

N431 Concept Map  
Lakeview College of Nursing  
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## Demographic Data

**Date of Admission:** 11/10/2021

**Chief Complaint:** Burning pain in abdomen

**Admission Diagnosis:** cellulitis of pannus, LLQ abdominal pain

**Age:** 69

**Gender:** Female

**Race/Ethnicity:** Caucasian

**Allergies:**

Sulfa drugs- upset stomach

Vancomycin- Red Man Syndrome

Chondroitin-glucosamine- Cough

Ciprofloxacin- Hives

**Code Status:** Full

**Height in cm:** 170.2

**Weight in kg:** 200

**Psychosocial Developmental Stage:** This patient's psychosocial development was appropriate for her age. She was dressed appropriately, calm, cooperative, displayed normal affect, and spoke clearly. She lives with husband who provides all her care. She has several friends that she talks to regularly on the phone that she met in a cross-stitch Facebook group. She stitches and talks to her friends and husband when she is stressed.

**Cognitive Developmental Stage:** This patient graduated high school and attended cosmetology school. She is alert and oriented to person, place, time, and situation. She was knowledgeable about her current state of health. No cognitive or developmental delays observed.

**Braden Score:** 13, patient is morbidly obese, frequently moist, and bedfast

**Morse Fall Score:** 35, patient is bedfast and has a saline lock in her right forearm

**Infection Control Precautions:** Standard precautions

## Medical History

**Previous Medical History:** Chronic depression, Gastroesophageal reflux disease (GERD), lymphedema, morbid obesity, hypertension, hypothyroidism, cellulitis, pressure ulcers, shingles, bowel obstruction, benign mass in the left breast (5-10), right thigh lymph node removed (2018)- patient stated: "It was a benign mass".

**Prior Hospitalizations:** This patient has been hospitalized several times in the past. She reported being hospitalized five to ten years ago following surgery to remove a benign mass from her left breast. She was hospitalized in 2018 after the removal of a lymph node from her right thigh. She was hospitalized in October to remove a small bowel obstruction. Most recently, she stayed two days in the emergency department because she was having difficulty walking and had a urinary tract infection, cellulitis, pressure ulcers, and abdominal pain.

**Previous Surgical History:** Benign mass removed from left breast -5-10 years ago), lymph node removal- right thigh (2018)- benign mass

**Social History:** This patient denies smoking, drinking, or using drugs.

### **Admission History**

On 11/04/2021, a 69-year-old female presented to the emergency department (ED) at Union Hospital with trouble ambulating, burning with urination, and sharp abdominal pain. The physician diagnosed her with a urinary tract infection and cellulitis. She was kept in the ED for two days and was transferred to a nursing home in Terre Haute for rehabilitation. She returned to the ED on 11/11 because she had been experiencing abdominal pain for two days. The patient stated: "I was having sharp pain on the lower right and left sides of my stomach. It felt like gas was trapped". The patient reported that this pain would come and go and cause nausea and dry heaves. She stated: "The pain was worse with movement, but rest and tramadol helped. I was not eating because I did not feel well. I think that could have caused this pain because I did not have anything to pass". This patient was seen recently for similar symptoms. She stated: "I had a bowel obstruction about a month ago, and it felt just like this". The bowel obstruction was cleared using laxatives and manual extraction. While in the ED, this patient was sent to a nearby hospital for a CT of her abdomen because the one at Union Hospital could not accommodate her size. The radiologist at that hospital gave a verbal report to the ED physician. The radiologist indicated that the CT did not show a small bowel obstruction or any abnormal findings. The physician noted a large portion of her abdomen was red, warm, and painful during a physical exam. The physician also noted pressure ulcers on the patient's sacrum and right thigh. This patient was diagnosed with cellulitis of pannus and lower-left quadrant pain. She was admitted to the medical-surgical floor for observation.

## **Pathophysiology**

### **Disease process:**

Cellulitis is a bacterial skin infection that affects 14 million people annually in the United States (Brown & Watson, 2021). Cellulitis is caused by a break in the skin, allowing normal skin bacteria such as *S. aureus* and *S. pyogenes* to enter (Brown & Watson, 2021). Once inside the skin, these bacteria infect the dermis and the subcutaneous tissues (Brown & Watson, 2021). If not detected, the bacteria can enter the blood and bone, causing endocarditis and osteomyelitis (Brown & Watson, 2021). Cellulitis can appear on any part of the body, but it most commonly affects the lower extremities (Brown & Watson, 2021). Patients with diabetes, venous insufficiency, peripheral vascular disease, and lymphedema have the greatest risk of developing cellulitis due to chronic inflammation and poor wound healing (Brown & Watson, 2021).

