International Journal of Research in Medical Sciences
Najeeb N et al. Int J Res Med Sci. 2026 Jun;14(6):2620-2624
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20261714

Case Report

Medical thoracoscopy in thoracic endometriosis: a diagnostic tool in a rare scenario

Nashin Najeeb[1]*, Athul Thulasi[1], Rajathilakam Natarajan Kumari[2], Kiran Jose[3], Angel Varghese[4]

[1]Department of Pulmonology, Travancore Medical College, Kollam, Kerala, India
[2]Department of Pulmonology, District Hospital, Kollam, Kerala, India
[3]Department of Pathology, Travancore Medical College, Kollam, Kerala, India
[4]District Hospital Kollam, Kerala, India

Received: 13 April 2026
Revised: 14 May 2026
Accepted: 19 May 2026

***Correspondence:**
Dr. Nashin Najeeb,
E-mail: nashinnajeeb@gmail.com

ABSTRACT

Medical thoracoscopy is a tool employed in the evaluation of pleural effusions when initial diagnostic thoracocentesis and standard conventional therapies prove to be ineffective. Thoracic endometriosis (TE) is an uncommon form of extra pelvic endometriosis, characterized by endometrial cells in thoracic cavity which can be parenchymal, pleural and diaphragmatic. TE typically manifest as catamenial pneumothorax followed by catamenial hemothorax, catamenial hemoptysis and occasionally as pulmonary nodules. We present a case involving a 29 year old female experiencing secondary infertility and recurrent right sided chest pain and dyspnea since three months. Chest radiography revealed right hydropneumothorax. As her symptoms correlated cyclically with menstruation, a high suspicion of TE was made and later confirmed on histopathology by medical thoracoscopy.

Keywords: Thoracic endometriosis syndrome, Catamenial pneumothorax, Medical thoracoscopy, Pleural endometriosis, Secondary infertility, Hormonal and surgical management

INTRODUCTION

Endometriosis is a chronic, estrogen-dependent disease characterized by the presence of endometrial glands and stroma outside the uterus, most often affecting women of reproductive age.[1] While the pelvis is the most common site, extra-pelvic involvement has been documented, with the thorax representing the most frequent location.[2,3]

TE manifests clinically as catamenial pneumothorax, catamenial hemothorax, catamenial hemoptysis, or pulmonary nodules, usually with right-sided predominance.[3,4] Among these, catamenial pneumothorax is the most frequent, accounting for up to 73% of cases in large series.[4,5] Symptoms typically correlate with the menstrual cycle and may recur if not appropriately recognized. The pathogenesis of TE is incompletely understood. Theories include retrograde menstruation with transdiaphragmatic passage, coelomic metaplasia, and lymphovascular spread.[2,6,10] Diaphragmatic fenestrations are often implicated as a route for both air and endometrial tissue into the pleural cavity.[7-9]

Diagnosis remains challenging, as imaging may be non-specific. While video-assisted thoracoscopic surgery (VATS) is the traditional gold standard for both diagnosis and treatment, medical thoracoscopy (MT) has emerged as a valuable diagnostic alternative.[3,5] MT allows direct visualization of pleural lesions, diaphragmatic defects, and hemorrhagic effusions, with the advantage of being performed under local anesthesia and conscious sedation.[11-13] Biopsies obtained during MT can confirm endometriosis via histopathology and

immunohistochemistry, thus avoiding delays in diagnosis. This case report highlights the role of medical thoracoscopy in TE, emphasizing its diagnostic utility in recurrent catamenial pneumothorax.

CASE REPORT

A 29 year old homemaker, with no known comorbidities, presented with complaints of intermittent right-sided chest pain and exertional dyspnea persisting for the past three months. She was married at 18 years, non-consanguineous marriage, has one 11 year old healthy female child. She has been unable to conceive for the past three years and is currently receiving gynecology consultation for secondary infertility. Additionally, she reported dysmenorrhea since past three years, without accompanying menorrhagia.

