A Client with Acute Appendicitis

Jamie Lynn is a 19-year-old college student majoring in physical therapy. Ms. Lynn arrives at the emergency department at 1:00 A.M. complaining of general lower abdominal pain that had started the previous evening. By midnight, the pain was more localized over the right lower quadrant. She also reports nausea and vomiting.

**ASSESSMENT**
Sue Grady, RN, completes the admission assessment in the emergency department. Ms. Lynn is complaining of nausea and severe abdominal pain, stating, “Walking makes my stomach hurt worse.” Physical assessment findings include: T 100.2°F (37.8°C), P 84, R 16, and BP 110/70; skin warm to touch; abdomen flat and guarded, with marked tenderness in right lower quadrant. Ms. Lynn’s complete blood count shows WBC 14,000/mm³; neutrophils 81.1%; lymphocytes 12.5%. The diagnosis of acute appendicitis is made, and Ms. Lynn is transferred to surgery for a laparoscopic appendectomy.

**DIAGNOSIS**
The nurses in the short stay unit identify the following nursing diagnoses for Ms. Lynn after surgery.
- **Impaired skin integrity**, related to surgical incisions
- **Pain**, related to surgical intervention
- **Anxiety**, related to situational crisis

**EXPECTED OUTCOMES**
The expected outcomes for the plan of care are:
- Incisions will heal without infection or complications.
- Will verbalize adequate pain relief.
- Will verbalize decreased anxiety.
- Returns to preoperative activities.

**PATHOPHYSIOLOGY**
Peritonitis results from contamination of the normally sterile peritoneal cavity by infection or a chemical irritant. Chemical peritonitis often precedes bacterial peritonitis. Perforation of a peptic ulcer or rupture of the gallbladder releases gastric juices (hydrochloric acid and pepsin) or bile into the peritoneal cavity, causing an acute inflammatory response.

Bacterial peritonitis usually is caused by infection by *Escherichia coli*, *Klebsiella*, *Proteus*, or *Pseudomonas* bacteria, which normally inhabit the bowel. Inflammatory and immune defense mechanisms are activated when bacteria enter the peritoneal space. These defenses can effectively eliminate small numbers of bacteria, but may be overwhelmed by massive or continued contamination. When this occurs, mast cells release histamine and other vasoactive substances, causing local vasodilation and increased capillary permeability. Polymorphonuclear leukocytes (PMNs, a type of WBC) infiltrate the peritoneum to phagocytize bacteria and foreign matter. Fibrogen-rich plasma exudate promotes bacterial destruction and forms fibrin clots to seal off and segregate the bacteria. This process helps limit and localize the infection, allowing host defenses to eradicate it. Continued contamination, however, leads to generalized inflammation of the peritoneal cavity. The inflammatory process causes fluid to shift into the peritoneal space (third spacing). Circulating blood volume is depleted, leading to hypovolemia. *Septicemia*, systemic disease caused by pathogens or their toxins in the blood, may follow.

**Manifestations**
Manifestations of peritonitis depend on the severity and extent of the infection, as well as the age and general health of the client. Both local and systemic manifestations are present (p. 000). The client often presents with evidence of an *acute abdomen*, an abrupt onset of diffuse, severe abdominal pain. The pain may localize and intensify near the area of infection. Movement may intensify the pain. The entire abdomen is tender, with guarding or rigidity of abdominal muscles. The acute abdomen is often described as boardlike. Rebound tenderness may be present over the area of inflammation. Peritoneal inflammation inhibits peristalsis, resulting in a paralytic ileus.

**PLANNING AND IMPLEMENTATION**
The following nursing interventions are planned and implemented for Ms. Lynn.
- Assess pain using a pain scale; provide analgesics as needed.
- Teach pain management following discharge.
- Teach abdominal splinting during coughing, turning, or ambulating as needed.
- Teach home care of incisions.
- Discuss activity limitations as ordered.
- Instruct to report fever or warmth, redness, or drainage from the incisions.

**EVALUATION**
On discharge the following evening, Ms. Lynn is fully ambulatory. Her appetite has returned, and she is tolerating food and fluids well. Her temperature is normal. The nurse provides Ms. Lynn with written and verbal information on postoperative care following an appendectomy.

**Critical Thinking in the Nursing Process**
1. What is the pathophysiologic basis for Ms. Lynn’s elevated WBC?
2. How would Ms. Lynn’s postoperative care and teaching differ if she had undergone a laparotomy instead of a laparoscopic appendectomy?
3. Outline a teaching plan to give to clients for home care following an appendectomy.
4. Develop a care plan for Ms. Lynn for the nursing diagnosis, Anxiety related to a situational crisis.

See Evaluating Your Response in Appendix C.