

Toxic Megacolon: Presentation of A Case and Review of the Literature

Jimena Cárdenas Morocho¹, Lizeth Criollo Yaguana¹ and Iveth Vargas Guilcaso^{2*}

¹Resident Physician of Pediatrics and Neonatology, Macas General Hospital, Ecuador

²Pediatrician, General Hospital Macas, Ecuador

***Corresponding Author:** Iveth Vargas Guilcaso, Pediatrician, General Hospital Macas, Ecuador.

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Abstract

Toxic megacolon is a serious infrequent condition with high hospital mortality, it is non obstructive colonic distention greater than 6cm, associated with acute colitis and systemic symptoms. The manifestation include: vomiting, diarrhea, rectal bleeding, tenesmus, abdominal pain, fever, even signs of systemic toxicity.

The pathophysiological mechanisms involved include elevated concentrations of nitric oxide and inflammatory mediators resulting from initial aggression to the colon. Due to its high morbidity and mortality, early diagnosis and treatment are essential.

Follow up with imaging studies is decisive to detect complications in a timely manner and to evaluate the inflammatory process. Treatment includes: water resuscitation, metabolic correction, antibiotics and effective surgical management to avoid as much as possible complications that worsen the prognosis of patients.

Keywords: Toxic Megacolon; Colitis; Systemic Toxicity

Introduction

Toxic megacolon is a pathology whose mortality rate is higher than 80%, it is triggered by a progressive inflammatory process that compromises the wall of the colon with secondary dilation of the intestinal lumen due to inflammatory or infectious processes [1-5], the dilation can be total or segmental, with a non-obstructive colonic dilation greater than 6 cm² [6].

The most obvious symptoms are those related to the inflammatory process of the colon, such as diarrhea (sometimes bloody), abdominal pain, bloating and constipation. The most frequent signs are fever, compromised general condition, tachycardia, hypotension, decreased peristalsis, and occasionally signs of peritonitis [7].

Signs of systemic toxicity were described by Jalan in 1969. These include major and minor criteria.

Two or more of the following criteria	One or more of the following criteria
Temperature higher than 38.6°C	Dehydration
Heart rate greater than 120 beats per minute	Hypotension
Leukocytosis > 10,500 / mm ³	Electrolyte disturbances
Hemoglobin or Hematocrit < 60% or more of normal values	Altered mental state (confusion, lethargy, agitation)

Table 1: Toxicity criteria for toxic megacolon [8].

The diagnosis can be made by colon enema, anorectal manometry, and confirmed with the gold standard, biopsy [9].

The basic pillars for its management are a timely diagnosis, an adequate medical management that includes: (antibiotic, fluid resuscitation and metabolic correction), if necessary, an effective surgical management is included that avoids as much as possible the complications that worsen the prognosis of the patients [10].

The absolute indications for taking these patients to surgical treatment include: signs of organ failure, shock, uncontrollable lower gastrointestinal bleeding, evidence of perforation, acute abdomen and progressive colonic dilation after 24 to 72 hours of medical treatment [11].

One of the most common complications is perforation, even in the absence of colon dilation [12].

Clinical Case

A 4-year-old male patient with no significant history, attended the emergency service of the Macas General Hospital for the first time, consulting for pain and abdominal distention, thermal rise, eyelid edema and skin rash, after eating typical food of the area, ants of the *Atta laevigata* species (añangos), on physical examination of the tense abdomen with decreased air-fluid noises, which is why it was admitted for observation and complementary tests.

The surgery department evaluated who performed exploratory laparotomy, finding an occlusive abdomen with marked distention of the colon in all its segments, absence of peristalsis, absence of intraluminal fecal matter, lymph nodes in the entire mesentery of a large quantity and variable size, dilatation of the intestine. thin with presence of intraluminal intestinal fluid.

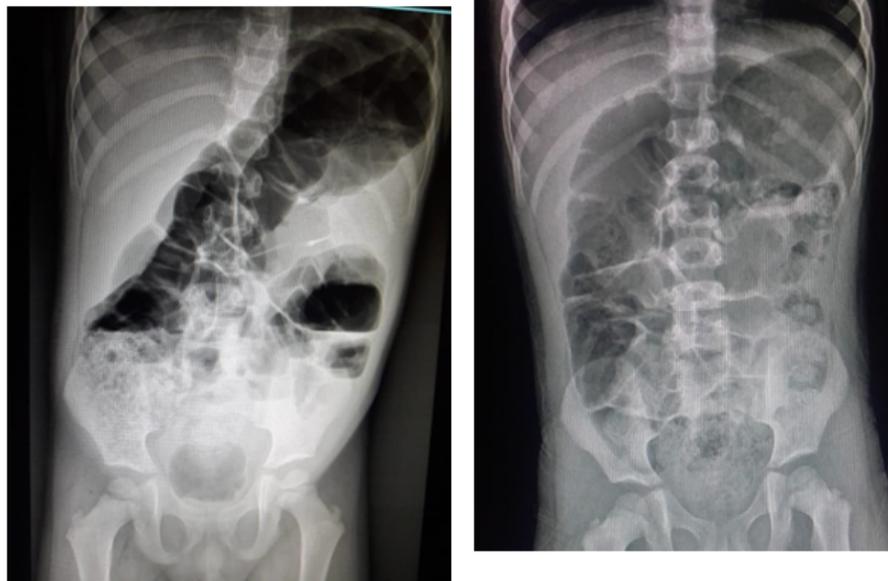


Figure 1 and 2: Increase in colonic dilation, transverse colon diameter of 5.6 cm. with uneven level formation.

