



Catamenial Pneumothorax Fact Sheet: A Summary for your Doctor

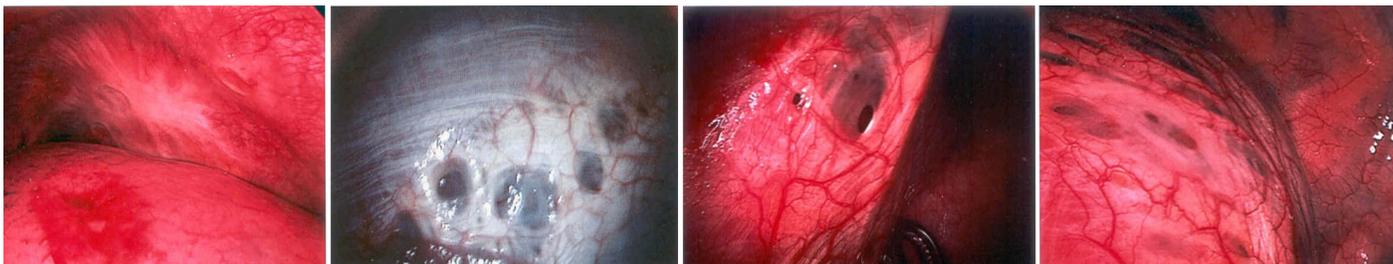
Definition: Catamenial pneumothorax (CPT or CP) is a rare condition that involves endometriosis of the diaphragm, lung or pleura which can cause the lung to collapse during menses.

Spontaneous (SPT) versus Catamenial (CPT): Spontaneous pneumothorax occurs without warning, and may be due to the rupture of blebs (1). SPT primarily effects tall thin men in their 20s and 30s, and can involve either lung. CPT is characterized by reoccurring pneumothorax which coincides with menses (2). It occurs in women in their 30s and 40s, and is almost always right-sided (3, 4).

Although the exact etiology is not fully understood, most physicians recognize that endometriosis plays a key role (3). In the literature, this condition is described as thoracic endometriosis (TE), thoracic endometriosis syndrome (TES), or thoracic endometriosis-related pneumothorax (TERP). Documented case studies describe thoracic or pulmonary endometriosis as implants on the lung or pleura (5). More frequently however, articles describe cases involving diaphragmatic fenestrations (1). Some physicians attribute this damage to endometriosis and speculate that air passes into the pleural space through these holes (3, 5). Endometriosis is also thought responsible for hemothorax, hemoptysis, and intra-thoracic endometrial nodules (13).

CPT Symptoms: Symptoms include monthly chest pain, shoulder blade pain, shortness of breath, a “crackling sound” with inhalation, dizziness and fatigue. Many patients have been previously diagnosed with pelvic endometriosis (4).

CPT Images: Diaphragmatic fenestrations (referred to in literature as resembling “blueberry spots”) and endometrial implants on the lung or pleura can be identified and repaired during video-assisted thoracic surgery (VATS) or thoracotomy.



CPT Treatment Options: Literature shows that many women are initially treated for SPT, until a correlation is made between their multiple lung collapses and their menstrual cycle (6).

Aspiration: Air is removed manually by way of a catheter. A similar approach is the use of a one-way Heimlich valve.

Thoracostomy: A chest tube/chest drain is inserted into the pleural space, where suction and a water seal are applied until the lung re-expands.

Chemical Sclerosis / Pleurodesis: A chemical is inserted through the chest tube causing inflammation and scarring of the pleural surfaces promoting adhesions to form between the lung and chest wall, thereby discouraging future collapses. Chemical pleurodesis used alone to treat CPT, without other surgical repairs and/or hormonal therapy has a significant failure rate (1).

Endometrial suppression hormonal therapy: Progestins and gonadotropin releasing hormone agonists (GnRH) are the agents most frequently used to induce chemical menopause (3, 7, 8).

Thoracoscopy / VATS: Video-assisted thoracic surgery utilizes a fiber optic scope to visualize the lung, pleura and diaphragm. Diaphragm repair, bleb resection and pleurodesis can all be done during this procedure (9).

Pleural abrasion: Mechanical pleurodesis involves the abrading or “scrubbing” of the pleural surfaces, so that resulting inflammation will form adhesions between the lung and pleural surfaces, thereby discouraging further collapses. Literature shows that pleurodesis used as a singular treatment, without other surgical repair or hormonal therapy, has a high failure rate (10).

