

Clinical and radiographic factors associated with appendectomy in pediatric patients with abdominal pain and equivocal imaging findings for appendicitis.

Roziya Tursunova¹ and Matthew P. Landman, MD, MPH²

¹Indiana University School of Medicine

² Indiana University School of Medicine, Department of Surgery, Division of Pediatric Surgery

Background and Hypothesis

Acute appendicitis is a common surgical emergency in children. The diagnosis requires physicians to rely on clinical, radiographic and laboratory factors. The nonoperative management of appendicitis is becoming more frequent. This requires an accurate diagnosis prior to initiating therapy to prevent unnecessary antibiotic administration for abdominal pain unrelated to appendicitis. We hypothesize clinical and radiographic factors are associated with appendicitis in patients with abdominal pain and inconclusive imaging studies.

Methods

The DORIS (Dig Our RIS) interactive data-mining tool was utilized to identify patients <18 years of age presenting to the emergency department in 2016 with abdominal pain who obtained abdominal imaging suggestive of early acute appendicitis. Relevant clinical and radiographic information was obtained from the medical record for univariate analysis looking for associations with appendectomy.

Results

One hundred patients were identified with 21 excluded due to imaging for other reasons or with clear non-appendicitis etiologies for pain (e.g. trauma cases, ovarian cyst). Seventy-nine patients were included with 49 (62%) undergoing surgery and 30 who were observed and/or discharged from the ED. Important differences between surgical and nonsurgical patients included: white blood cell count (13.81 ± 0.68 vs. 10.29 ± 0.90 , $p=0.002$), neutrophil percentage (78.31 ± 1.90 vs. 67.78 ± 2.65 , $p=0.002$), appendiceal diameter on CT scan (9.37 ± 0.53 vs. 7.58 ± 0.30 , $p=0.013$).

Conclusion and Potential Impact

In a group of patients with concern for appendicitis and imaging suggestive of early acute appendicitis, distinct clinical and radiographic characteristics are associated with appendicitis. Within a paradigm of nonoperative management of appendicitis, accurate diagnosis will prevent the overutilization of antibiotics.