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Complications of Fitz-Hugh-Curtis Syndrome in a Teenage Female: A Case Presentation

Marina Cugliari
Rowan University

Trupti Pandit
Nemours DuPont Pediatrics at Inspira Medical Center

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Introduction

- Fitz-Hugh-Curtis Syndrome is a manifestation of Pelvic Inflammatory Disease (PID) associated with *Chlamydia trachomatis* infections and less frequently with *Neisseria gonorrhoea* [7].
- PID affects sexually active women (15-30 years old) and accounts for 750,000 cases each year [2]
- Fitz-Hugh-Curtis Syndrome is hypothesized to be a disseminated infection into the peritoneum via lymphatic, hematogenous, or ascending spread of organisms [2].
- The rate of Fitz-Hugh-Curtis-Syndrome in adolescents is estimated to be approximately 4% [6].
- Progression of disease can result in liver capsule inflammation (**perihepatitis**) and adhesion formation between organs [2].
- The adhesions can lead to right upper quadrant (RUQ) and right lower quadrant (RLQ) pain mimicking diseases such as cholestasis [5].
- An additional rare complication of the 'violin string' peritoneal adhesions is a small bowel obstruction (SBO). An SBO is a disruption in the flow of intraluminal contents and is a surgical emergency due to ischemic risk of the bowel. The most common etiology of SBO is postoperative adhesions, however intra-abdominal adhesions resulting from inflammation contribute to the pathology. [1]
- Fitz-Hugh-Curtis Syndrome is diagnosed using computer tomography (CT) imaging and ultrasonography but may also been seen during laparoscopic procedures. Findings on a CT report concerning for Fitz-Hugh-Curtis Syndrome coincide with increased hepatic capsular enhancement in the arterial phase. [3]
- While there are few studies documenting cases in the adolescent patient population, there are even fewer studies documenting Fitz-Hugh-Curtis Syndrome in association with appendicitis and SBO.
- The case presented illustrates a female who presented with an SBO and appendicitis, who was incidentally found to have Fitz-Hugh-Curtis Syndrome on laparoscopic exam.

Case Report

History

A teenage female with past medical history of scoliosis presented to emergency department with nausea/vomiting of three days duration and diffuse abdominal pain of two days duration. The patient described her emesis began as digestive food particles which transitioned to a yellow color. On presentation, the patient's emesis color was lime green. Patient denied fevers, chills, diarrhea, constipation, vaginal discharge, dysuria, hematuria, polyuria, and polyphagia. The patient endorsed decreased urination volume, likely secondary to dehydration due to emesis.

Physical

- Vitals: Temp: 37.8F, HR: 102 bpm, RR: 24 bpm, BP: 103/68 mm Hg, O₂ Sat: 98%
- Cardiac and respiratory exams were unremarkable. Abdominal exam was notable for diffuse abdominal tenderness to palpation in all four quadrants and right sided costovertebral angle (CVA) tenderness. Bowel sounds were auscultated in all four quadrants.
- Patient's labs were notable for leukocytosis, elevated platelets, neutrophilia (80%), and hyponatremia. Liver enzymes were not elevated. Pregnancy and COVID-19 screening were both negative. A urinalysis was notable for nitrites, bacteria (2+), moderate ketones, rbcs (few), and wbcs (few).

Hospital Course

The patient was admitted for acute pyelonephritis and began treatment with ceftriaxone. Overnight the patient experienced worsening abdominal pain and bilious emesis prompting a x-ray which demonstrated dilated loops of bowel in the right lower quadrant/periumbilical area. A CT scan demonstrated high grade SBO with multiple fluid air levels and a cecum consistent with appendicitis. The liver/biliary tract findings on CT report were noted to be within normal ranges. General surgery was consulted, an nasogastric (NG) tube was placed, and the patient was started on flagyl.

Treatment

The patient underwent a laparoscopic appendectomy. Chronic thickening of the appendix was seen on gross examination and a pathology report confirmed early acute appendicitis. An SBO with multiple bands on the right side of the pelvis was released with no evidence of ischemia throughout the bowel. Adhesions were noted on the right/left lobe of the liver adhering to the abdominal wall and ileal portion of the small bowel. The adhesions were removed during the procedure. The patient was implemented a bowel regimen during recovery and treated with cefoxitin, doxycycline, and flagyl.

Follow-up

The adhesions noted during the laparoscopic procedure were concerning for Fitz-Hugh-Curtis Syndrome. The patient endorsed engaging in sexual activity with two partners. An sexually-transmitted disease (STD) panel was positive for chlamydia confirming the diagnosis. A pelvic ultrasound was ordered which demonstrated complex bilateral ovarian cysts and normal reproductive anatomy. Child protective services was consulted and their investigation revealed no history of sexual abuse. The patient was noted to have lost 6 kg during her prolonged hospitalization and required partial parenteral nutrition. The patient was discharged from the hospital on a doxycycline and metronidazole antibiotic regimen and instructed to follow-up with her primary physician.

Discussion

- Increased STD rates are common in patients ages 15-24 [4].
- The increased rates can be partially explained by the changes in the adolescent genitourinary tract. In women specifically, the cervical transitional zone of squamous and columnar epithelium is found outside the cervix in adolescents, more susceptible to infection. In adults, the transition zone is found in a more protected location inside the cervix. [5]
- Diagnosing Fitz-Hugh-Curtis syndrome in this patient was particularly difficult due to the lack of common symptoms of PID, normal liver function tests, and lack of hepatic capsular enhancement on CT imaging. Literature review demonstrates cases with similar presentations [4].
- As mechanical obstruction from adhesions is the most common cause of SBO, the intra-abdominal adhesions is hypothesized to have been leading factor in the pathologic development of disease in this patient as the patient had no other risk factors [1].
- This case presentation highlights the need for a high suspicion of index for Fitz-Hugh-Curtis syndrome in an adolescent female who presents with RUQ pain.
- Furthermore, additional diagnostic techniques are needed to assess for Fitz-Hugh-Curtis Syndrome in the adolescent patient population in order to prevent further complications associated with PID such as infertility.

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