the epithelial lining and bacterial invasion. Subsequent necrosis causes perforation or rupture with fecal and bacterial contamination of the peritoneal cavity. The resulting inflammation spreads rapidly throughout the abdomen (**peritonitis**), especially in young children, who are unable to localize infection. Progressive peritoneal inflammation results in functional intestinal obstruction of the small bowel (**ileus**) because intense GI reflexes severely inhibit bowel motility. Because the peritoneum represents a major portion of total body surface, the loss of ECF to the peritoneal cavity leads to electrolyte imbalance and hypovolemic shock.

Diagnostic Evaluation

Diagnosis is not always straightforward. Fever, vomiting, abdominal pain, and an elevated white blood cell (WBC) count are associated with appendicitis but are also seen in IBD, pelvic inflammatory disease, gastroenteritis, urinary tract infection, right lower lobe pneumonia, mesenteric adenitis, Meckel diverticulum, and intussusception. Prolonged symptoms and delayed diagnosis often occur in younger children, in whom the risk of perforation is greatest because of their inability to verbalize their complaints.

The diagnosis is based primarily on the history and physical examination. Pain, the cardinal feature, is initially generalized (usually periumbilical); however, it usually descends to the lower right quadrant. The most intense site of pain may be at **McBurney point**. Rebound tenderness is not a reliable sign and is extremely painful to the child. Referred pain, elicited by light percussion around the perimeter of the abdomen, indicates peritoneal irritation. Movement, such as riding over bumps in an automobile or wheelchair, aggravates the pain. In addition to pain, significant clinical manifestations include fever, a change in behavior, anorexia, and vomiting (Box 22-3).

Box 22-3

Clinical Manifestations of Appendicitis

- Right lower quadrant abdominal pain
- Fever