

Medications

- Piperacillin-tazobactam/Zosyn 4.5 g 100 mL/hr. every 8 hours - Antibiotic used to treat the rest of the infection in her body from the appendicitis
 - This medication may cause nausea, diarrhea, constipation, headache, and insomnia, the nurse should monitor for this (Jones & Barlett, 2020).
 - The nurse should also check WBC count to ensure the medication is working properly
- Polyethylene glycol oral powder packet/Miralax- 17g PO daily
 - Used to treat patient's constipation
 - This medication may cause bloating, dizziness, upset stomach, and excessive sweating, the nurse should monitor for this (Jones & Barlett, 202).
- Ferrous Sulfate 325 mg tab PO BID
 - Used to replace the iron from the patient's excessive bleeding
 - This medication may cause constipation, nurse should monitor this and treat with laxative (Jones & Barlett, 2020)

Relevant Lab Values/Diagnostics

Diagnostic Tests:

- X-Ray- abdomen
 - Findings: Cysts on ovaries
 - This patient experienced abdominal pain and irregular bleeding, consistent with this diagnostic finding
- CT-abdomen and pelvis
 - Findings: Perforated Appendicitis, significant inflammation of the appendix
 - This patient experienced abdominal pain, nausea and vomiting, consistent with this diagnosis.

Lab Values: Abnormal lab values are highlighted*(Ricci et al., 2021)

Protein-30(Normal-6.6-8.2)
Ketone-15(Normal-0.6 mmol/L or less)
Nitrite-positive(Normal-negative)
Urobilinogen-4.0(Normal-0.2-1.0 mg/dL)
WBC-92 (Normal-2.5-17.8)
Squamous Epithelium-203(Normal-1-5 cells per HPF (High Power Field)
Mucus-present (Normal-a small amount of mucus in urine is normal-too much may be a sign of UTI or other medical condition.
AST-72 (Normal-0-27)
Total Bilirubin-2.5(Normal-0-1.0)
Total Protein-8.7(Normal-6.0-8.3g/dL)
CO2-20.0 (Normal-35-45)
Sodium-133 (Normal-136-145 mmol/L)
Glucose-113(Normal-69-100)
Basic Heme:These abnormal lab values below are consistent with iron deficiency anemia and significant blood loss:
WBC-25.43(Normal-4.5-13.5)-Consistent with residual bacteria from the appendicitis.
Hgb-9.6(Normal-12-16)
HCT-31.5(Normal-36-50)
MCV-76.1(Normal-78-95)
MCH-23.2(Normal- 25.9-31.0)
MCHC30.5 (Normal-31-37)
Platelet-532(Normal-150-350)
-These abnormal lab values below are consistent with infection:
Absolute Neutr-23.69 (Normal-1.8-8.0)
Absolute Lymph-0.60 (Normal-1.2-5.2)
Absolute Mono-0.88(Normal-0.4-0.9)
Absolute EOS-0.01(Normal-0-0.2)
Absolute Immature Granulo-0.21 (Normal-1.5-8.5)

Demographic Data

Admitting diagnosis: Complicated (perforated) Appendicitis

Age of client: 14 years old

Sex: Female

Weight in kgs: 113.6 kg

Allergies: No known Allergies

Date of admission: 1/26/2023

Psychosocial Developmental Stage: Adolescent (Identity versus role confusion)

Cognitive Development Stage: School-Age-Adolescent (Formal Operational)

Admission History

On 1/20/2023, a 14-year-old female patient came into the ED complaining of abdominal pain, nausea and vomiting, and excessive bleeding, which led to an IDA. She described her pain as severe cramping that is constant and non-radiating. The patient mentioned that her pain worsens when she bends, moves, or walks. The patient and her mother did not use any comfort measures since her pain was so severe that her mother immediately drove her to the ED. She stayed in Carle hospital until 1/23/2023, and during her stay, she received an X-Ray that showed ovarian cysts. The patient was discharged home on 1/23/2023 after doctors declared her condition safe to go home. Her take-home orders were ferrous sulfate 325 mg tablet PO BID to replace the iron she lost from her bleeding and norethindrone acetate-ethinyl estradiol 1-20mg tab daily to control the abnormal bleeding. On 1/26/2023, the patient returned to the ED with worsened symptoms than she experienced on 1/20/2023. This patient denied having a fever. She received a CT of the abdomen and pelvis, which diagnosed her perforated appendix, explaining her initial symptoms. Her last normal bowel movement was on 1/24/2023, with no evidence of diarrhea.

Medical History

Previous Medical History: Acute blood loss Anemia and Abnormal Uterine Bleeding (AUB)

Prior Hospitalizations: ED visit on 8/14/2017-abnormal uterine bleeding, 07/13/2012- routine office visit

Past Surgical History: Patient does not significant past surgical history, but patient has a recent completed appendectomy

Social needs: Patient does not have any social needs.

