

The spectrum of spontaneous bacterial empyema – an elusive disease

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Introduction

Spontaneous bacterial empyema (SBE) is a potentially fatal complication of hepatic hydrothorax (HH). Despite high mortality rate, guidelines do not clearly outline the clinical trajectory and management of SBE. We aim to present a case of SBE to familiarize clinicians with the spectrum of SBE presentations.

Aims

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Case Description

A 58-year-old male with history of alcohol use disorder and alcohol associated cirrhosis decompensated with ascites and left-sided HH presented with fever 38.1°C. Physical exam was notable for blood pressure 80/57, tachypnea at 28 breaths/minute and decreased breath sounds in left lung fields.

Labs were notable for leukocytosis and lactic acidosis (**Table**). Infectious workup was negative for spontaneous bacterial peritonitis (SBP) or urinary infection. Pleural fluid analysis is shown in Table. Blood and pleural fluid cultures grew *Clostridium perfringens*.

CT chest showed loculated fluid in the left pleural space (**Figure 1**). 12 French pigtail chest tube was placed. In addition to metronidazole and ceftriaxone, 6 doses of intrapleural fibrinolytics were administered. Chest tube was removed once the output decreased.

He was discharged on oral antibiotics and remained asymptomatic on 10-week follow up.

Figure 1. CT of the chest showing loculated fluid in the left lung

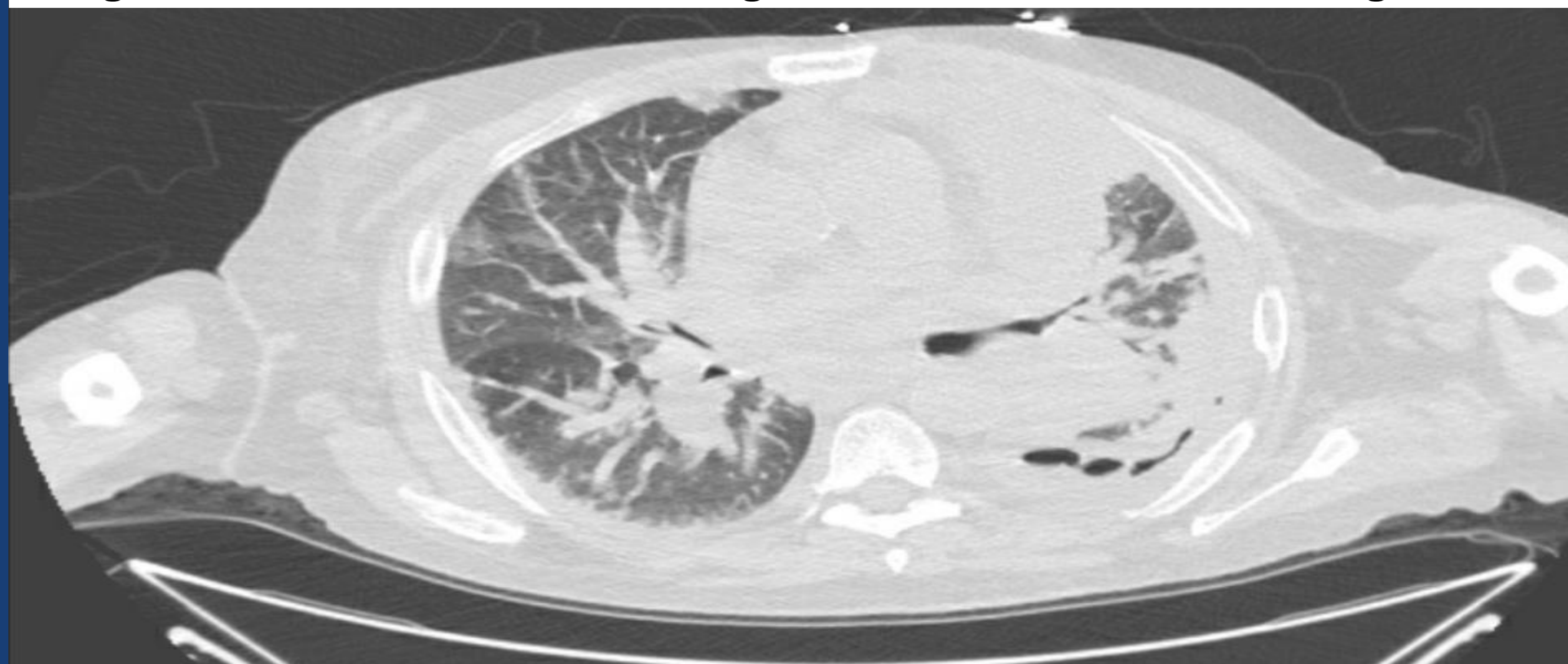