Initially, she sought consultation at a local hospital for her respiratory symptoms. A chest X-ray revealed a right-sided pleural effusion. Therapeutic thoracocentesis was performed, revealing a hemorrhagic exudative lymphocytic effusion, with cultures yielding *Pseudomonas*. Cytological analysis was negative, and the patient was commenced on intravenous antibiotics, resulting in clinical improvement. A computed tomography (CT) scan of the abdomen identified a right adnexal mass.

Figure 1: Hydropneumothorax.

Figure 2: CT thorax of hydropneumothorax.

Figure 3: Hemothorax confirmed on diagnostic thoracentesis.

Figure 4: Endometriotic nodules on the diaphragm seen during medical thoracoscopy.

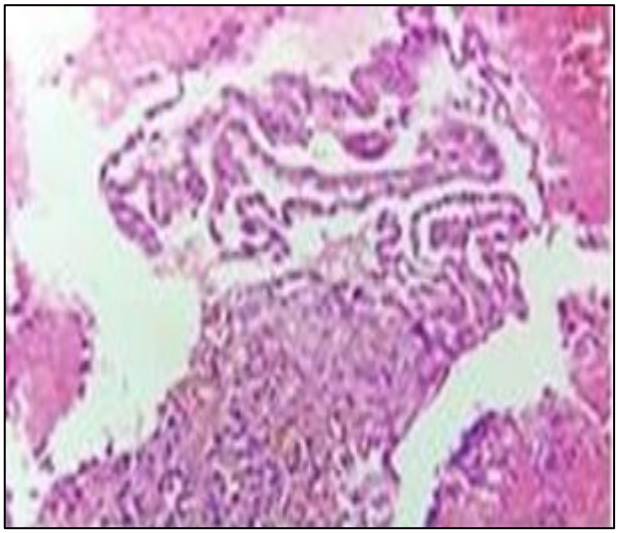

Figure 5: H and E sections of endometrial glands and hemosiderin laden macrophages.

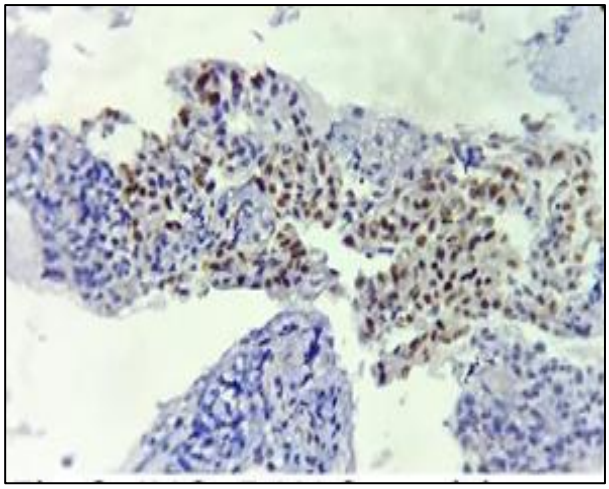

Figure 6: IHC-PAX 8 positive.

Figure 7: Clearance after VATS decortication.

She experienced a recurrence of symptoms during her next menstrual periods, and a chest X-ray showing a possible hydropneumothorax. A CT scan of the chest confirmed the presence of a hydropneumothorax without any parenchymal lesions. Subsequent thoracocentesis revealed an exudative effusion with low adenosine deaminase (ADA) levels (32) and eosinophilic predominance. The CBNAAT test was negative, and cytology was negative for malignant cells. MRI chest and abdomen done revealed moderate right sided effusion and adnexal mass. A gynecological evaluation at the

local hospital for potential ovarian malignancy returned negative results for CEA, CA 125, and Beta HCG. An ultrasound of the abdomen identified a right ovarian cyst measuring 19×21 mm consistent with the right adnexal mass noted earlier on CT abdomen.

She was referred to our center for further evaluation, USG screening revealed minimal effusion and thoracoscopy was scheduled on the day of her next menstruation considering the high tissue yield. On first day of next periods, she was admitted and underwent medical thoracoscopy which revealed reddish diaphragmatic nodules with a clean pleura and lung. A biopsy was obtained from the diaphragmatic nodules and sent for histopathological examination. The patient was discharged on the third day with a SINAPI drain. Bronchoscopy was also done which was non diagnostic and had no tracheobronchial lesions.