Catamenial-Pneumothorax Fact Sheet: A Summary for your Doctor

Thoracotomy / Pleurectomy: A thoracotomy is performed to view the lung, diaphragm and pleura directly by opening the lung cavity. A pleurectomy is the removal of the pleura, which is designed to encourage adhesion of the lung directly to the chest wall.

Diaphragmatic repair using polymesh: This procedure was introduced in the literature in 2003, and involves a Vicryl-type mesh which is placed over the entire diaphragm, to cover any small fenestrations that may not be seen by the surgeon (3). The Vicryl material allows for tissue ingrowth forming substantial scar tissue over the diaphragm. Recent articles indicate that the procedure is being used in Europe and in the US, and has been shown especially successful when used in conjunction with hormonal therapy (10).

Dual Laparoscopic Diaphragm Evaluation and Repair: Understanding the complex nature of this condition thoracic surgeons and gynecologists utilize a dual laparoscopic procedure, whereby both the anterior and posterior of the diaphragm are evaluated for endometrial progression. This tandem approach reportedly improves chances of successful repair, when lesions are removed from both sides (11, 14).

Bilateral Salpingo-Oophorectomy: This procedure removes both ovaries to induce surgical menopause, thereby limiting estrogen production and suppressing endometrial implants from bleeding (1). Cessation of the menstrual cycle has shown to be an effective treatment for CPT, as long as immediate estrogen replacement is withheld (1, 12).

CPT Literature References:

- (1) *Guidelines for the diagnosis and treatment of spontaneous pneumothorax.* Rivas de Andres JJ, Jimenez Lopez MF, Lopez-Rodo LM, Perez Trullen A, Torres Lanzas J. *J Arch Bronconeumol.* 2008;44(8):437-448
- (2) *Thoracic endometriosis: current knowledge.* Alifano M, Trisolini R, Cancellieri A, Regnard JF. *Ann Thorac Surg.* 2006 Feb;81(2):761-769
- (3) *Catamenial pneumothorax: retrospective study of surgical treatment.* Bagan P, Barthes FL, Assouad J, Souilamas R, Riquet M. *Ann Thorac Surg.* 2003 Feb;75(2):378-381
- (4) *Recurrent spontaneous pneumothorax associated with menstrual cycle: report of three cases of catamenial pneumothorax.* Choong CK, Smith MD, Haydock DA. *ANZ J Surg.* 2002 Sep;72(9):678-679
- (5) *Catamenial pneumothorax caused by thoracic endometriosis.* Van Schil PE, Vercauteren SR, Vermeire PA, Nackaerts YH, Van Marck EA. *Ann Thorac Surg.* 1996 Aug;62(2):585-586
- (6) *Thoracic endometriosis syndrome: new observations from an analysis of 110 cases.* Joseph J, Sahn SA. *Am J Med.* 1996 Feb;100:164-169
- (7) *Medical therapy for recurring catamenial pneumothorax following pleurodesis.* Dotson RL, Peterson CM, Doucette RC, Quinton R, Rawson DY, Jones KP. *Obstet Gynecol.* 1993 Oct;82(4-pt.2):656-658
- (8) *Nonsurgical treatment of a catamenial pneumothorax with a Gn-RH analogue.* Akal M, Kara M. *Respiration.* 2002; 69(3):275-276
- (9) *Catamenial pneumothorax-a prospective study.* Alifano M, Roth T, Camilleri Broet S, Schussler O, Magdeleinat P, Regnard J. *Chest.* 2003;124:1004-1008
- (10) *Catamenial pneumothorax: surgical repair of the diaphragm and hormone treatment.* Leong AC, Coonar AS, Lang-Lazdunski L. *Ann R Coll Surg Engl.* 2006 Oct;88(6):547-9
- (11) *Endometriosis of the diaphragm: four cases treated with a combination of laparoscopy and thoracoscopy.* Nezhad C, Bhagan L, Huang JQ, Bosev D, Hajhosseini B, Beygui RE. *J Minim Invasive Gynecol.* 2009 Sep-Oct;16(5):573-580
- (12) *Catamenial pneumothorax.* Nwosu EC, Sajjad Y, Barnet A. *J Obstet Gynecol.* 2000 Sep;20(5):547-548
- (13) *Management of thoracic endometriosis: single institution experience.* Duyos I, Lopez-Carrasco A, Hernandez A, Zapardiel I, de Santiago J. *Eur J Obstet Gynecol Reprod Biol.* 2014 Jul;178:56-59
- (14) *Multidisciplinary treatment for thoracic and abdominopelvic endometriosis.* Nezhad C, Main J, Paka C, Nezhad A, Beygui RE. *JSLs.* 2014 Jul-Sep;18(3)