Fever, abdominal pain and appendicitis: diagnostic challenges at the paediatric emergency department

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Introduction

In children presenting with fever and abdominal pain to the Paediatric Emergency Department (PED) appendicitis continues to be a diagnostic challenge. Late diagnosis significantly increases the risk of perforation and abscess formation..

Study Aim:

To describe the characteristics of children presenting to a tertiary children's hospital with fever and abdominal pain.

Methods

Retrospective patient record review. Inclusion criteria were:

- Age 0-17 years;
- Visit between April – January 2018
- (History of) fever (≥ 38.0)
- Abdominal pain or abdominal tenderness on physical examination.

Results

- 15,049 children presented to ED
- 2,849 (19%) with fever and
- 220 (8%) of these had abdominal pain
- 46 (21%) of which had appendicitis

92/220 (41.8%) of all patients and 37/40 (80.4%) of appendicitis cases had medical care in the preceding 5 days

Appendicitis vs other causes abdominal pain

Children were significantly :

- older (9.6 vs 7.2 years; $p<0.001$),
- more likely to present with vomiting (76% vs 56% $p<0.012$) or ill appearance (60% vs 18% $p<0.0001$)

No significant difference in duration of fever or abdominal pain

Appendicitis vs other causes abdominal pain Examination

- 65% of children had RIF tenderness, none had normal exams
- 53% of patients without appendicitis had a soft non tender abdomen (normal).

Investigations

- CRP (112 vs 58 mg/L; $p<0.001$)
 - WCC (17.3 vs 14.8 c/l ; $p<0.001$)
 - Neutrophil count (14.5 vs 11.6; $p<0.0001$)
- were significantly higher in appendicitis
- 16/46 patients had abdominal ultrasound scans 4/12 were reported normal (false negative)

26/44 (59%) had a perforated appendix.

Conclusion:

Appendicitis remains a diagnostic challenge in children. We found no clear difference in presentation however a normal abdominal examination is unusual in appendicitis. While some blood tests are useful they are unable to definitively prove or exclude appendicitis.

More research to look at the role of ultrasound and a definitive blood test to differentiate appendicitis from other causes of abdominal pain at the first point of care is urgently needed.