Paediatric Patient with Mesenteric Adenitis on CT and Final Diagnosis of Appendicitis in the OR

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The differential diagnosis of acute appendicitis in the paediatric population includes mesenteric adenitis. Due to their similar clinical presentation one is often mistaken for the other. Also, it is difficult to determine the diagnosis with imaging techniques. The case involves a 13 year old male who presented to the Emergency Room with a history of lower abdominal pain. Imaging investigations could not visualize the appendix, however, there were prominent lymph nodes in the mesentery and ileocolic region. In the operating room, the patient was diagnosed with perforated appendicitis. It is important to learn how to make the diagnosis so that there is no delay in treatment if indeed the diagnosis is appendicitis.

Case

A 13 year old male presented to the Emergency Room with a two day history of lower abdominal pain associated with nausea and vomiting. His pain was initially periumbilical and then localized to the RLQ. He experienced pain with movement. Since the onset of pain he had nausea, vomiting, and diarrhea. He had no history of similar pain in the past. He had no problems with passing gas or stool and there was no blood in the stool. Past medical history included asthma that is well-controlled. Medications include Reactine and allergy shots for environmental allergies.

On exam, the patient's systolic BP was 110, HR was 110, and oxygen saturation on room air was 98%. He looked uncomfortable but was not in acute distress. He initially was afebrile then became febrile with a temperature of 38.8 °C. Abdominal exam revealed tenderness in the lower abdomen and increased tenderness in the RLQ. He demonstrated rebound tenderness and guarding. He had positive McBurney's sign, negative Rovsing's and Psoas signs.

Investigations revealed a WBC count of 26 and urine positive for nitrites. Abdominal X-ray was normal. Abdominal ultrasound of RLQ revealed free fluid but the appendix could not be visualized. At this point the differential diagnosis included acute appendicitis and mesenteric adenitis. To aid with diagnosis, a CT scan with contrast was performed. The CT scan revealed free fluid in the abdomen and reactive lymph nodes in the mesentery and ileocolic region. Again, the appendix could not be visualized (Figures 1-3). According to the CT scan results, the diagnosis was mesenteric adenitis. Nevertheless, the General Surgeons held a high suspicion for appendicitis.

At this point, the risks associated with perforated appendicitis outweighed the risks of surgery, consequently, the patient was taken to the OR for open appendectomy. In the OR the diagnosis of perforated appendicitis was made.

Acute Appendicitis

Classical presentation of appendicitis is periumbilical constant, dull pain that localizes itself to the RLQ over McBurney's point.1,2 The patient experiences abdominal pain and then
The patient presents with lower abdominal pain, febrile, nausea and vomiting, diarrhea, nitrate positive urine and high WBC count. The main cause of mesenteric adenitis is a viral infection. It is self-limited (days to weeks), has no complications associated with it, and is seen in the paediatric population. The treatment is to keep the patient hydrated, afebrile, pain-free, and nausea-free. Mesenteric adenitis is the great mimicker of appendicitis. Enlarged lymph nodes are a nonspecific finding that only signifies that there is inflammation in the RLQ. In order to state that the diagnosis is mesenteric adenitis, a normal appendix must be visualized in order to rule out appendicitis. If a normal appendix cannot be visualized or it is abnormal on imaging, then appendectomy is warranted due to the risks of delayed treatment.

The patient’s symptoms that could have been caused by either diagnosis were fever, increased WBC, nausea and vomiting. Diarrhea and nitrite positive urine are more indicative of mesenteric

Figure 1. CT image demonstrating reactive lymph nodes in mesentery and ileocolic region (RLQ).

Figure 2. CT demonstrating the multiple reactive lymph nodes in the mesentery and ileocolic region.

Figure 3. CT image demonstrating an inflammatory reaction in the RLQ and the appendix cannot be visualized.

Mesenteric Adenitis
adenitis. Also, the localization of pain to the RLQ is indicative of appendicitis. In addition to imaging, the mix of symptoms in this case makes it difficult to determine the diagnosis.

In summary, acute appendicitis cannot be ruled out unless a normal appendix is visualized on imaging. Mesenteric adenitis is self-limited and resolves over days, however, if acute appendicitis is on the differential then appendectomy should be performed. This will decrease the chance of experiencing complications associated with acute appendicitis.

References