

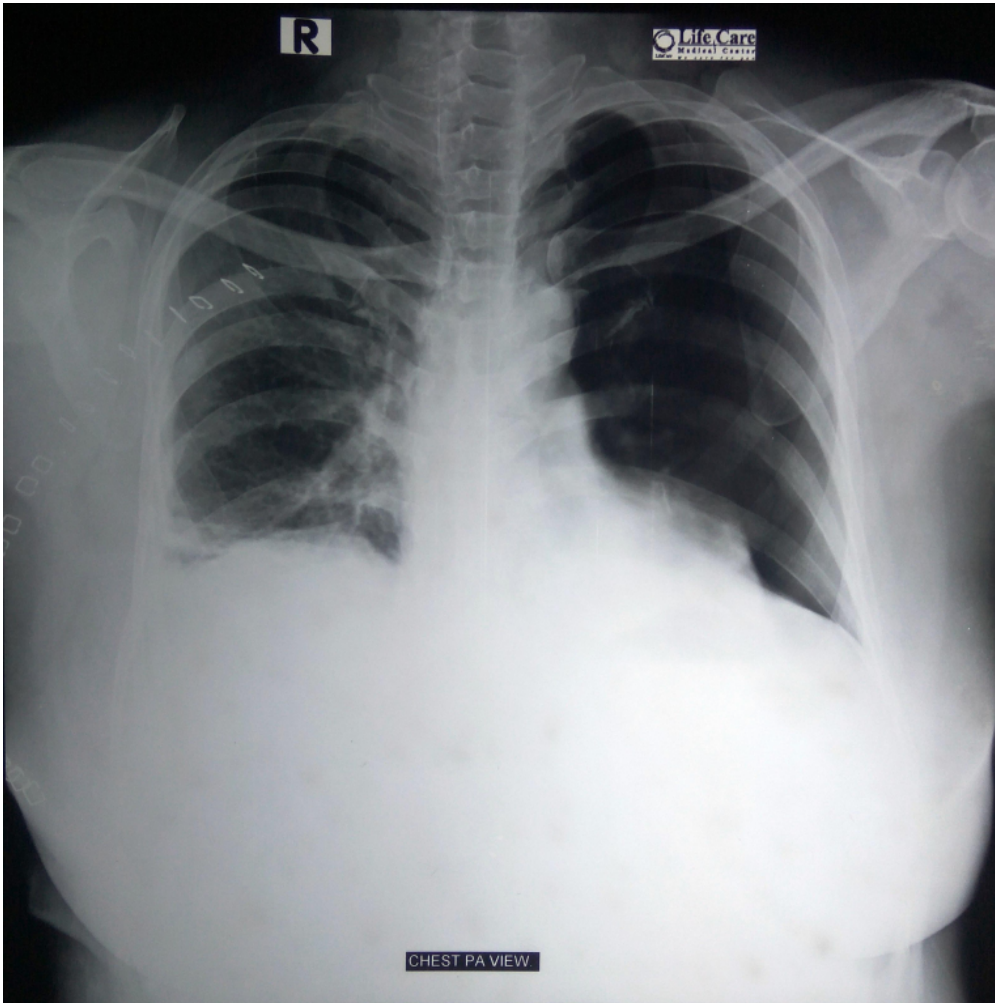
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Karpel JP, Appel D, Merav A (1985) Pulmonary endometriosis. Lung 163(3):151–9 (PMID:[2931558](#))

Figure 1

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Description: Catamenial pneumothorax **Origin:** Department of Radiology & Imaging