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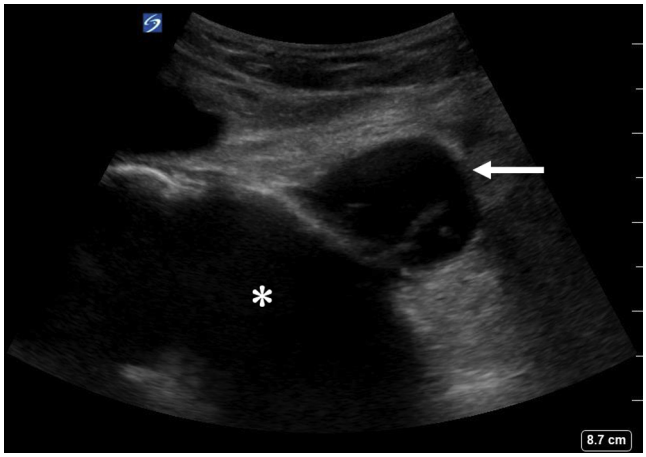


**Figure 1.** Ultrasonography of the right chest wall, sagittal orientation, midaxillary line. A fluid collection (arrow) is contiguous with a pleural effusion (asterisk).

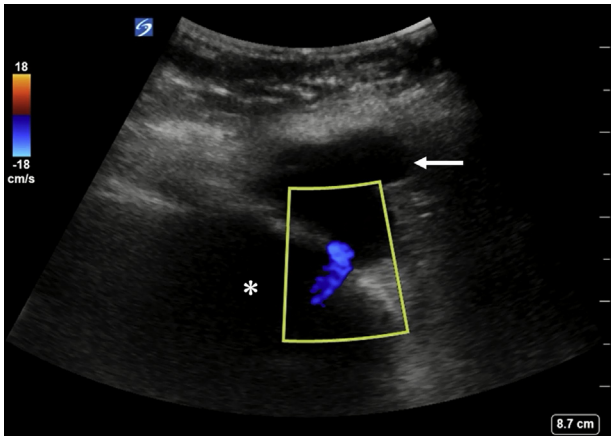


**Figure 2.** Ultrasonography with color Doppler demonstrating flow between the chest wall fluid collection (arrow) and pleural effusion (asterisk) with respiration.

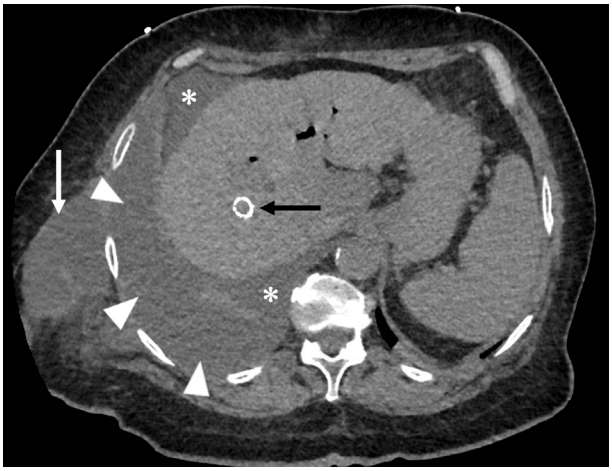

**Figure 3.** CT of the chest without contrast, axial view. Present are a cirrhotic liver, intrahepatic portosystemic shunt (black arrow), and ascites (asterisks). Also present is a right-sided pleural effusion (arrowheads) with extension into the chest wall (white arrow).

[Ann Emerg Med. 2019;73:e77-e78.]

A 70-year-old woman with cirrhosis presented with dyspnea and anasarca. History included right-sided thoracoscopy with thoracic duct ligation for chylothorax. Pulse oximetry was 91% on 2-L nasal cannula, and respiratory rate was 26 breaths/min; other vital signs were normal. Examination showed ill appearance, decreased right-sided breath sounds, and anasarca. WBC count was 24,500/μL with 96% neutrophils, serum creatinine level was 1.51 mg/dL, protein level was 6.4 g/dL, albumin level was 2.5 g/dL, and lactate dehydrogenase level was 326 U/L. Urinalysis yielded 10 to 50 WBCs per high-power field and greater than or equal to 3 bacteria. Bedside thoracic ultrasonography (Figures 1 and 2 and Video E1 [available online at http://www.annemergmed.com]) and computed tomography (CT) of the chest (Figure 3) were performed, followed by thoracentesis. Pleural fluid had a WBC count of 768/mm$^3$, with 14% neutrophils, protein level of 3.6 g/dL, albumin level of 1.7 g/dL, lactate dehydrogenase level of 107 U/L, and triglycerides level of 56 mg/dL, with a negative Gram's stain result.

*For the diagnosis and teaching points, see page e78.*
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IMAGES IN EMERGENCY MEDICINE

*(continued from p. e77)*

**DIAGNOSIS:**

*Chest wall extension of hepatic hydrothorax*. The extension was caused by poor healing at a previous thoracoscopy site. Pleural effusion connected to extrapleural fluid collection suggested empyema necessitans (or "necessitatis"), in which infection extends from the pleural cavity into the chest wall, most commonly from tuberculosis, actinomyces, or, increasingly, methicillin-resistant *Staphylococcus aureus*.[1] However, thoracentesis study results were not consistent with infection. Further evaluation revealed that this patient's decompensation was driven by urinary tract infection and bacteremia.

Factors in impairment of wound healing because of cirrhosis include protein malnutrition, coagulopathy, impaired immunity, tissue edema, and increased hydrostatic pressure from ascites or hydrothorax.[2] Tube thoracostomy for hepatic hydrothorax risks hypovolemia and acute kidney injury, pneumothorax, and empyema, with reported complication rates of 70% to 80% and 27% to 33% mortality.[3,4]

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**REFERENCES**

1. Llamas-Velasco M, Domínguez I, Ovejero E, et al. Empyema necessitatis revisited. *Eur J Dermatol*. 2010;20:115-119.
2. Bhangui P, Laurent A. Assessment of risk for non-hepatic surgery in cirrhotic patients. *J Hepatol*. 2012;57:874-884.
3. Liu LU, Haddadin HA, Bodian CA, et al. Outcome analysis of cirrhotic patients undergoing chest tube placement. *Chest*. 2004;126:142-148.
4. Orman ES, Lok ASF. Outcomes of patients with chest tube insertion for hepatic hydrothorax. *Hepatol Int*. 2009;3:582-586.