

Episode 62

Problem Representation

A 29-year-old previously healthy woman from East Africa presented with subacute bloating and abdominal distension, found to have an adnexal mass and ascites with fluid studies demonstrating a low serum-albumin ascites gradient (SAAG) and high protein.

Schemas

In the CPSers' schema for ascites, a SAAG of > 1.1 suggests portal hypertension, which is most commonly caused by cirrhosis or other pre-, intra-, and post-hepatic processes. In contrast, a SAAG of < 1.1 indicates serositis (e.g., caused by infection, autoimmune disease, or malignancy) or other organ-specific causes.

Diagnosis

One month later, computed tomography of the abdomen and pelvis redemonstrated the adnexal mass with ascites as well as new lymphadenopathy and peritoneal implants. Diagnostic paracentesis was performed, revealing low SAAG, high protein ascites. Biopsy of peritoneal implants was notable for granulomas, and cultures from ascitic fluid subsequently grew *Mycobacterium tuberculosis*. A diagnosis of tuberculosis peritonitis with adnexal tuberculoma was made, and RIPE therapy was initiated.

Teaching Points

- The differential diagnosis for adnexal masses is broad, ranging from benign cysts and ovarian cancer to non-gynecologic processes, such as bowel abscesses. One particular etiology, Meigs' syndrome¹, refers to the clinical constellation of an ovarian fibroma with ascites and/or pleural effusions. In this condition, the generation of ascites and pleural effusions is thought to be related to fibroma-associated substances (e.g., vascular endothelial growth factor) that increase capillary permeability.
- One fourth of the world is infected with tuberculosis (TB). While most cases manifest as pulmonary disease, the prevalence of abdominal infection² is rising and represents the 6th most common form of extrapulmonary TB. Peritoneal TB, a subset of abdominal TB, can present in three classic forms:
 - Wet-ascitic type with loculated and/or high protein ascitic fluid
 - Fibrotic-fixed type with bowel adhering to the omentum and mesentery
 - Dry plastic type characterized by diffuse fibrous adhesions or nodules
- Cancer antigen 125 (CA-125) is a transmembrane glycoprotein in coelomic (e.g., pericardial, pleural, peritoneal) and müllerian (e.g., fallopian, endometrial, endocervical) epithelium. Serum CA-125 is approved for monitoring response to therapy in epithelial ovarian cancer, but, in clinical practice, this test is often used off-label in the diagnostic evaluation of adnexal masses. However, serum CA-125 alone is of limited diagnostic utility³ and has particularly poor test characteristics among premenopausal women⁴. Levels measured in urine or ascitic fluid can be difficult to interpret since it has been most validated as a serum biomarker.

Clinical Reasoning Pearl

When evaluating multiple pieces of potentially useful data, it is helpful to remember that the diagnostic value of an abnormal lab tends to be greater the further away from normal it is.

For example:

When deciding whether to explore the abnormal white count or platelet count, Rabih chose the platelet count given its relatively more abnormal value. Exploring the thrombocytosis further allowed him to consider reactive (e.g., infection, inflammatory, malignancy) versus myeloid causes of thrombocytosis.

References

1. Brun JL. Demons syndrome revisited: a review of the literature. *Gynecol Oncol*. 2007 Jun;105(3):796-800. Epub 2007 Apr 11.
2. Wu DC, Averbukh LD, Wu GY. Diagnostic and Therapeutic Strategies for Peritoneal Tuberculosis: A Review. *J Clin Transl Hepatol*. 2019 Jun 28;7(2):140-148.
3. Dodge JE, Covens AL, Lacchetti C, Elit LM, Le T, Devries-Aboud M, Fung-Kee-Fung M; Gynecology Cancer Disease Site Group. Preoperative identification of a suspicious adnexal mass: a systematic review and meta-analysis. *Gynecol Oncol*. 2012 Jul;126(1):157-66.
4. Myers ER, Bastian LA, Havrilesky LJ, Kulasingam SL, Terplan MS, Cline KE, Gray RN, McCrory DC. Management of adnexal mass. *Evid Rep Technol Assess (Full Rep)*. 2006 Feb;(130):1-145.