Patient is admitted to the Intermediate Care Unit due to sepsis of abdominal origin, at the hemodynamic level he remains with blood pressure below the 5th percentile, vasoactive drugs are started, blood culture report, *Staphylococcus aureus*, is rotated to broad spectrum antibiotic therapy, based on glycopeptide and carbapenemic, remaining hospitalized for seven days, after which the patient is transferred to the pediatric service, presenting episodes of sporadic cough plus thermal rise, on auscultation, decreased vesicular murmur at the base level of the right lung field, rales in bilateral pulmonary fields. An anteroposterior chest x-ray was performed, showing parahilar infiltrates, plus effacement of cardio and costophrenic angles, compatible with bilateral pleural effusion.

Due to stationary clinical evolution, he required a referral to the city of Quito, where it was performed: abdominal radiography; in which gas is not visualized in the colonic frame, nor rectal ampulla, air-fluid levels at unevenness located in the upper hemiabdomen, pattern in stacks of coins in the flank and left upper quadrant in relation to intestinal obstruction, presence of free fluid.

In simple/contrasted tomography of the abdomen and pelvis; dilated intestinal loops with the presence of fluid, which form levels.

It is evaluated by pediatric surgery that classifies obstructive abdomen, and a colon is performed by barium contrast enema; in which the decrease in the width of the haustras towards the transverse and descending colon of probable inflammatory origin is striking.

In chest x-ray: Bilateral basal alveolar infiltrate is evidenced in relation to pneumonic process, effacement of the cardiophrenic angles, in chest ultrasound: anterior and lateral aspect of the right chest there is a heterogeneous image of irregular borders with echoes in its interior, of septa with a volume of 9 milliliters, in the left axillary region hypoechoic image of irregular borders. In simple/contrasted chest tomography: several nodular images are observed, the lesser of 7 in the right lung with a tendency to cavitation of one of them at the level of the middle lobe, another two cavitated images at the level of the anterior segment of the upper lobe and at the Posterior basal segment, left lung field, nodular images are observed, consolidation area at the level of the posterior basal lobe, in the left pleural space at least 3 lobulated images of biconvex lens morphology are evidenced in relation to empyemas, for which it is assessed by pulmonology. That suggests images of pleural effusion could originate from an abdominal focus.

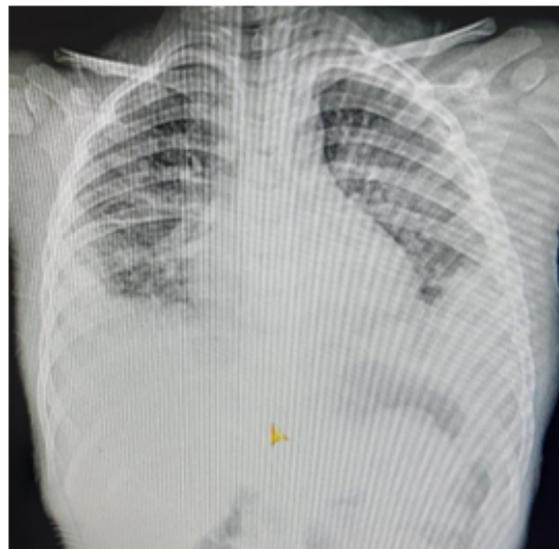


Figure 3: Parahilar infiltrates, plus effacement of cardio and costophrenic angles, compatible with bilateral pleural effusion.

Histopathological results are obtained; In the biopsy no ganglion cells are observed, in the histological sections no ganglion parenchyma is recognized, which has lost its structure, observing thickening of the sinusoids, with abundant macrophages.

The patient was evaluated by the Infectology Service where he remains on antibiotic treatment with ampicillin plus beta-tetramase inhibitor and aminoglycoside.

After presenting a favorable clinical evolution, he was sent home with outpatient treatment with amoxicillin plus clavulanic acid and corresponding controls.

Discussion

The diagnosis of toxic megacolon is based on the identification of clinical criteria described by Jalan in 1969 associated with systemic toxicity and with radiological evidence of colon dilation > 6 cm [13].

In this patient, the presence of all the following Jalan criteria was identified: temperature > 38°, heart rate > 120 beats per minute, leukocytes > 10,500 mm³, hemoglobin less than 60% of normal, accompanied by hypotension, electrolyte disturbances and drowsiness, plus radiological evidence of colonic distention that confirmed the diagnosis.

The central components of the management include fluid resuscitation, correction of the fluid and electrolyte disorder, colonic decompression, administration of antibiotics and performance of the pertinent consultation with the general surgery service [14]. Dehydration and electrolyte deficiencies aggravate the dysmotility of the colon and must be treated aggressively [15].

Regarding the clinical treatment of our patient, adequate management of the fluid and electrolyte imbalance and pertinent antibiotic therapy was carried out. Interconsultation was carried out in a timely manner with the general surgery service.

Initially, it can be treated intensively for 48 to 72 hours and if the patient worsens or a complication arises, surgical intervention is performed [16].

In our patient there was no evidence of improvement after clinical management, for which an exploratory laparotomy was performed where marked distention of the colon was evidenced in all its segments with lymph nodes throughout the mesentery of a large number and variable size.

Conclusion

The absence of ganglion cells from the intestinal wall extends proximally and continuously from the anus to a variable distance, in 80% of patients the aganglionic segment is limited to the rectus-sigmoid region, being an infrequent pathology that involves around 5% of cases [17].

Regarding treatment, management is initially medical, some cases progress and require acute surgical intervention [18].

The main objectives of management are based on inducing and maintaining a state of clinical remission, preventing relapses and maintaining adequate nutrition and development.

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