### **S/S of disease:**

The signs and symptoms of cellulitis include swelling, pain, redness, and warmth (Brown & Watson, 2021). Cellulitis can also cause systemic symptoms such as a fever, chills, malaise, enlarged lymph nodes, and sweating (Hinkle & Cheever, 2018).

### **Method of Diagnosis:**

Cellulitis is diagnosed based on the clinical presentation of symptoms (Brown & Watson, 2021). Patients must have two of the four following symptoms: edema, pain, redness, warmth (Brown & Watson, 2021). Blood cultures are only recommended for patients with animal bites, poor immune system function, and those that display signs and symptoms of sepsis (Brown & Watson, 2021). Diagnostic imaging is only done if the patient has decreased neutrophils and a fever (Brown & Watson, 2021).

### **Treatment of disease:**

Mild cases are treated using oral antibiotics while more severe cases require hospitalization and intravenous antibiotics (Hinkle & Cheever, 2018). Symptoms can be managed by elevating the affected area and alternating between warm and cold packs (Hinkle & Cheever, 2018).

**Relevant patient data:**

This patient came to the emergency department due to abdominal pain. During a physical assessment, the physician noted a large area of the lower-left quadrant was red, warm, and tender to the touch. The physician also documented pressure ulcers on her sacrum and right thigh. Labs were ordered, which showed elevated white blood cells, indicating she had an infection. She was diagnosed with cellulitis of pannus, a bacterial infection of a large segment of excess abdominal fat (Fadel et al., 2017). She was admitted to the medical-surgical floor for treatment. She stated that she received IV fluids and antibiotics for the first few days but did not know its name and I did not write down inactive orders. Currently, clotrimazole-betamethasone cream is being applied twice a day to her abdomen, and a pillowcase is being used to cover the area. She is receiving tramadol as needed for pain. This patient had an increased risk of developing this infection because she has lymphedema, which compromises the skin's integrity. She is also morbidly obese and bedridden, which predisposes her skin to breakdown because of friction and prolonged pressure. She reported that she has had cellulitis in the past on her abdomen and legs. This patient is morbidly obese and requires position changes every two hours. In the hospital, six people were needed to accomplish this. At home, position changes cannot be done because the patient's husband provides all her care. This could explain why she is developing pressure ulcers and cellulitis so often.

## Lab Values/Diagnostics

### Labs done on 11/11/2021:

#### WBC-

**Normal:** 4.5-10.8

**Patient's:** 11.8, increased

**Rationale:** My patient was diagnosed with cellulitis, which is a bacterial infection. The immune system responds to infection by increasing the number of WBC to fight off the infection (Capriotti, 2020).

#### Neutrophils-

**Normal:** 31.0-71.1

**Patient's:** 74.9, increased

**Rationale:** My patient was diagnosed with cellulitis, which is a bacterial infection. Neutrophils are the first to respond to bacterial infections (Capriotti, 2020).

#### Lymphocytes-

**Normal:** 19.3-51.7

**Patient's:** 16.4, decreased

**Rationale:** Lymphocytes are decreased in patients with acute infections. Although lymphocytes respond to the infection, they are destroyed or trapped in the lymphatic system reducing this value (Capriotti, 2020). Lymphocytes can also be decreased due to malnutrition (Capriotti, 2020).

#### MCHC-

**Normal:** 32.2-35.5

**Patient's:** 32, decreased

**Rationale:** This patient's red blood cells are paler than normal, which can occur with hypochromic anemia (Capriotti, 2020). Patients with hypothyroidism can develop anemia because T4 is needed for hematopoiesis (Ahmed & Mohammed, 2020).

#### MCV-

**Normal:** 79.4-94.8

**Patient's:** 99.4, increased

**Rationale:** This patient's red blood cells are larger than normal, which can occur with megaloblastic anemia (Capriotti, 2020). Patients with hypothyroidism can develop anemia because T4 is needed for hematopoiesis (Ahmed & Mohammed, 2020).

**Labs 11/14:**

**MCV-**

**Normal:** 79.4-94.8

**Patient's:** 96.7

**Rationale:** This patient's red blood cells are larger than normal, which can occur with megaloblastic anemia (Capriotti, 2020). Patients with hypothyroidism can develop anemia because T4 is needed for hematopoiesis (Ahmed & Mohammed, 2020).