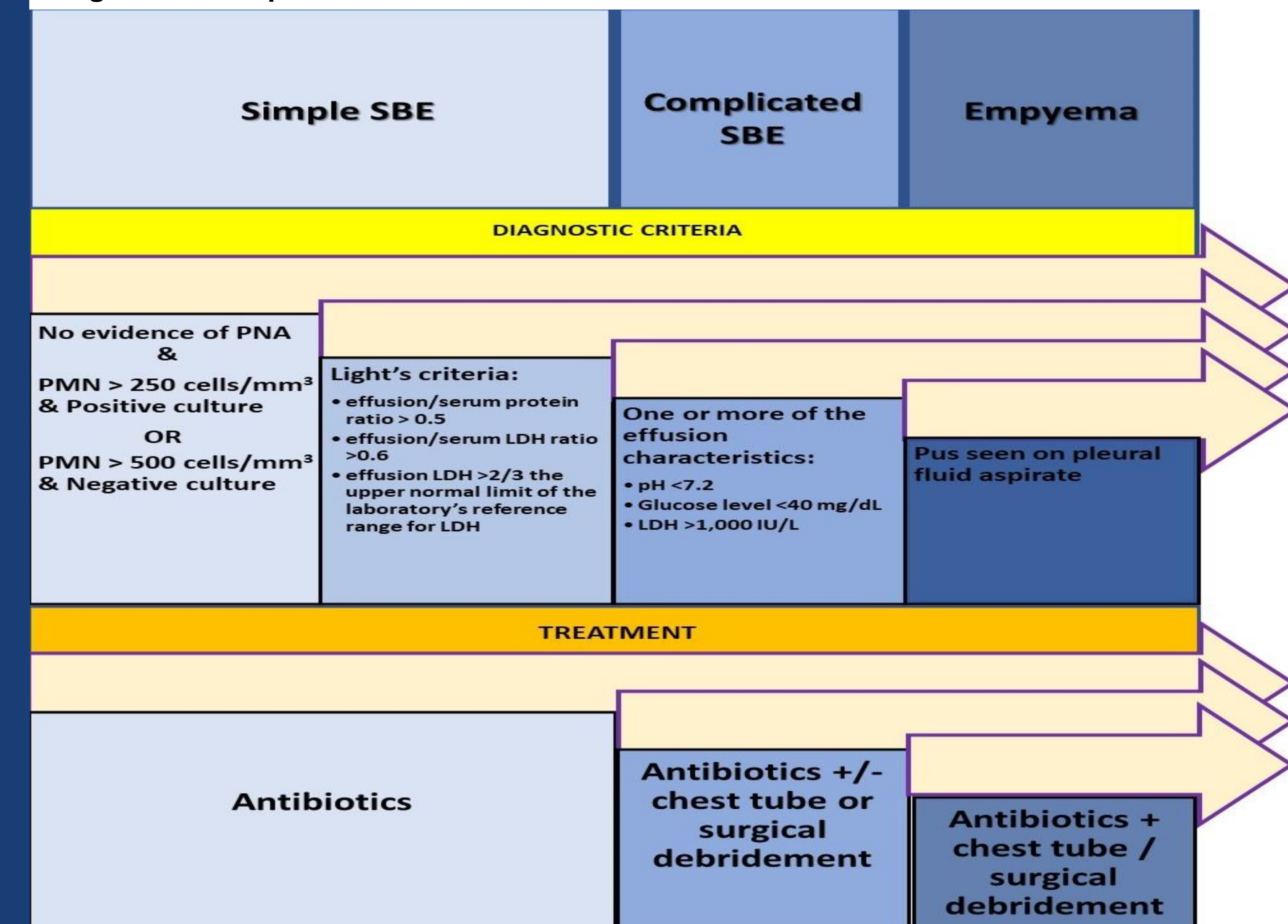
Table. Laboratory results on admission

	Reference range, adults	On admission
Complete Blood Count		
White Blood Cells (/μL)	4,000-11,000	17,580
Hemoglobin (g/dL)	12.0-15.3	9.2
Platelet Count (/μL)	150,000-450,000	108,000
Comprehensive Metabolic Profile		
Lactic acid (mmol/L)	0.5-2.0	6.9
Sodium (mmol/L)	135-146	135
Potassium (mmol/L)	3.4-5.2	4.5
Blood Urea Nitrogen (mg/dL)	7-24	31
Creatinine (mg/dL)	0.5-1.1	2.5
Albumin (g/dL)	3.4-5.2	2.4
Aspartate Aminotransferase (IU/L)	11-40	28
Alanine Aminotransferase (IU/L)	4-35	8
Alkaline Phosphatase (IU/L)	30-115	72
Total Bilirubin (mg/dL)	0.0-1.2	3.2
Direct Bilirubin (mg/dL)	0.1-0.5	1.9
C-Reactive Protein (mg/L)	< 5.0	43.5
Pleural fluid analysis		
Absolute Neutrophil Count (/μL)		2,195
Glucose		<5
Lactate dehydrogenase		3,261
pH		6.87

Discussion

- SBE should be regarded as a spectrum where it can progress from “simple” SBE/pleuritis (akin to peritonitis in SBP) to an equivalent of complicated parapneumonic effusion or frank empyema similar to our case (**Figure 2**).
- Simple SBE is treated similar to SBP, with a third-generation cephalosporin +/- albumin
- Complicated SBE/empyema might require source control. Chest tube drainage is the least invasive method to drain the effusion. Chest tubes are kept in place until the daily output becomes minimal.
- Intrapleural fibrinolytics and DNase may be attempted in assisting the drainage of effusion.
- After treatment, secondary prophylaxis is warranted

Figure 2. The Spectrum of SBE



Questions?
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