

# Intraabdominal Infections

Edward J. Wing



## INTRODUCTION

Intraabdominal infections are serious conditions that usually result from perforation or obstruction of abdominal organs. These infections often require surgical intervention to drain abscesses, repair perforations, and relieve obstructions. The cause is typically polymicrobial infection, including aerobic and anaerobic bacteria that require broad antibiotic coverage. Guidelines for diagnosis and therapy have been developed by the Surgical Infection Society and the Infectious Diseases Society of America (Tables 95-1, 95-2, and 95-3). This chapter focuses on the most common intraabdominal infections found in adults.

## APPENDICITIS

### Definition and Epidemiology

Appendicitis is an acute inflammation of the appendix that is usually caused by an obstruction of the lumen by an appendicolith. Appendicitis is the most common cause of emergency surgery worldwide. In the United States in 2007, appendicitis accounted for 295,000 hospital discharges and \$7.4 billion in hospital costs. The lifetime risk is 7% to 12%, with a slight preponderance among men.

### Pathology

The normal appendix is 5 to 10 cm long and typically lies anterior to the cecum. Locations that affect the clinical manifestations include retrocecal, pelvic, and retroileal variants. Obstruction of the proximal appendix is typically caused by an appendicolith;

less common causes are tumors, mesenteric lymphadenitis, parasites, and seeds. Obstruction leads to swelling, compromise of the blood supply, and inflammation with a resulting neutrophilic infiltrate of the appendicular wall. Gangrene of the wall and rupture eventually occurs.

**TABLE 95-2** REGIMENS USED FOR INITIAL EMPIRICAL TREATMENT OF BILIARY INFECTION IN ADULTS

INFECTION	REGIMEN
Community-acquired acute cholecystitis of mild to moderate severity	Cefazolin, cefuroxime, or ceftriaxone
Community-acquired acute cholecystitis of severe physiologic disturbance, advanced age, or immunocompromised status	Imipenem-cilastatin, meropenem, doripenem, piperacillin-tazobactam, ciprofloxacin, levofloxacin, or cefepime, each in combination with metronidazole*
Acute cholangitis after bilioenteric anastomosis of any severity	Imipenem-cilastatin, meropenem, doripenem, piperacillin-tazobactam, ciprofloxacin, levofloxacin, or cefepime, each in combination with metronidazole*
Health care-associated biliary infection of any severity	Imipenem-cilastatin, meropenem, doripenem, piperacillin-tazobactam, ciprofloxacin, levofloxacin, or cefepime, each in combination with metronidazole, vancomycin added to each regimen*

From Solomkin JS, Mazuski JE, Gradley JS, et al: Diagnosis and management of complicated intraabdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America, *Surg Infect* 11:79–109, 2010.

\*Because of increasing resistance of *Escherichia coli* to fluoroquinolones, local population susceptibility profiles and, if available, isolate susceptibility should be reviewed.

**TABLE 95-1** AGENTS AND REGIMENS FOR THE INITIAL EMPIRICAL TREATMENT OF EXTRABILIARY COMPLICATED INTRAABDOMINAL INFECTION

REGIMEN	COMMUNITY-ACQUIRED INFECTION IN CHILDREN	COMMUNITY-ACQUIRED INFECTION IN ADULTS	
		Mild to Moderate Severity*	High Risk or Severity <sup>†</sup>
Single agent	Ertapenem, meropenem, imipenem-cilastatin, ticarcillin-clavulanate, and piperacillin-tazobactam	Cefoxitin, ertapenem, moxifloxacin, tigecycline, and ticarcillin-clavulanic acid	Imipenem-cilastatin, meropenem, doripenem, and piperacillin-tazobactam
Combination	Ceftriaxone, cefotaxime, cefepime, or ceftazidime, each in combination with metronidazole; gentamicin or tobramycin, each in combination with metronidazole or clindamycin and with or without ampicillin	Cefazolin, cefuroxime, ceftriaxone, cefotaxime, ciprofloxacin, or levofloxacin, each in combination with metronidazole <sup>‡</sup>	Cefepime, ceftazidime, ciprofloxacin, or levofloxacin, each in combination with metronidazole*

From Solomkin JS, Mazuski JE, Gradley JS, et al: Diagnosis and management of complicated intraabdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America, *Surg Infect* 11:79–109, 2010, Table 2.

\*Includes perforated or abscessed appendicitis and other infections of mild to moderate severity.

<sup>†</sup>Includes severe physiologic disturbance, advanced age, and immunocompromised states.

<sup>‡</sup>Because of increasing resistance of *Escherichia coli* to fluoroquinolones, local population susceptibility profiles and, if available, isolate susceptibility should be reviewed.