

## Grade IV Appendicitis in Older Infants: About A Case

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### Summary

*In the pediatric population, gastrointestinal symptoms are one of the most frequent reasons for consulting the emergency services. In most cases they are due to self-limited conditions such as viral gastroenteritis, intestinal parasitosis. However, on some occasions they can be manifestations of surgical pathologies such as acute appendicitis, this entity can affect individuals at any stage of life, being this in lactating patients of difficult diagnosis and high morbidity and mortality, its incidence it is low, occurring only in 0.04-0.2% of infants at this age, although it has a mortality rate of up to 30% if it is not detected in time.*

*Next, the case of an older infant diagnosed with acute surgical abdomen secondary to appendicitis is described due to its rare frequency.*

**Keywords:** Appendicitis, older infant, pediatric surgery.

### Introduction

The inflammation of the vermicular appendix begins with an obstruction of its lumen due to different circumstances, among which are fecalites, parasites, lymphoid hyperplasia or an intrinsic inflammatory process. This favors a bacterial invasion causing local infection of the submucosa with abscess formation and later necrosis. If the appendix is not extracted, a perforation occurs with extension of the inflammatory and infectious process to the adjacent peritoneum and can spread to the entire abdominal cavity ending in a generalized peritonitis or abdominal sepsis. Treatment is surgical by appendectomy, either by laparotomy or laparoscopy; it is the most frequently performed emergency surgery in general hospitals. In cases complicated with abdominal peritonitis or sepsis, the abdominal cavity is washed and systemic antibiotics are administered to cover enterobacteria and anaerobes. Postoperative recovery is generally quick, good and without sequelae, especially when there are no

complications, so the prognosis is good. Mortality is low, approximately 0.5%. Postoperative complications may be residual or wall abscesses, or peritonitis or suture dehiscence [1].

One of the factors that contributes to the development of appendicitis at an early age is the premature exposure of the intestine to germs and various antigens during the first months of life, in infants subjected to early weaning. Breast feeding has shown the ability to develop a virtual barrier in the infant's intestinal lumen that prevents the adhesion of germs to the enterocyte, reducing both the frequency and severity of infections and the inflammatory reaction associated with them. This modulation of host defense mechanisms could program the infant's immune system with long-term effects and favorably affect the function of organs endowed with lymphoid tissue and with small diameter lumen [2].

To assess the severity of appendicitis there are different classifications with clinical and histological bases, the one most used by surgeons is according to the macroscopic observation of the surgical findings and it is divided into four stages.<sup>4</sup> In stage I the appendix is appreciated with hyperemia and congestion, in II it is phlegmonous with erosions of the mucosa, suppuration and fibrinopurulent exudates, in grade III it is gangrenous and with necrosis of the wall and grade IV is when it is perforated [3].

For its diagnosis there is no sensitive or specific paraclinical study for the diagnosis of this pathology. A leukocyte count greater than 10,000 to 12,000 cells / mm<sup>3</sup> has a sensitivity of 50 to 90% for appendicitis, other laboratory studies such as C-reactive protein have a sensitivity of 40-90% and a specificity of 30-95%. Plain abdominal radiographs may be normal or give a false diagnostic impression in up to 77% of children with appendicitis [4].

The case of a low-income patient is presented, who suffered early weaning and exposure to various foods not suitable for his age, which could have had an impact on the development of his disease, here we document the atypical presentation of a grade IV appendicitis in an infant older than 2 years of age, with laboratory studies, radiological

images and results of the surgical intervention performed, with the aim of describing a low-frequency pathology in the environment, which in this particular patient presented excellent clinical evolution without complications [5].

### Case presentation

Nursing male patient older than 2 years of age admitted due to abdominal pain, a sensation of thermal rise and emetic episodes after 24 hours of evolution, without improvement when managed at home with acetaminophen.

Upon admission, a eutrophic patient, restless, non-toxic appearance, with mild dehydration. axillary temperature of 38.6 ° C which increased to 39 ° C. The examination revealed slight abdominal distension, mild pain on deep palpation in the right iliac fossa. Rest of the physical examination without relevant data.

A hemogram on admission was performed, which revealed leukocytes in 12,300 (77% neutrophils; 5% fallen), ionogram that did not show hydroelectrolyte alterations, normal urinalysis, high CRP-type acute phase reactant, abdominal X-ray showed dilated intestinal loops consistent with process inflammatory appendix (image 1).



**Image 1.** appendicular inflammatory process

The diagnosis of appendicitis was made despite low suspicion given the age group and later the patient underwent surgery under general anesthesia, making a Rockey-Davis incision in the skin and subcutaneous cellular tissue, and then a pararectal incision in the aponeurosis up to the peritoneal cavity, where Purulent and fecaloid fluid with appendicular plastron was found, concluding in the postoperative period with the diagnosis of grade IV appendicitis and perforation peritonitis, for which the patient required open plastron release and therapeutic peritoneal lavage.

The patient was initially treated with piperacillin tazobactam as a prophylactic antibiotic but was later replaced by ertapenem at a dose of 30 mg / kg / day for 7 days, given that it was a highly innocuous infection and the studies that have been carried out have shown lower mortality. At 30 days in patients with infections of this type in which a carbapenemic was used against piperacillin tazobactam, the patient after this presented a satisfactory evolution of the picture for which he was given a medical discharge.

## Discussion

The most common findings in children with appendicitis are right lower quadrant abdominal pain, stiffness, and vomiting. Due to the difficulty in evaluating patients under 2 years of age who present with abdominal pain, the probability of intestinal perforation at the time of appendicitis diagnosis ranges between 30% and 60% of cases, a value much higher than in the general adult population. Also contributing to the above is the poor development of the omentum in pediatric patients [6].

Baglaj M et al. analyzed 53 cases of children under three years of age for 20 years, whose main symptoms were: abdominal pain, vomiting and fever with a perforation percentage of 24.5% [7].

Alloo J et al. In their study, they detected that the most frequent symptoms were: vomiting, fever, pain, anorexia and diarrhea, and the most common signs were: abdominal hypersensitivity, peritonitis, fever > 38 ° C or more, abdominal distention, leukocytosis <12,000 / mm<sup>3</sup>, right iliac fossa hypersensitivity or diffuse hypersensitivity, plain abdominal X-ray with evidence of intestinal and fecalite obstruction [7].

Nance ML et al. observed that, at the time of surgery, 74% of patients had evidence of perforation and the range increased as the age of the patient decreased (100% perforation for the age of one year to 69% for the age of five years), associated with a longer hospital stay averaging nine days [7].

Likewise, he reported in his study an average duration of symptoms of 2.1 days for non-perforated cases and 4.7 days for perforated ones.

Empirical treatment was present in 14.6% of acute appendicitis and in 33% of perforated ones. It can then be assumed that the condition for perforation is not a prior

medical assessment, but the time it takes the patient to seek medical attention.

In conclusion, early intervention for appendicitis in pediatric patients, despite their young age, is the ideal treatment before a perforation occurs. In patients with data suggestive of an intra-abdominal inflammatory process, appendicitis should be considered as a differential diagnosis.

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