An Unusual Case of Abdominal Pain in a Female Child

Jag Heer, MD
Debra Bowker, MD
Glen Ferguson, DO
Kern Medical Center, Bakersfield, California

Correspondence:
Jag Heer, MD, FAAEM
Assistant Professor, UCLA
Attending Faculty Kern Medical
(661) 326-2160

ABSTRACT

Non-traumatic abdominal pain is a common presenting complaint in emergency department (ED) patients, quoted in some contemporary literature as being the third most frequent reason for ED visits. We present the ED and hospital course of an unusual case of an 11 year old female with right lower quadrant abdominal pain. The admission assessment of this patient was "possible appendicitis versus gastroenteritis"; however, laparatomy revealed a right adnexal torsion. The need for emergency medicine physicians to always include gynecologic and other less common causes in the differential diagnosis and workup of abdominal pain in children is emphasized.

INTRODUCTION

Right lower quadrant abdominal pain is a common presenting complaint in the emergency department (ED). In older adolescent and adult women this complaint provokes consideration of not only appendicitis and gastroenteritis, but also of gynecologic and urologic disease processes or infections. For pre-pubertal females, however, gynecologic disorders are less commonly considered in the differential diagnosis. This is particularly true in the case of idiopathic adnexal torsion in children. The difficulty in this diagnosis is twofold: most clinicians encounter it rarely, and the presentation often does not provide a clear clinical picture differentiating idiopathic adnexal torsion from other causes of abdominal pain.

It is acceptable surgical practice to follow nonspecific abdominal pain in children with observation and serial physical exams. In spite of its often nonspecific presentation, ovarian torsion is a true surgical emergency, just as with testicular torsion. An emergency medicine physician making the correct diagnosis early may expedite the appropriate surgical intervention for a female child's torsed ovary and increase the likelihood of salvaging ovarian tissue. This case report presents some features and reviews the diagnostic studies that might point the clinician toward this diagnosis.

CASE

An eleven year old female presented to the ED, accompanied by her mother, with a chief complaint of abdominal pain beginning at approximately noon on the day of presentation. She had experienced a few episodes of vomiting after the onset of pain. At the time of her initial exam by the ED physician twelve hours later, the vomiting had resolved. However, the patient remained anorexic, and reported that she had not eaten that day. She was not able to fully describe the character of her pain, but did say that the pain had been constant and located in the right lower quadrant of her abdomen. She denied dysuria. Her mother stated that the patient had not had any fever or diarrhea, and had a normal bowel movement the morning before presenting to the ED. The patient had experienced a very similar episode of abdominal pain about one month prior, for which she had not sought treatment and which had resolved spontaneously. Her medical history was otherwise unremarkable; she was pre-menarchal, denied any history of sexual activity, and had no prior surgeries in the abdomen.

Upon initial physical examination in the ED her temperature was 95.6 F, her pulse was 91 beats per minute, her respiratory rate was 22 breaths per minute, her blood pressure was 99/71 mmHg, and her pulse oximetry saturation was 98% on room air. She was alert and appeared comfortable. Her abdomen was soft, with mild tenderness focally in the right lower

quadrant. Minimal guarding was noted upon deep palpation. There was no rebound tenderness, no costovertebral angle tenderness, no guarding, and no signs of peritoneal irritation. No abdominal distention or bowel sounds were appreciated. The patient's rectal exam was unremarkable, with normal tone, no tenderness, and guaiac negative. Urinalysis revealed slight ketonuria and trace proteinuria, but no signs of infection or nephrolithiasis. The white blood cell count was 13,700 k/ml with a left shift of 88% neutrophils. She received intravenous fluids while awaiting laboratory results, after which her abdomen was reexamined and found to be unchanged. The general surgery service was called to evaluate the patient.

She was admitted to the general surgery service with a presumptive diagnosis of possible early appendicitis versus gastroenteritis, with a plan to follow her condition with serial physical exams and repeat laboratory tests. On hospital day number two, the patient's condition was largely unchanged. She remained afebrile with a temperature of 98.7 F; no further emesis was noted, and her physical exam unchanged. Her white blood cell count rose to 15,300 with 82% neutrophils. On hospital day number three, the patient stated that her pain had improved from the previous day. However, her white blood cell count had risen to 18,800 with 82% neutrophils, and her temperature had risen to 100.2 F. She was taken to the operating room by general surgery that afternoon for laparatomy for what was thought to be appendicitis.

