

**TABLE 95-5** AMEBIC AND PYOGENIC LIVER ABSCESSSES

FEATURE	AMEBIC LIVER ABSCESS	PYOGENIC LIVER ABSCESS
<b>EPIDEMIOLOGY</b>		
Male-to-female ratio	5-18	1.0-2.4
Age (yr)	30-40	50-60
Duration (days)	<14 (≈75% of cases)	5-26
Mortality (%)	10-25	0-5
<b>SYMPTOMS AND SIGNS*</b>		
Fever	80	80
Weight loss	40	30
Abdominal pain	80	55
Diarrhea	15-35	10-20
Cough	10	5-10
Jaundice	10-15	10-25
Right upper quadrant tenderness	75	25-55
<b>LABORATORY TESTS*</b>		
Leukocytosis	80	75
Elevated alkaline phosphatase	80	65
Solitary lesion	70	70

From Sifri CD, Madoff LC: Infections of the liver and biliary system. In Mandell GL, Bennett JE, Dolin R, editors: Mandell, Douglas, and Bennett's principles and practice of infectious diseases, ed 7, Philadelphia, 2009, Churchill Livingstone.

\*Approximate percentage of cases.

the only positive culture. Therapy is usually given for 4 to 6 weeks. Rupture or sepsis syndrome occurs rarely. Surgery may be necessary if there is a lack of response, rupture, or complex multilocular abscesses.


The serologic analysis for *E. histolytica* is 95% sensitive but cannot distinguish gastrointestinal disease from hepatic abscess. Treatment for amebic infection is oral metronidazole for 7 to 10 days.

### Pancreatic Infection

Although most episodes of pancreatitis are self-limited, infected necrotizing pancreatitis has a mortality rate approaching 30%. Acute pancreatitis is characterized by upper abdominal pain that often radiates to the back and is accompanied by nausea and vomiting. The serum amylase concentration is greater than three times the normal value, and CT shows typical inflammation in the pancreas. Eighty percent of acute pancreatitis cases are mild, whereas 20% of cases are moderate to severe.

Patients with infected necrotizing pancreatitis typically develop fever, leukocytosis, and increased abdominal pain several weeks after the onset of pancreatitis. The standard of care includes antibiotics to cover cultured microorganisms (typically enteric bacteria or *Staphylococcus aureus*), and surgical débridement is delayed for 4 to 6 weeks if possible. Because early surgical intervention may increase the mortality rate, delayed débridement is recommended.

Pancreatic abscess usually occurs 2 to 6 weeks after an episode of acute pancreatitis. Treatment is percutaneous drainage plus antibiotics. Distinguishing pancreatic necrosis from necrosis plus infection and pseudocyst from abscess can be difficult.

 For a deeper discussion of these topics, please see Chapter 144, "Pancreatitis," in Goldman-Cecil Medicine, 25th Edition.

### Splenic Abscess

Splenic abscess usually results from a hematogenous source, particularly endocarditis; consequently, the infecting bacteria are usually streptococcal and staphylococcal species. Patients have left upper quadrant pain, fever, an enlarged spleen, and an elevated white blood cell count. Ultrasound is diagnostic, and splenectomy is curative. Percutaneous aspiration plus antibiotics can also be effective.

### Extravisceral Abscesses

Extravisceral abscesses typically occur from perforation of the bowel, resulting from inflammation or iatrogenic sources such as endoscopy and surgery. Other causes include peritonitis, ruptured solid organ abscess, and penetrating trauma. The clinical presentation varies widely with the location and cause. CT is the most useful imaging modality. Point source control, usually with percutaneous aspiration or surgical drainage, is essential for treatment. Antibiotic coverage is secondary and should be directed at the cause as identified by location, Gram stain, and culture.

## PERITONITIS

### Primary Peritonitis

Primary or spontaneous bacterial peritonitis usually occurs in patients with cirrhosis and ascites or in children with nephrotic syndrome. The source is not apparent. The bacteriologic analysis reflects aerobic bowel flora, including *E. coli*, *K. pneumoniae*, and gram-positive organisms. Anaerobes are uncommon.

Clinical presentation includes fever, abdominal pain, ascites, and deteriorating liver function test results. Diagnosis is likely if aspirated ascitic fluid has greater than 250 neutrophils/ $\mu\text{L}$ . A diagnosis of primary peritonitis is made if a secondary source is ruled out. Culture and Gram stain may be negative. Patients usually respond after 48 to 72 hours of antibiotics. Patients with cirrhosis and ascites who have had one episode of spontaneous peritonitis are at risk for further episodes and are candidates for antibiotic prophylaxis. A meta-analysis of 13 trials concluded that prophylaxis resulted in decreased morbidity and mortality.

### Secondary Peritonitis

Secondary peritonitis usually results from perforation of bowel and contamination by mixed enteric organisms. Other sources include rupture of the urinary tract or gynecologic organs. Bacteriology usually identifies polymicrobial infection with aerobes and anaerobes, reflecting the mucosal surface of the source. The peripheral blood leukocyte count is usually elevated.

Patients are usually febrile and have signs of peritoneal irritation: abdominal wall tenderness, rebound, and rigidity. Tenderness may be maximal over the origin of the peritonitis (e.g., ruptured viscus). Because movement causes pain, patients keep their knees bent and have quiet respirations.

Ultrasound and CT may reveal the origin of peritonitis. Aspiration of ascitic fluid usually reveals the causative organisms. Antibiotic therapy to cover the suspected or identified organisms should be begun immediately. It usually includes coverage of bacteria causing intraabdominal infection as discussed previously.

