

Case Report

The Abnormal Presentation of Complicated Appendicitis

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The Case

A 60-year-old white male presented to our family practice with a chief complaint of isolated right upper quadrant (RUQ) abdominal pain. It began one week prior after suspected food poisoning with one episode of vomiting. The pain was a constant, dull ache ranging between 1-5/10. It did not limit his activities as a farmer. He used NSAIDs to help with the pain. During the past week all other review of systems were negative. Vitals signs were within normal limits. Physical exam was positive for an area of hypertonicity and reproducible pain to palpation in the RUQ. The remaining physical exam was normal. The patient was diagnosed with a strain of the muscle, fascia, and tendon of the abdomen secondary to retching from the episode of vomiting. His treatment was rest, NSAIDs prn, alternate ice and heat, and return if the symptoms worsened.

Six days later the patient represented with continuing abdominal pain that had not changed in severity or quality, but was associated with a fever for the past five days that peaked at 100.8°F. The patient had been caring for an ill granddaughter but had not had any recent travel, sick animal exposures, or been in contact with untreated water. Vitals signs were again within normal limits in the office. An expanded physical exam was still positive for hypertonicity in the RUQ with negative peritoneal tap sign, psoas sign, rebound tenderness, voluntary guarding, costovertebral angle tenderness, McBurney point tenderness, or Rovsing sign. A complete blood count (CBC) with differential, complete metabolic panel (CMP), and creatine phosphokinase (CPK) were all not concerning for any signs of infection. The original diagnosis remained with the addition of an unspecified origin of fever. The original treatment was continued and he was informed to go to the Emergency Department if his symptoms worsened [1-4].

The Diagnosis

Two days later the patient presented to the Emergency Department with increasing abdominal pain. There a CBC showed an increased WBC count of 13,000 cells per mm³. A CT scan was read as showing extensive inflammatory changes posterior to the ascending colon and cecum with associated wall thickening. The appendix could not be identified and a neoplastic process could not be excluded. An exploratory laparoscopy was performed and subsequently converted to an open procedure due to significant dense adhesions of the cecum that obstructed view of the appendix. Once visualized it showed a necrotic bed appendix and appendiceal stump which was successfully

removed.

Discussion

Acute appendicitis is one of the most common pathologies in medicine with more than 250,000 cases reported per year [5]. The lifetime prevalence is reported to be between 7-8% [5,7]. Diagnosis is typically based on a careful clinical history and physical examination [1,7]. The signs and symptoms classically associated with appendicitis are periumbilical pain initially that migrates to right lower quadrant, rebound tenderness, low-grade fever, anorexia, and elevated white blood cell count.

There are pathologies that may mimic appendicitis such as an anomalous congenital band, Meckel's diverticulitis, spontaneous urinary extravasation, renal artery thrombosis or renal infarction [3]. Additionally, a mobile cecum is a congenital anomaly that may lead to abnormal presentation of appendicitis which occurs in about 10-22% of the population [8,9]. One such case was reported where a patient with acute appendicitis presented as left upper quadrant pain in a 58 year old male [6].

Typical diagnostic modalities utilized for appendicitis are sonography, CT scans, MRI, scoring systems, or algorithms. The two most common tests are CT scans and the Alvarado scoring scale (Table 1) [1]. The test validity of CT scan and the Alvarado Scoring Scale are shown in Table 2 [4].

At the patient's two initial visits he would have received a score of 2 according to the Alvarado scale and increased to 3 in the ED. The incidence of acute appendicitis is about 5% with an Alvarado score of ≤4 [2]. Additionally, with an Alvarado score of ≤4 it is suggested that the patient can be discharged from the ER and follow-up with their primary care doctor [7].

Table 1: Alvarado Scoring for Diagnosis of Acute Appendicitis.

Finding	Value*
Clinical Signs	
Oral Temperature > 37.3°C (99.1°F)	1
Rebound Pain	1
Right lower quadrant abdominal tenderness	2
Symptoms	
Anorexia or Acetone in Urine	1
Nausea and Vomiting	1
Pain Migration	1
Laboratory Findings	
Leukocytosis (> 10,000 cells per mm ³ [10 × 10 ⁹ per L])	2
Shift to left (> 75% neutrophils)	1

*Total score of 1 to 4 = Appendicitis unlikely; 5 or 6 = Appendicitis possible; 7 or 8 = Appendicitis probable; 9 or 10 = Appendicitis very probable. Adapted with permission from Alvarado A. A practical score for the early diagnosis of acute appendicitis. Ann. Emerg. Med. 1986; 15(5): 561.

Table 2:

Diagnostic Modality	Sensitivity	Specificity	Positive Predictive Value (PPV)	Negative Predictive Value (NPV)
CT Scan	90.10%	94.10%	97.10%	87.20%
Alvarado Scoring Scale	91.60%	84.70%	93.00%	83.60%

The Takeaway

Abdominal pain is a common complaint with a wide differential diagnosis. Appendicitis should always remain on the differential until proven otherwise because of its high prevalence. If the pain does not subside with conservative tests and treatment, a CT scan should be performed because of its high specificity and PPV. Delayed treatment of acute appendicitis risks perforation which has been reported to raise mortality rate from 0.0002% to 3% and morbidity rate from 3% to 47% [5]. Therefore, it is important to not delay the diagnosis and initiate appropriate treatment.

References

1. Armstrong C. ACEP Releases Guidelines on Evaluation of Suspected Acute Appendicitis. *American Family Physicians*. 2010; 81: 1043-1044.
2. Chan MY, Teo BS, Ng BL. The Alvarado score and acute appendicitis. *Annals Academy of Medicine Singapore*. 2001; 30: 510-512.
3. Demir MK, Savas Y, Furuncuoglu Y, Cevher T, Demiral S, Tabandeh B, et al. Imaging Findings of the Unusual Presentations, Associations and Clinical Mimics of Acute Appendicitis. *The Eurasian Journal of Medicine*. 2017; 49: 198-203.
4. Gwynn LK. The Diagnosis of Acute Appendicitis: Clinical Assessment Versus Computed Tomography Evaluation. *The Journal of Emergency Medicine*. 2001; 21: 119-123.
5. Hwang ME. Sonography and Computed Tomography in Diagnosing Acute Appendicitis. *Radiologic Technology*. 2018; 89: 224-237.
6. Nordt SP, Browns C, Moran J, Kelleher HB, Swadron S. Left Upper Quadrant Abdominal Pain. *The Western Journal of Emergency Medicine*. 2012; 13: 495-496.
7. Ozsoy Z, Yenidogan E. Evaluation of the Alvarado scoring system in the management of acute appendicitis. *Turkish Journal of Surgery*. 2017; 33: 200-204.
8. Toprak H, Bilgin M, Atay M, Kocakoc E. Diagnosis of Appendicitis in Patients with Abnormal Position of the Appendix due to Mobile Cecum. *Case Reports in Surgery*. 2012.
9. Yazawa K, Azuma Y, Kurokawa T, Yoshioka Y, Tsurita G, Shinozaki M. Abdominal CT-aided diagnosis of acute appendicitis in the presence of mobile cecum: A case report. *International Journal of Surgery Case Reports*. 2018; 42: 258-260.