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Bacterial population and antibiotic resistance in peritoneal cultures of complicated pediatric appendicitis: retrospective study from a tertiary center

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INTRODUCTION

Appendicitis is the main cause of abdominal infection in children. Optimizing empirical antibiotic therapy helps reduce post-operative complications. Continuous monitoring of local microbiota and resistance patterns is essential to guide and update empirical therapy.

INSTITUTION EMPIRIC ANTIBIOTIC PROTOCOL
- Complicated Appendicitis -

Ampicillin + Gentamicin + Metronidazol

STUDY AIMS

1. Characterize the dominant microbiota in peritoneal fluid from patients with complicated appendicitis
2. Analyze antibiotic resistance patterns
3. Evaluate the association between bacterial resistance, post-operative complications, and hospital stay

METODOLOGY

Retrospective study (2017-2023) – Pediatric Terciary Centre

Cases: Complicated Appendicitis operated (perforated; peritoneal abscess; Localized or generalized peritonites)

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Descriptive analyses

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Statistical Analysis: R software (version 4.2.0)
p-value <0.05 was considered statistically significant

RESULTS

1089 Total Appendicectomy → 338 Complicated Appendicitis → 220 Peritoneal fluid positive culture

♂ 632 (58%); Mean age: 10 years

Chart 1: Dominant Microbiota

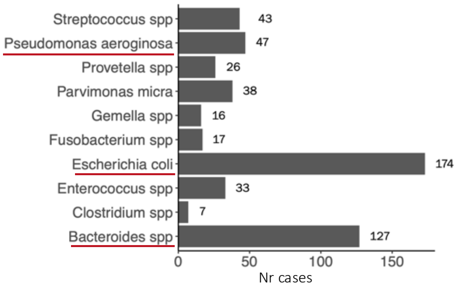
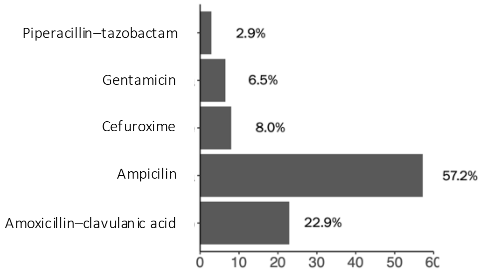


Chart 2: Escherichia coli resistance pattern



Bacteroides spp: 0 cases of resistance to amoxicillin–clavulanic acid; 84.3% resistance to penicillin

Pseudomonas aeroginosa: 0 cases of resistance to Gentamicin, Ciprofloxacin, or Piperacillin–tazobactam

The resistance to any of the antibiotics in the empirical regimen was not associated with an increased risk of complications *(p-value = 0.706)* or longer hospital stay *(p-value = 0.571)*.

CONCLUSION

- *Escherichia coli*, *Bacteroid genus*, and *Pseudomonas aeruginosa* were the most common pathogens.
- The increasing resistance of *Escherichia coli* to ampicillin highlights the need to revise the empirical antibiotic regimen.
- No correlation was found between bacterial resistance and adverse outcomes, possibly due to the prompt adjustment of antibiotic therapy based on culture results.

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