**RDW-**

**Normal:** 11.7-14.4

**Patient's:** 15.4, increased

**Rationale:** This value can be increased because of inflammatory disorders such as lymphedema (Ahmed & Mohammed, 2020). It can also be elevated due to anemia (Ahmed & Mohammed, 2020).

**Absolute monocyte-**

**Normal:** 0.2-0.4

**Patient's:** 0.8, increased

**Rationale:** This value can be increased due to infection and chronic inflammation (Roland, 2019). Lymphedema and obesity can cause chronic inflammation (Mosli & Mosli, 2017).

**Absolute eosinophil-**

**Normal:** 0.9-5.5

**Patient's:** 0.2, decreased

**Rationale:** This value can be decreased because of excess cortisol in the body (Underwood, 2018). The body releases cortisol when it experiences distress (Hinkle & Cheever, 2018)

**Carbon dioxide-**

**Normal:** 22-29

**Patient's:** 18

**Rationale:** Hyperventilation can cause low carbon dioxide levels (Eng, 2021). This patient's respiratory rate was 20 when I assessed her vitals.

**Glucose-**

**Normal:** 74-106

**Patient's:** 134, increased

**Rationale:** Glucose can be elevated in non-diabetic patients due to excess cortisol secretion during periods of stress/infection (Capriotti, 2020).

**Total protein-**

**Normal:** 6.6-8.7

**Patient's:** 6.2, decreased

**Rationale:** Poor nutritional intake of protein can reduce this value (Capriotti, 2020).

**Albumin-**

**Normal:** 3.97-4.94

**Patient's:** 2.81, decreased

**Rationale:** Poor nutritional intake of protein can reduce this value (Capriotti, 2020). Albumin is also low due to chronic inflammation, which can occur with obesity and lymphedema (Mosli & Mosli, 2017).

**Diagnostic test:** This patient had an abdominal CT scan done at a nearby hospital on 11/11/2021. A verbal report was given to the emergency department physician. The physician documented that no acute pathology or small bowel obstructions were found during the scan. Abdominal CT scans are ordered to identify the cause of abdominal pain. These scans can detect abnormalities in several organs such as the liver, spleen, appendix, colon, and pelvic organs (Hinkle & Cheever, 2018).

## Medications

1. Metoprolol tartrate

**Class:** Beta-adrenergic blocker

**Dose:** 50 mg

**Route:** PO

**Frequency:** BID

**Reason client is taking:** To manage her hypertension

**Assessments:** Blood pressure to ensure patient needs the medication, pulse- to ensure it is at least 60 beats per minute

2. Clotrimazole-betamethasone

**Class:** Corticosteroid/antifungal

**Dose:** Not specified in order

**Route:** Topical cream

**Frequency:** BID

**Reason client is taking:** To relieve swelling and redness of pannus caused by cellulitis

**Assessments:** Assess the intended site for redness, swelling, and discomfort indicating a continued need for the medication, assess the patient's tolerance of previous dose

3. Docusate sodium

**Class:** Surfactant

**Dose:** 50 mg

**Route:** PO

**Frequency:** BID

**Reason client is taking:** To treat constipation. This patient is not active and takes tramadol, which can cause constipation.

**Assessments:** Assess patient's last bowel movement and stool consistency to determine a need for this medication, monitor electrolytes because this drug can cause imbalances in them such as hypokalemia

4. Enoxaparin

**Class:** Low-molecular weight heparin

**Dose:** 60 mg

**Route:** subcutaneous

**Frequency:** BID

**Reason client is taking:** To prevent deep-vein thrombosis because she is immobile

**Assessments:** Review platelets and notify the provider if they are below 100,000, check potassium level because this drug can cause hyperkalemia

5. Gabapentin-

**Class:** 1-amino-methyl cyclohexaneacetic acid

**Dose:** 300 mg

**Route:** PO

**Frequency:** TID

**Reason client is taking:** To manage nerve pain that has not gone away since she had shingles

**Assessments:** monitor renal function tests, dose may need to be adjusted

6. Levothyroxine-

**Class:** synthetic thyroxine (T4)

**Dose:** 225 mcg

**Route:** PO

**Frequency:** Daily

**Reason client is taking:** To treat hypothyroidism by providing T4, which she is lacking

**Assessments:** Assess for signs of hyperthyroidism such as chest pain, diarrhea, diaphoresis, fever, insomnia, and palpitations

7. Pantoprazole

**Class:** Proton pump inhibitor

**Dose:** 40 mg

**Route:** IV push

**Frequency:** Daily

**Reason client is taking:** To manage her GERD symptoms

**Assessments:** Monitor urine output because this drug can cause acute interstitial nephritis

8. Acetaminophen-

**Class:** Nonsalicylate, paramaniophenol derivative

**Dose:** 1000 mg

**Route:** PO

**Frequency:** PRN Q6H

**Reason client is taking:** To relieve mild pain (1-3). This patient has pain in her abdomen due to cellulitis. She also experiences pain in her lower extremities because of lymphedema.