Histopathological examination revealed fibrocollagenous tissue with areas of hemorrhage and hemosiderin deposition, along with endometrial-type glands and stroma, indicative of TE, with ER, CD10, and PAX-8 positivity.

The gynecology team-initiated treatment with a GnRH agonist (leuprolide) and Mirena insertion was performed. Despite these interventions, the patient experienced persistent pneumothorax, prompting a consultation with the cardiothoracic surgery team, who recommended VATS. Due to financial constraints patient went to government facility and underwent VATS decortication. Post procedure there was no recurrence of effusion and patient became symptomatically better, with further menstrual cycles being uneventful.

DISCUSSION

Here we report a case of TE in a young woman with secondary infertility, manifesting as recurrent right-sided catamenial hydropneumothorax with the help of medical thoracoscopy. Although TE is a rare entity, it should always be considered in reproductive-age women presenting with cyclical pleural effusions or pneumothorax, especially when traditional etiologies are excluded and there is temporal association with menstruation.

The diagnostic pathway in this case reflects key challenges described in the literature: conventional imaging and pleural fluid analyses are frequently inconclusive for TE and pleural fluid cytology often fails to reveal diagnostic features. The direct role of interventional pulmonology-in the form of medical thoracoscopy-was pivotal, enabling visualization and histological confirmation of diaphragmatic endometrial implants. Our case is similar to the observations reported by Lung India authors Chatterjee et al and Sharma et al.[14,15] The histopathological confirmation obtained from thoracoscopic biopsy in our case supports these findings and reinforces the importance of performing the procedure during menstruation, when endometrial implants are more likely to be active and identifiable.[16]

Ravindran et al also reported three cases that were diagnosed with the help of medical thoracoscopy.[17]

Although VATS followed by histopathological examination remains Gold standard for diagnosing TE, the

tissue sampling can have inconsistent results.[18] Additionally, we want to emphasize that the biopsy performed during the VATS procedure did not reveal any endometrial tissue, indicating that we had already removed the maximum tissue possible with medical thoracoscopy. Compared with VATS, medical thoracoscopy can be performed under local anesthesia with conscious sedation, offering the advantages of reduced procedural invasiveness, lower postoperative pain, and faster recovery.

Our patient was directed to undergo VATS decortication because of a persistent pneumothorax, as the lungs failed to re-expand after the procedure due to restrictive complications, even though diagnostic thoracoscopy and biopsy identified TE, which is most likely due to the pleural fibrosis, following the delayed presentation. Considering this, we suggest that an earlier intervention with medical thoracoscopy might have averted such complications, which ultimately necessitated VATS for this patient.

The pathogenesis of TE is incompletely understood, with retrograde menstruation and transdiaphragmatic passage being the most widely supported mechanism for right-sided predominance. Other theories, such as coelomic metaplasia and lymphovascular spread, further highlight the complexity of this syndrome.[2] The case also illustrates the potential for complex presentations involving multiple organ systems, as noted by the coexisting ovarian cyst and secondary infertility. Management of TE must be individualized and multidisciplinary. Hormonal therapy (such as GnRH agonists and intrauterine levonorgestrel) was initiated, but literature shows failure in 50% cases.[19] Here, a definitive resolution of persistent pneumothorax ultimately required VATS decortication.

Patients with pelvic endometriosis may later require surgery (bilateral salpingo-oophorectomy) once their family is completed. This aligns with current evidence suggesting that combined medical and surgical approaches yield the best outcomes, especially in cases refractory to initial hormonal therapy.

