



Case report

Spontaneous Bacterial Empyema Due to *Enterococcus faecalis*

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Hepatic hydrothorax is a type of pleural effusion that appears in cirrhotic patients with no evidence of cardiopulmonary disease. Spontaneous bacterial empyema is defined as hepatic hydrothorax infection and may or may not be accompanied by ascites.¹ The diagnostic criteria are as follows:

1. Positive pleural fluid culture and >250 neutrophils/mL or negative culture and >500 neutrophils/mL.
2. a. Concomitant lung infection ruled out. b. Pleural effusion prior to the infectious episode or showing features of transudate during the infectious process.²

Treatment is usually based on antibiotic therapy; a chest tube is not required.²

We report the case of a 65-year-old man with a history of atrial fibrillation, chronic kidney disease, and liver cirrhosis due to alcoholism that required liver transplantation in 2006. He subsequently developed cirrhosis of the graft.

He was admitted for increased baseline dyspnea, pain in the right hemithorax, and dry cough, but no febrile symptoms. A computed tomography scan of the chest and abdomen showed moderate pleural effusion and moderate ascites. No consolidations were identified in the pulmonary parenchyma. Thoracentesis was performed, and the sample described in [Table 1](#) was obtained.

Given the growth of *Enterococcus faecalis* in the pleural fluid culture of a patient with no clinical signs of infectious disease and a

personal history of cirrhosis and ascites, we diagnosed spontaneous bacterial empyema and administered a 14-day course of antibiotic treatment with linezolid (guided by antimicrobial susceptibility testing) with good clinical progress.

Nevertheless, the pleural effusion persisted, so thoracentesis was repeated after 2 weeks. The pleural fluid obtained showed similar biochemical characteristics, but fewer leukocytes and polymorphonuclear neutrophils (PMN) (leukocytes 393/ μ L, 23% PMNs). Cultures this time were sterile.

This complication is uncommon, occurring in 2.4% of patients with cirrhosis³ and in 19.03% of patients with hydrothorax.⁴

Enterobacteriaceae are the causative agents most often identified in spontaneous bacterial empyema (*Escherichia coli* and *Klebsiella pneumoniae*),⁵ while enterococci have been isolated in 8.3% of patients in some series.²

Despite its low frequency, it is important that spontaneous bacterial empyema is included in the differential diagnosis of pleural effusion in cirrhotic patients. Thoracentesis is required for the analysis and culture of pleural fluid and early initiation of treatment.

References

1. Mohamed A, Atef M, Alsebaey A, Elhabshy MM, Salama M. Combined spontaneous bacterial empyema and peritonitis in cirrhotic patients with ascites and hepatic hydrothorax. *Arab J Gastroenterol*. 2017;18:104–7.
2. Xiol X, Castellví JM, Guardiola J, Sesé E, Castellote J, Perelló A, et al. Spontaneous bacterial empyema in cirrhotic patients: a prospective study. *Hepatology*. 1996;23:719–23.
3. Chen CH, Shih CM, Chou JW, Liu YH. Outcome predictors of cirrhotic patients with spontaneous bacterial empyema. *Liver Int*. 2011;31:417–24.
4. Osman KT, Mehta N, Spencer C, Qamar AA. Spontaneous bacterial empyema: a tertiary care center experience and a systematic review. *Expert Rev Gastroenterol Hepatol*. 2022;16:487–92.
5. Soin S, Nehan S, Saleem N. Spontaneous bacterial empyema: an elusive diagnosis in a patient with cirrhosis. *BMJ Case Rep*. 2018. <http://dx.doi.org/10.1136/bcr-2018-224810>.

Table 1

Sample characteristics.

Appearance	Serous
pH	7.29
Glucose	113 mg/dL
WBC	5382/ μ L
Neutrophils	88%
Lymphocytes	4%
Proteins	2.6 g/dL
LDH	980 U/L
Pleural fluid culture	<i>Enterococcus faecalis</i>

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