**Assessments:** Assess pain level, monitor creatinine and liver function test because this drug can cause hepatotoxicity and nephritis

9. Tramadol-

**Class:** Opioid agonist

**Dose:** 50 mg

**Route:** PO

**Frequency:** PRN Q8H

**Reason client is taking:** For severe pain (7-10). This patient has pain in her abdomen due to cellulitis. She also experiences pain in her lower extremities because of lymphedema.

**Assessments:** Assess pain level, assess respiratory rate and rhythm because this drug can cause respiratory depression

**Medication references:**

Jones & Bartlett Learning. (2020). *2020 Nurse's drug handbook* (19th ed.).

*Lotrisone (clotrimazole / betamethasone)*. (n.d.). GoodRX.

<https://www.goodrx.com/lotrisone/what-is>

**Physical Exam/Assessment**

**General:**

**Alertness:** A & O x 4

**Distress:** No acute distress noted.

**Overall appearance:** This patient had poor hygiene but reported that she received a partial bath this morning.

**Integument:**

**Skin color:** Pink, except lower calves which were red

**Character:** Dry, lower left and right calves were scaly

**Temperature:** Cold to the touch except lower calves which were warm

**Turgor:** Skin turgor assessed with immediate recoil

**Rashes:** No rashes noted.

**Bruises:** 9 purple bruises on left forearm, 7 on right forearm and wrist. Patient reported that some of these came from trying to start and IV, but the others were acquired while being turned in the rehab center

**Wounds:** Right thigh had a pressure ulcer that was covered by a bandage. Large pressure ulcer on patient's sacrum. Cellulitis present on lower-left and lower-right quadrants of the abdomen.

**Braden Score:** 13

**Drains present:** Y  N

**Type:** n/a

**HEENT:**

**Head/Neck:** Head and neck symmetrical. The trachea is midline without deviation. No lymphadenopathy inspected or palpated. Thyroid is nonpalpable. h. Throat is pink, moist, and without lesions. Tonsils 1+.

**Ears:** Bilateral auricles are pink without drainage or lesions noted.

**Eyes:** Bilateral PERRLA. Intact EOMs bilaterally. Sclera is white. Conjunctiva is pink.

**Nose:** The nose is free of discharge and lesions.

**Teeth:** Dentition is poor, but patient has all her teeth.

**Cardiovascular:**

**S1, S2, S3, S4, murmur etc:** Clear S1 and S2. No audible gallops, murmur, or rubs noted.

**Cardiac rhythm (if applicable):**

**Peripheral Pulses:** Upper extremities 2+, lower extremities 1+

**Capillary refill:** Less than 3 seconds upper extremities, and greater than 3 seconds for lower extremities bilaterally

**Neck Vein Distention:** Y  N

**Edema** Y  N

**Location of Edema:** Lower extremities swollen, firm, warm to the touch. Non-pitting edema lower extremities bilaterally

**Respiratory:**

**Accessory muscle use:** Y  N

**Breath Sounds: Location, character:** Breath sounds even, regular and nonlabored bilaterally. No crackles, wheezes, or rhonchi noted.

**Gastrointestinal:**

**Auscultation Bowel sounds:** Normoactive

**Last BM:** 11/16/2017

**Palpation: Pain, Mass etc.:** Abdomen firm, tender to palpation in lower-left and right quadrants

**Inspection:**

**Distention:** No distention noted.

**Incisions:** No incisions noted.

**Scars:** No scars noted.

**Drains:** N/A

**Wounds:** Lower-left and right quadrants red, warm, and scaly

**Genitourinary:**

**Color:** Dark yellow

**Character:** Clear

**Quantity of urine:** 300 mL in catheter drainage bag

**Pain with urination:** Y  N

**Dialysis:** Y  N

**Inspection of genitals:** Genitalia clean without rashes or lesions.

**Catheter:** Y  N

**Type:** Indwelling Foley catheter, saline lock right forearm

**Size:** 18 g

**Musculoskeletal:**

**Neurovascular status:** Normal sensation in upper and lower extremities bilaterally

**ROM:** Normal ROM in upper extremities bilaterally. Limited ROM in lower extremities bilaterally. Patient could not flex or extend her knees but could her ankles. She could perform inversion/eversion of the ankles