Pathophysiology

Disease process: Complicated/Perforated Appendicitis is a visible hole in the appendix (Howell, 2018). It begins with inflammation due to a variety of factors from an obstruction of the appendiceal lumen, including lymphoid hyperplasia, appendicolith, foreign body, parasites, or malignancy (Howell, 2018). The obstruction leads to distension of the appendix as mucus is continually secreted and bacteria grows (Howell, 2018). As the distension continues, it results in impairment of the lymphatic and venous drainage from the appendix and begins to limit arterial supply as well (Howell, 2018). As the disease progresses, the appendiceal tissue undergoes necrosis and then perforates (Howell, 2018).

S/S of disease: Loss of appetite (anorexia), emesis, generalized pain, diffuse tenderness, and fever (Howell, 2018). This patient experienced, nausea and vomiting, and abdominal pain.

Method of Diagnosis: Typically, perforated appendicitis is diagnosed using markers of elevated leukocytes, bandemia, high C-reactive protein, hyponatremia, ultrasound, MRI, and a CT (Howell, 2018). This patient had a CT scan of her abdomen and pelvis to confirm her diagnosis.

Treatment of disease: Patients may be managed non-operatively with antibiotics with or without interval appendectomy (Howell, 2018). Patients may also undergo appendectomy early in the course their hospitalization (Howell, 2018). This patient was treated with a laparoscopic appendectomy and antibiotics. The antibiotics she received was piperacillin-tazobactam (Zosyn) 4.5g 100mL/hr. every 8 hours. Patient responded well to treatment, as evidence by her significant reduction in pain level from a 10 to a 2 on a 0-10 pain scale.

Active Orders

- Pneumatic compression stockings:** because the patient just and an appendectomy and has limited mobility, placing her at risk for developing a DVT.
- Incentive Spirometer-** the patient had a procedure using anesthesia, this device is used to prevent the patient from developing aspiration pneumonia.
- Activity as tolerate-**To prevent the patient from developing a DVT and to also mobilize stool. The patient did not have a bowel movement since 1/24 and was constipated.
- Remove dressing in 48 hours.** Dermabond or steri strips will remain on 1-2 weeks. - This is to aid in healing and not to prematurely expose wound, causing an infection.

Assessment

General	The patient's general appearance was well groomed and appropriate for her age. She was alert and oriented to person, place, and time.
Integument	The patient's overall skin was brown, clean, dry, and intact. She had incision in her right lower quadrant of her abdomen and an IV in her left peripheral access. The IV was clean, dry, and intact. The IV was patent, as evidenced by the nurse flush. She had two lines of fluids running, a primary and a piggyback. Her primary was D5-0.45% NaCl with Potassium Chloride 20mEq 125ml/hr IV continuous, and her piggyback was Piperacillin tazobactam (Zosyn) 4.5g at 100ml/hr every 8 hours. Skin turgor was one second at the clavicle. Braden score was a 20, which means she is mild risk for skin breakdown.
HEENT	General appearance of head, ear, eyes, nose, and throat looks midline, without deviation. Sclera was white and cornea was clear, bilaterally. Lower lids were pink and moist without bleeding or wounds. Auricles did not appear with any scratches, scrapes, bruises, or drainage bilaterally. The tympanic membrane as present and pearly gray. Nose appeared midline, turbinates were pink and without bleeding or polyps. Trachea was midline upon palpation. Thyroid was non-palpable. All sinuses were non-tender and non-palpable. Hair was evenly distributed and well kept.
Cardiovascular	S1 and S2 sounds noted. No murmurs, gallops, or rubs heard on auscultation. Her heartbeat's rate and rhythm were within expected limits. Apical pulse heard at the fifth intercostal space at the midclavicular line. All peripheral pulses were felt upon palpation, bilaterally. No telemetry. Minimal swelling in ankles, bilaterally. Patient did not report any numbness and tingling in her fingers and toes, bilaterally. Patient refused to wear TED hose/compression stockings. Capillary refill was less than two seconds.
Respiratory	Respirations were regular at 20 breaths per minute, non-labored, bilaterally. No use of accessory muscles. No wheezing, rhonchi, or crackles heard upon auscultation, bilaterally.
Genitourinary	The patient was voiding without pain or discomfort. No reports of frequency or urgency. No reports of abnormal odors or blood in the urine. The patient's urine color was clear/yellow. Patient does present with excessive vaginal bleeding unrelated to the urinary system. The patient has cysts on her ovaries. The patient does not present with any other abnormal discharge aside of bleeding from the vaginal area.
Gastrointestinal	The patient's abdomen was soft and non-distended. Her abdomen was slightly sore from her incision site. She rated her pain a 6 out of 10 while laying down, and then a 2 out of 10 when medicated and ambulating. The patient did not experience nausea and vomiting during the time of the assessment. The patient is constipated and is taking laxatives to resolve the constipation. The patient is taking iron replacement which contributes to her constipation complaint.
Musculoskeletal	The patient moved all extremities well. The patient as +2 DTRs. The patient' pedal pushes and pulls, and hand grips were a +2. The patient did not require any assistance upon with ambulation. Patient is a fall risk because she just had surgery and limited mobility and also IV medications.
Neurological	The patient was awake, alert, and oriented to person, place, and time. She knew the date, the president of the United States of America, and the reason for her hospital stay. She moved all extremities well, without assistance upon ambulation. PERRLA is present. The patient's verbalization was clear and she responded appropriate for her age.
Most recent VS (highlight if abnormal)	Time: 0815 Temperature: 98.1 F Route: Oral