Upon inspecting the pelvis, right adnexal torsion was discovered. The right ovary and fallopian tube were noted to be purplish-black in color, hemorrhagic and necrotic. The right ovary was enlarged to 7cm x 6cm x 3cm. After untwisting the right adnexa, there was no return of normal color to the ovary or tube. Gynecology was consulted intraoperatively, and they proceeded with complete right salpingo-oophorectomy. The appendix was mildly congested but otherwise normal, and appendectomy was performed by the general surgery team. The uterus, left ovary, and left fallopian tube were normal. The patient was discharged on hospital day number seven after an uneventful recovery. The surgical pathology report noted a markedly hyperemic right ovary and fallopian tube with extensive hemorrhage and necrosis consistent with adnexal torsion. No tumors, cysts, or abnormalities were found within the ovary. The appendix was reported as essentially normal with a mildly hyperemic serosa. At follow-up one week later in gynecology clinic, she was pain-free and doing well.

DISCUSSION

The preoperative diagnosis of adnexal torsion is especially difficult because it may not receive primary consideration in a differential diagnosis of abdominal pain in the pediatric age group, and because of the many nonspecific findings. The classic presentation for adnexal torsion is acute onset of severe persistent lower quadrant abdominal pain, often immediately followed by nausea and emesis in the absence of fever, gastrointestinal, urinary, or gynecologic symptoms.[1] Acute appendicitis is the most frequent misdiagnosis for pediatric patients with adnexal torsion. Right-sided torsions occur much more often than left-sided torsions, contributing to the confusion with appendicitis.[1]

Abdominal pain, whether acute or chronic, is the most consistent symptom. Patients may present with recurrent episodes of pain over several months.[2] This is suggestive of an adnexa that torses and then spontaneously detorses, or incomplete torsions that resolve.[3] This patient's mother told the ED physician at initial evaluation that the child had a similar episode of abdominal pain one month prior to presentation, which had resolved spontaneously. Investigation of the chart for this case report revealed another episode of right lower quadrant abdominal pain approximately four months prior to presentation which had been evaluated by a different ED physician. At that visit, only mild tenderness to palpation of the right lower quadrant was noted, with normal vital signs, a normal white blood cell count, and normal urinalysis. The patient was sent home and rechecked in the urgent care the next day, at which time her abdominal pain and tenderness had completely resolved.

Other presenting findings of adnexal torsion may include fever, vomiting, anorexia, constipation, and urinary symptoms. If nausea and vomiting are present

in adnexal torsion, they are usually immediately after onset of pain, whereas with appendicitis nausea and vomiting usually follow the initial discomfort by several hours.[4] Diarrhea is rarely part of this clinical picture. Bowel sounds are often hypoactive or absent. Pelvic organs in children lie relatively higher because the pelvis has not fully developed; therefore the rectal exam may not reveal tenderness or a mass with bimanual palpation.[5] Development of peritoneal signs and an acute abdomen are commonly reported, although these were not present in our case.

Laboratory values are not diagnostic in adnexal torsion. White blood cell count can be normal or elevated. Leukocytosis is mild and occurs after at least 24 hours, by which time the damage is generally irreversible.[5] Microhematuria may be present, perhaps misleading the clinician to suspect urinary infection or urolithiasis.[6]

Early diagnosis provides the only possibility of salvage of the affected ovary and tube. In the more acute presentations in which the decision to operate for an acute surgical abdomen is an obvious and immediate one, there may be little to gain by pursuing an extensive radiologic evaluation.[1] However, in the symptomatic female patient without signs of acute distress, who may otherwise be a candidate for observation with serial physical exams and repeat labs, ultrasound and abdominal CT may be helpful. This is especially relevant for female children with "possible appendicitis" who are being admitted for observation.[1]

IMAGING STUDIES

Ultrasonography is the preferred imaging study. It is noninvasive and can delineate the presence or absence of ovarian masses quickly, allowing prompt surgical intervention.[1] It usually confirms a pelvic mass but may not establish the diagnosis. Although one case series noted a low 37% rate of correct diagnosis by sonogram, an enlarged dishomogeneous ovary with some pelvic ascites is expected. A sonographic image of an enlarged ovary with small cystic structures in the periphery is strongly suggestive of adnexal torsion.[2] A more specific sonographic finding in torsion is the demonstration of multiple follicles (8 to 12 mm in size) in the cortical portions of a unilaterally enlarged ovary. This feature has been detected in as many as 74% of ovarian torsion in children and adolescents.[3] When ultrasonographic expertise is not available, CT is also useful for assessing children with lower abdominal pain.[4] Although limited data is available regarding the utility of CT in adnexal torsion, patients have been found to have heterogeneous, retrovesical masses.

SUMMARY

The low rate of ovarian salvage in pediatric adnexal torsion is attributable to the combination of delay in patient presentation and surgical delay, often resulting from the nonspecific clinical presentation. Expeditious imaging and a high level of clinical suspicion should decrease the surgical delay and improve the likelihood of ovarian salvage.[7]

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