**Supportive devices:** N/A

**Strength:** Strength equal in upper extremities, patient had firm grips. Right leg noticeably weaker when performing pedal pushes/pulls

**ADL Assistance:** Y  N  Patient is bedfast and requires assistance for ADL's and turning

**Fall Risk:** Y  N

**Fall Score:** 35

**Activity/Mobility Status:** Patient is confined to bed and cannot change positions on her own.

**Independent (up ad lib)**

**Needs assistance with equipment**

**Needs support to stand and walk**

**Neurological:**

**MAEW:** Y  N

**PERLA:** Y  N

**Strength Equal:** Y  N  if no - **Legs**  **Arms**  **Both**

**Orientation:** Oriented to person, place, time, and situation

**Mental Status:** Cognitive. No changes in mental status observed.

**Speech:** Clear

**Sensory:** No sensory deficits noted in the upper and lower extremities bilaterally

**LOC:** alert

**Most recent VS (include date/time and highlight if abnormal):**

**11/17/2021:**

**BP- 135/83-** this patient has hypertension and is taking metoprolol

**Pulse-** 62

**Respirations-** 20

**Oxygen saturation-** 95% on 4L of oxygen via nasal cannula

**Temperature-** 36.5 C

**Pain and pain scale used:**

**11/17/2021 @ 1522**

**Pain level:** 7/10

**Scale:** Numerical

**Location:** Right and lower quadrants of abdomen

**Characteristics:** Cramping, burning

**Intervention:** This patient was given tramadol. 1615: patient stated her pain was now a 4/10.

**Active Orders**

Turn patient every 2 hours- Patient is bedridden and at risk for additional skin breakdown

**Diet:** 200 mg sodium, 20 grams saturated fat- Patient has lymphedema and has swollen lower extremities

**Vital signs:** Q8H- To assess for changes in oxygenation or temperature indicating bacteremia

Call if oxygen falls below 92%- Poor oxygenation can cause organ failure

Call if heart rate is below 60 or greater than 120- If the heart rate is outside of normal parameters, the body does not receive adequate oxygenated blood

Call if diastolic blood pressure is greater than 100 or less than 50- A diastolic blood pressure outside of the set parameters indicates poor perfusion

Braden scale twice a shift- Patient is bedridden and at risk for additional skin breakdown

Flush saline lock every 8 hours- To keep IV patent

**Nursing diagnosis 1:** Ineffective peripheral tissue perfusion related to lymphedema as evidenced by swollen lower extremities, prolonged peripheral capillary refill, and decreased peripheral pulses

**Rationale:** This patient is not receiving adequate blood flow to her lower extremities which is compromising the skin's integrity causing her to develop cellulitis and pressure ulcers frequently. Ineffective tissue perfusion also prevents these wounds from healing and predisposes her to deep-vein thrombosis.

**Interventions:**

1. Elevate limbs to reduce edema and improve circulation
2. Reposition patient frequently to reduce pressure and injury to the skin

**Evaluation:** This patient was repositioned twice during my shift. The first time, I was in another room. The second time (at 1705), I helped turn her and elevate her lower extremities using pillows.

**Nursing diagnosis 2:** Impaired skin integrity related to altered primary defenses as evidenced by warm, swollen, and reddened abdomen and pressure ulcers on the right thigh and sacrum

**Rationale:** Patient's impaired skin integrity predisposes her to bacteremia

**Interventions:**

1. Inspect the skin daily noting any changes such as increased swelling or redness.
2. Apply corticosteroid cream to abdomen as ordered

**Evaluation:** I inspected this patient's skin thoroughly during my physical assessment and while turning the patient. Corticosteroid cream was already applied to this patient's abdomen before my shift started, it did not need reapplied before I left.

**Nursing diagnosis 3:** Acute pain related to cellulitis of pannus as evidenced by patient's numerical pain rating of 7/10

**Rationale:** Pain disrupts comfort and sleep quality

**Interventions:**

1. Assess for pain when performing vital signs. Assess location, intensity, and aggravating/alleviating factors.
2. Administer analgesics as prescribed

**Evaluation:** I assessed this patient's pain location, intensity, and aggravating/alleviating factors during my vitals at 1522. I also assessed her pain level at 1615 to see if the tramadol we had given her (1530) relieved the abdominal pain.

**Nursing interventions reference:**

Swearingen, P. L., & Wright, J. D. (2019). *All-in-one nursing care planning resource: Medical-surgical, pediatric, maternity, and psychiatric-mental health* (5th ed.). Elsevier.

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