	<p>RR: 20</p> <p>HR: 96 bpm</p> <p>BP and MAP: 128/60 (B/P) and 82.67 (MAP)</p> <p>Oxygen saturation: 100%</p> <p>Oxygen needs: Patient did not have any oxygen needs. She is on Room air.</p>
Pain and Pain Scale Used	<p>Patient experienced abdominal discomfort due to her incisional site. She described her pain as sore and tender. She rated her pain level a 6 out of 10 on a 0-10 numeric rating scale at 0815 on 1/27/2023. Her flacc pain score was a 4 which means she is at a moderate pain level. By 1130, the patient's pain decreased from a 6 down to a 2 after pain medication was administered and she ambulated, 5 laps around the unit. Patient stated that ambulation reduced her pain.</p>

<p>Nursing Diagnosis 1</p> <p>Acute pain related to laparoscopic appendectomy as evidence by patient stating, "I am in pain at my incision site. It is a 6 out of 10)</p>	<p>Nursing Diagnosis 2</p> <p>Risk for Infection related to laparoscopic appendectomy as evidence by the patient's new right lower abdominal incision</p>	<p>Nursing Diagnosis 3</p> <p>Knowledge deficit related to constipation as evidence by the patient stating, "I did not know that walking helped go to the bathroom."</p>
<p>Rationale</p> <p>The highest priority is getting the patient's pain managed after her surgery. It will signify improvement and recovery. Unresolved pain could indicate that the procedure was unsuccessful or there is an infection. The goal is to get the patient's pain manageable enough to discharge home.</p>	<p>Rationale</p> <p>The next greatest risk to this patient is infection. Having a new incision, that is not well managed could cause additional harmful bacteria to enter the incision site and cause a systemic infection in the patient. It is important for the site to be well managed, but it is equally important for the patient to receive antibiotics as prescribed to ensure the harmful bacteria from her appendicitis is dissolving.</p>	<p>Rationale</p> <p>This diagnosis is imperative because the patient just had surgery and is taking a lot of medications she needs to expel, and she needs to understand that ambulating assists her with improving her bowel flow.</p>
<p>Interventions</p> <p>Intervention 1: Administered Ketorolac injection 15mg IV push every 6 hours as needed for moderate pain.</p> <p>Intervention 2: Ambulated patient five times around the unit.</p>	<p>Interventions</p> <p>Intervention 1: Administered Antibiotics- Piperacillin-tazobactam (Zosyn) 4.5 g 100mL/hr. every 8 hours IV piggyback</p> <p>Intervention 2: Checked the incision dressing to ensure that it was clean, dry, and intact.</p>	<p>Interventions</p> <p>Intervention 1: Discussed with patient that ambulation helps to mobilize stool contents. So, nursing student ambulated the patient 5 times around the unit.</p> <p>Intervention 2: Educated the patient about the purpose of taking the administered MiraLAX (stool</p>

		softener) to break up the stool contents and to help her have a bowel movement.
<p>Evaluation of Interventions</p> <p>The patient stated, "The pain medication and walking made me feel a lot better." The patient's pain level reduced to a 2 from 6 on the numeric 0-10 pain scale.</p>	<p>Evaluation of Interventions</p> <p>The patient's incision dressing remained clean, dry, and intact. It was changed at the scheduled times. The patient did not report any new onset of increasing pain or bleeding of the incision site. The patient was not febrile. The medication was given through a patent IV access as checked by a NaCL flush. The lines were not kinked and the IV access was not infiltrated, evidence that the medication was received. WBC lab values were not rechecked by the end of the shift so they could not be reviewed to confirm if the medication worked.</p>	<p>Evaluation of Interventions</p> <p>The patient's abdomen began to feel better with ambulation. However, the nursing student did not observe the patient having a bowel movement during the clinical shift.</p>

References (3):

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