# EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

Daniel Samet, MS4 Editor: Benita Chilampath, PGY-II

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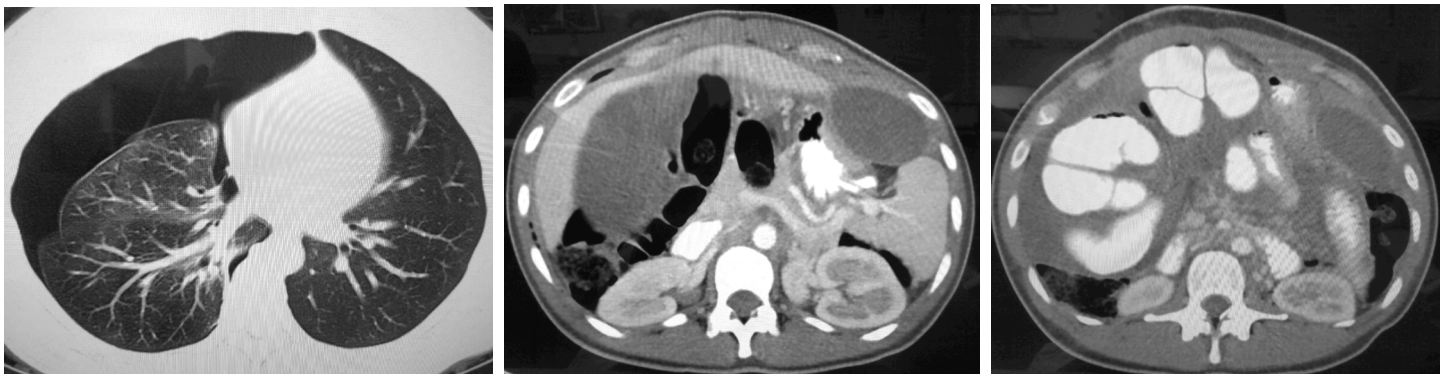
## Thoracic Endometriosis Syndrome

32 year old female with a history of endometriosis, GERD, and multiple abdominal surgeries presents with excruciating diffuse abdominal & low back pain. The pain began approximately 20 hours prior, presently constant and worsening. It is worsened by movement or extension, is relieved by flexion of the torso, and associated with several episodes of bilious, non-bloody emesis. She is on day two of menses, which is regular on ~28 day cycle. History is significant for open cholecystectomy and exploratory laparotomy with endometrial ablation two years prior. She denies chest pain, shortness of breath, or systemic, urinary, or other gastrointestinal symptoms. On physical exam she is in moderate distress with sinus tachycardia (HR ~120) with all other vitals within normal limits. Her lungs are clear bilaterally and she is not in respiratory distress. Her abdomen is firm and distended, dull to percussion and tender diffusely, with positive CVA tenderness bilaterally. There is no rebound tenderness.

The patient is placed on telemetry, labs are drawn, and pain medication and fluids are initiated. She is sent for CT of the abdomen and pelvis with PO & IV contrast, from which the following images are obtained:



What is the next step in management?

A. Consult Surgery for Urgent Exploratory Laparotomy
B. Paracentesis in ED
C. Chest Tube Placement in ED
D. Initiate Sepsis Protocol
E. NG Tube placement in ED

*EM Case of the Week is a weekly "pop quiz" for ED staff.*

**The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.**

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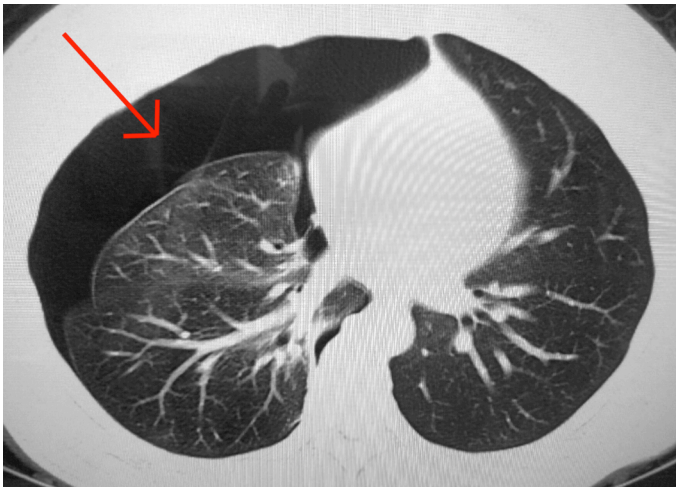
Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

**Answer: C – Urgent placement of a chest tube.**



A large right unilateral pneumothorax is seen here in the lung-field of the abdominal CT (red arrow). On both initial and subsequent evaluation, this patient did not show clinical evidence of pneumothorax, such as chest pain, shortness of breath, respiratory distress, tachypnea, and unilateral decreased breath sounds with hyperresonace to percussion. However this pneumothorax is clearly revealed on imaging as an incidental yet important finding.