CONCLUSION

TES is a rare pick of a pulmonologist where a detailed clinical history with regard to menstruation can lead to a strong clinical suspicion and the right sided predominance of pleural effusion which is consistent with the retrograde menstruation theory, but left sided presentation are not uncommon. Timely intervention with medical thoracoscopy, a less invasive procedure than VATS helped in visualizing the lesions and targeted biopsy which lead to the diagnosis of TE in our case. Conducting the biopsy during her menstruation increased the tissue yield. Prompt recognition and tailored interventions – balancing hormonal and surgical modalities –reduce morbidity and enhance recovery.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Agarwal N, Subramanian A. Endometriosis-morphology, clinical presentations and molecular pathology. J Lab Physicians. 2010;2(1):1-9.
2. Vinatier D, Orazi G, Cosson M, Dufour P. Theories of endometriosis. Eur J Obstet Gynecol Reprod Biol. 2001;96(1):21-34.
3. Alifano M, Trisolini R, Cancellieri A, Regnard JF. Thoracic endometriosis: current knowledge. Ann Thorac Surg. 2006;81(2):761-9.
4. Joseph J, Sahn SA. Thoracic endometriosis syndrome: new observations from an analysis of 110 cases. Am J Med. 1996;100(2):164-70.
5. Channabasavaiah AD, Joseph JV. Thoracic endometriosis: revisiting the association between clinical presentation and thoracic pathology based on thoracoscopic findings in 110 patients. Medicine (Baltimore). 2010;89(3):183-8.
6. Sampson JA. Peritoneal endometriosis due to the menstrual dissemination of endometrial tissue into the peritoneal cavity. Am J Obstet Gynecol. 1927;14:422-69.
7. Alifano M, Roth T, Broët SC, Schussler O, Magdeleinat P, Regnard JF. Catamenial pneumothorax: a prospective study. Chest. 2003;124(3):1004-8.
8. Makhija Z, Marrinan M. A case of catamenial pneumothorax with diaphragmatic fenestrations. J Emerg Med. 2012;43(1):e1-3.
9. Maurer ER, Schaal JA, Mendez FL Jr. Chronic recurring spontaneous pneumothorax due to endometriosis of the diaphragm. JAMA. 1958;168(15):2013-4.
10. Fukunaga M. Paratesticular endometriosis in a man with prolonged hormonal therapy for prostatic carcinoma. Pathol Res Pract. 2012;208(1):59-61.
11. Joseph J, Reed CE, Sahn SA. Thoracic endometriosis: recurrence following hysterectomy with bilateral salpingo-oophorectomy and successful treatment with talc pleurodesis. Chest. 1994;106(6):1894-6.
12. Nwiloh J. Diaphragmatic patch: a useful adjunct in surgical treatment of recurrent catamenial hemothorax. Rev Port Pneumol. 2011;17(6):278-80.
13. Hibbard LT, Schumann WR, Goldstein GE. Thoracic endometriosis: a review and report of two cases. Am J Obstet Gynecol. 1981;140(2):227-32.
14. Chatterjee S, Mukhoti K, Chakraborty A. Catamenial pneumothorax in thoracic endometriosis syndrome. Lung India. 2024;41(3):217-8.
15. Sharma P, Karmakar S, Wani AR, Venugopal V, Maji D. Thoracic endometriosis syndrome diagnosed by dry thoracoscopy: Novel diagnostic method for a rare disease. Lung India. 2025;42(2):147-50.
16. Hope-Gill B, Prathibha B. Catamenial haemoptysis

and clomiphene citrate therapy. Thorax. 2003;58(1):89.
17. Chetambath R, Karedath G, Chandran S. Thoracic Endometriosis Detected During Medical Thoracoscopy in a Tertiary Care Setting-A Retrospective Observational Study. J Pulmonol Res Rep. 2024;6(4):1-4.
18. Nezhat C, Nicoll LM, Bhagan L, Huang JQ, Bosev D, Hajhosseini B, et al. Endometriosis of the diaphragm: four cases treated with a combination of laparoscopy and thoracoscopy. J Minimally Invas Gynecol. 2009;16(5):573-80.
19. Light RW. Pleural disease. 5th edition. Lippincott Williams and Wilkins: Baltimore. 2007.

Cite this article as: Najeeb N, Thulasi A, Kumari RN, Jose K, Varghese A. Medical thoracoscopy in thoracic endometriosis: a diagnostic tool in a rare scenario. Int J Res Med Sci 2026;14:2620-4.