



TABLE 95-3 INTRAVENOUS ANTIBIOTICS FOR EMPIRICAL TREATMENT OF COMPLICATED INTRAABDOMINAL INFECTION

ANTIBIOTIC	ADULT DOSAGE*
β-LACTAM/β-LACTAMASE INHIBITOR COMBINATION	
Piperacillin-tazobactam	3.375 g q6h [†]
Ticarcillin-clavulanic acid	3.1 g q6h; FDA labeling indicates 200 mg/kg/day in divided doses q6h for moderate infection and 300 mg/kg/day in divided doses q4h for severe infection
CARBAPENEMS	
Doripenem	500 mg q8h
Ertapenem	1 g q24h
Imipenem-cilastatin	500 mg q6h or 1 g q8h
Meropenem	1 g q8h
CEPHALOSPORINS	
Cefazolin	1-2 g q8h
Cefepime	2 g q8-12h
Cefotaxime	1-2 g q6-8h
Cefoxitin	2 g q6h
Ceftazidime	2 g q8h
Ceftriaxone	1-2 g q12-24h
Cefuroxime	1.5 g q8h
Tigecycline	100-mg initial dose, then 50 mg q12h
FLUOROQUINOLONES	
Ciprofloxacin	400 mg q12h
Levofloxacin	750 mg q24h
Moxifloxacin	400 mg q24h
Metronidazole	500 mg q8-12h or 1500 mg q24h
AMINOGLYCOSIDES	
Gentamicin or tobramycin	5-7 mg/kg [‡] q24h [§]
Amikacin	15-20 mg/kg [‡] q24h [§]
Aztreonam	1-2 g q6-8h
Vancomycin	15-20 mg/kg [¶] q8-12h [§]

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.

FDA, U.S. Food and Drug Administration.

*Dosages are based on normal renal and hepatic function.

[†]For *Pseudomonas aeruginosa* infection, dosage may be increased to 3.375 g q4h or 4.5 g q6h.

[‡]Initial dosage regimens for aminoglycosides should be based on adjusted body weight.

[§]Monitoring of serum drug concentration should be considered for dosage individualization.

[¶]Initial dosage regimens for vancomycin should be based on total body weight.

The bacteriology of acute appendicitis, including rupture, is polymicrobial, with gut aerobes (*Escherichia coli* is most common) and anaerobes (*Bacteroides fragilis* is most common). Typically, 10 to 14 different organisms can be isolated. This picture is similar to other intraabdominal infections such as diverticulitis.

Clinical Presentation

Classically, acute appendicitis begins with anorexia followed by periumbilical pain. The pain is steady, moderately severe, and sometimes cramping. After 4 to 6 hours, the pain migrates to the right lower quadrant, where the site of maximal tenderness is located at McBurney's point. This point is 0.5 to 2 inches inside the right anterior spinous process of the ilium on a line to the

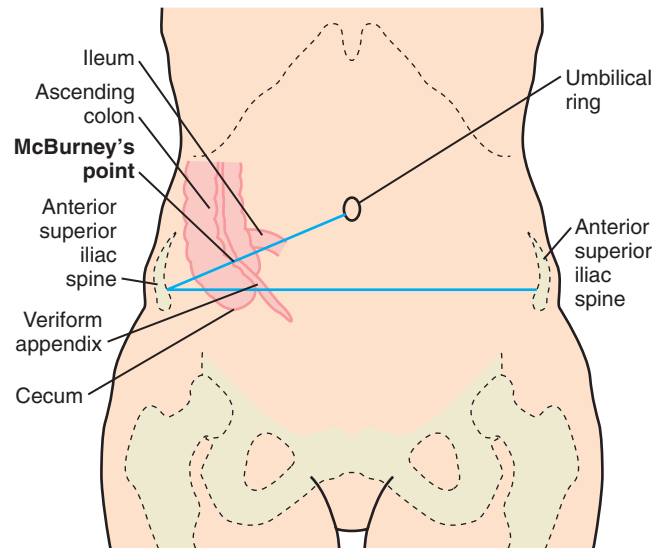


FIGURE 95-1 Various anatomic positions of the vermiform appendix.

umbilicus (Fig. 95-1). Seventy-five percent of patients vomit once or twice.

Evidence of peritoneal irritation includes rebound and guarding. Patients are typically supine and do not want to move. Pain may also be elicited by flexion and internal rotation of the right hip (i.e., obturator sign) or passive extension of the right hip (i.e., psoas sign). Palpation of the left lower quadrant pain may produce right lower quadrant pain (i.e., Rovsing's sign).

Patients usually have little fever or tachycardia. Determining whether a patient has a ruptured appendix, which occurs in 25% of cases, can be difficult. If the clinical presentation is delayed 4 to 5 days and rupture has occurred, there may be fever, tachycardia, and a palpable mass.

Variations in the presentation include initial right lower quadrant pain, back and flank pain (i.e., retrocecal appendix), supra-pubic pain (i.e., pelvic appendix), and left lower quadrant pain (i.e., long appendix). The elderly may have no periumbilical or right lower quadrant pain. Children may not be able to give an accurate history, and in pregnant women, the appendix may be pushed upward by the expanding uterus. At 8 months' gestation, the pregnant woman's pain may be in the right upper quadrant.

Diagnosis

The diagnosis of acute appendicitis is important but can be difficult. A careful meta-analysis reported that the history, physical examination, and inflammatory markers are singly unreliable predictors of the diagnosis, but when combined, they are accurate. A careful history and physical examination should be obtained. Pain migrating from the umbilical area to the right lower quadrant should be sought in the history. Signs of peritoneal irritation, including rebound, percussion tenderness, guarding, and rigidity, should be determined. The total white blood cell count, number of neutrophils, percentage of bands, and level of C-reactive protein should be measured.

The Alvarado system was developed to aid in the diagnosis of appendicitis (Table 95-4). Using the mnemonic MANTRELS, it