In this patient, a bedside upright CXR was obtained to evaluate the size of the pneumothorax and create a basis of comparison for her treatment course. A chest tube was then placed by the ED physician anteriorly in the 2nd intercostal space via pigtail-approach. This technique allows for a smaller tube than the traditional approach, and is an option when there is no hemothorax or empyema component. Needle decompression was not indicated as this was not in tension.

In this patient who had known extensive, biopsy-confirmed endometriosis, who is on menses with other evidence of current exacerbation, a diagnosis was made of Thoracic Endometriosis Syndrome.

**Thoracic Endometriosis Syndrome**

Thoracic Endometriosis Syndrome is a clinical diagnosis made when there are one or more clinical manifestations of endometriosis within the thorax (pneumothorax, hemothorax, chest pain, or hemoptysis) in association with menstruation in a patient with biopsy-confirmed endometriosis. At such time in the future after surgery when the etiology is confirmed with surgical biopsy and histology, the diagnosis can be upgraded to thoracic endometriosis. The word “catamenial” means associated temporally with menses, and patients who have recurrent episodes associated with menses are diagnosed as having catamenial pneumothorax (or any other catamenial pathology).

Pneumothorax is the most common presentation of Thoracic Endometriosis Syndrome, comprising more than 85% of all cases. They occur when a ball of ectopic endometrial tissue is present in the tissue of the lung such that, when it degrades during menses, a passageway is created between the airspaces of the lung and the pleural cavity. This is initially treated with a chest tube to treat acutely, just like any other pneumothorax. During the later course, care will involve careful coordination between cardiothoracic surgery, pulmonology, and OBGYN endocrinology, with the goal of removing hazardous ectopic endometrium and preventing the cyclic hormonal changes of the menstrual cycle.

The differential diagnosis of pneumothorax also includes primary/idiopathic, blebs, trauma, Marfan syndrome, homocystinuria, bronchiolitis, emphysema, bronchiectasis, lung cancer, other lung & airway pathologies, iatrogenic (ex. ventilation, central lines, CPR), or Birt-Hogg-Dubé syndrome.

Warriors

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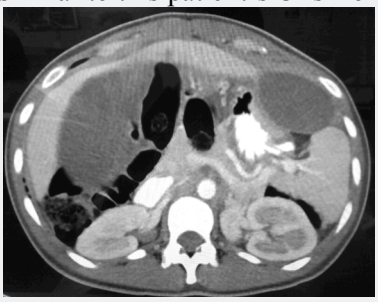
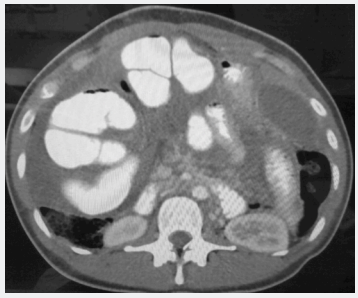
**Endometriosis and this Patient's Abdominal Pain**

The differential diagnosis for this patient's abdominal pain included endometriosis exacerbation, small bowel obstruction or bowel infarction, and many other GI, GU, and renal pathologies. Labs revealed a lactic acid of 2.2, but did not reveal leukocytosis or any evidence of other intra-abdominal pathologies.
The abdominal CT was read as "moderately dilated loops of small bowel without evidence of mechanical obstruction. Extensive loculated ascites is present, although decreased in overall size compared to prior studies. Loculations & rim enhancement of the fluid most likely indicating malignant ascites." This was similar to this patient's CTs from 2015 around the time of her first ex-lap.





Endometriosis is the benign ectopic proliferation of endometrial tissue. It typically presents with symptoms which are cyclic, in association with the normal growth and breakdown of endometrial tissue throughout the menstrual cycle. It is most common within the lower pelvis and presents with pain during menses. However, can also be present within the thorax, the urinary tract causing catamenial hematuria, the GI tract causing catamenial GI bleeding, or within the central nervous system. Other common locations include the ovaries or the uterine muscle, causing non-cyclic pain, or within the pouch of Douglas, causing pain on defecation or pain with intercourse. There are different theoretical etiologies for endometriosis, such as retrograde flow of menstrual products out the fallopian tubes. However, these do not account for endometriosis within non-analogous parts of the body, such as in thoracic endometriosis or other locations previously mentioned. The prevailing theory is that body parts which share the same embryonic origin as endometrium, such as the peritoneum or pleura, may instead develop into endometrium in these individuals.

Due to the chronic high cell turnover, endometriosis is a risk factor for cancer and warrants work-up as such. Extensive exacerbations with secondary symptoms such as massive effusions warrant investigation for malignancy.

**ake Home Points**

- Spontaneous pneumothorax in alignment with menstruation may be due to endometriosis.
- Menstrual history is an essential component of the history for women of reproductive age presenting with acute complaints in the ED.
- When pneumothorax appears without obvious source, thorough H&P may reveal sources which change management.


## ABOUT THE AUTHOR

This month's case was written by Daniel Samet. Daniel is a 4th year medical student from FIU COM in Miami, pursuing a career in Emergency Medicine. He did his emergency medicine rotation at BHMC in August 2017.

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