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Case Report

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Appendicitis at 40 days After Birth

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ABSTRACT

Introduction: Acute sepsis due to abdominal emergencies are rare in the neonatal population. However in Latin American countries, complications such as perforation and sepsis are generally the initial presentation that physicians encounter in the emergency department. In addition, it represents a significant diagnostic challenge because the clinical presentation is analogous with other surgical conditions, such as necrotising enterocolitis. We present a clinical case of an infant of chronological age corresponding to 36 days, with a medical background that includes a history of preterm caesarean, with symptoms of a late-onset young infant sepsis of abdominal origin. Diagnostic tools like abdominal X-ray and ultrasound were performed, which revealed free fluid in the right iliac fossa and pneumatosis, the patient was scheduled for an emergency exploratory abdominal laparotomy, the evidence indicated perforated acute appendicitis with localized peritonitis, without necrotizing enterocolitis or intestinal necrosis. The patient was discharged having made adequate weight gain and showing signs of recovery from the initial condition.

Introduction

Appendicitis is a clinical scenario that posses significant challenges in daily medical practice, mainly in the pediatric population. Although young infant appendicitis is a rare disease with an incidence of 0.04%–0.2%, it has been associated with high morbimortality and constitutes a clinical challenge for the physician due to the non-specific presentation of symptoms [1]. Clinical presentation can vary from abdominal distention, fever, diarrhea, refusal of feeds, general irritability to peritonitis and septic shock, and can be confused with other abdominal acute emergencies with most common occurrence in this age group like necrotizing enterocolitis [2]. The correct use of diagnostic tests like abdominal X-rays or sonograms can help guide the diagnosis and avoid complications like perforation, intraabdominal abscess and bowel obstruction [3].

The following is the clinical case of a 36-day-old female patient diagnosed with young infant appendicitis that demonstrates the challenges that were faced in the correct approach of this patient.

Case Presentation

An infant of chronological age corresponding to 36 days, and a corrected gestational age of 37 weeks and 2 days, with a medical background that includes a history of preterm caesarean delivery due to twin pregnancy at 31+2 weeks of gestation, with a subsequent stay in the intensive care unit for respiratory distress syndrome requiring CPAP support and a prescription for home oxygen therapy, which was discontinued two weeks prior to the onset of the symptoms that were the subject of this case study.

On 08/10/2025, the patient was admitted to the emergency department of a quaternary care level hospital in the city of Medellín (Colombia). The admission was due to a 2-day occurrence of hyporexia, whining, hard pellet-like stools, and increased gastroesophageal reflux with regurgitation. The mother stated that the patient was experiencing respiratory distress, and consequently, home oxygen therapy was reinstituted at home, the mother denied the presence of fever, vomiting, cough, or rhinorrhea. In the emergency department, the patient was reported alert and responsive, exhibiting signs of mucocutaneous

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pallor, slow capillary refill, tachypnea, intercostal retractions and marked abdominal distension that was painful to the touch. The patient underwent orogastric tube decompression, received medical support, broad-spectrum antibiotic coverage was administered (cefepime and metronidazole) and initial paraclinical tests were requested, that identified marked elevation of acute phase reactants (thrombocytosis with 696,000 platelets/mcL and CRP of 15.29 mg/dl), and late-onset young infant sepsis of abdominal origin was suspected.

Preliminary observations indicated a reduction in abdominal distension and pain, and the persistent ileus was presumed to be a consequence of sepsis. The possibility of category IIA necrotizing enterocolitis was also considered, and as a result, a plain abdominal X-ray was performed, which indicated gas distension of the colonic frame, with no evidence of pneumatosis or free air in the abdominal cavity, nor signs of intestinal obstruction.Two hours later, radiological control revealed partial improvement in the distension. In addition, an abdominal ultrasound and Doppler were performed, which reported normal filling of the superior and inferior mesenteric arteries, and normal flow on color Doppler, ruling out stenosis or vascular compromise.

Subsequently, on 14/08/2025, at 40 days of chronological life and with a corrected gestational age of 37 weeks + 5 days, the patient presented with 48 hours without bowel movements, fever and tachycardia, an abdominal ultrasound was performed, which revealed free fluid in the right iliac fossa and pneumatosis. (Figure 1). The patient was scheduled for emergency surgery due to suspected hollow organ perforation.

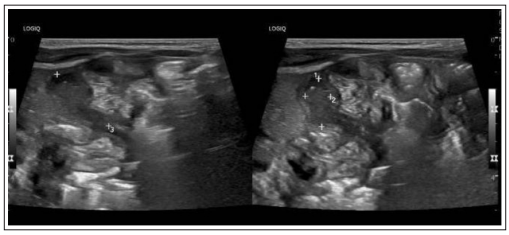

Figure 1: Total Abdominal Ultrasound

On August 14th, 2025 at 2:08 p.m., an exploratory abdominal laparotomy was performed under general anaesthesia, which revealed a plastron in the right iliac fossa with pus discharge, this finding indicated perforated acute appendicitis with localized peritonitis. The surgical intervention entailed an open appendectomy and drainage of the localised peritonitis, no indications of necrotising enterocolitis or intestinal necrosis were observed. A sample of peritoneal fluid was submitted to the pathology department for culturing (Figure 2).

Small amount of free fluid with a complicated appearance, loculated and with microparticles in the right iliac fossa, adjacent to the ileocecal valve, highly suggestive of hollow viscus perforation. Fixed, immobile intestinal loop with wall thickening (4 mm), located in the right iliac fossa, associated with pneumatosis.

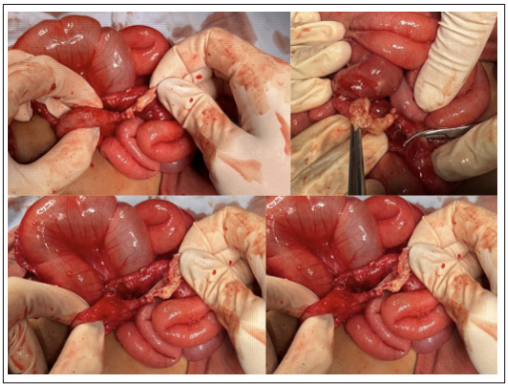

Figure 2: Exploratory Abdominal Laparotomy, open Appendectomy (plus drainage of localized peritonitis)

Transverse supraumbilical incision, dissection by planes, plastron released in right iliac fossa, acute perforated appendicitis identified with liquefied appendix, Appendectomy performed with ligation of the appendicular base with PDS 4.0, Careful examination of the rest of the intestine, no necrosis, Fascia closed with PDS 3.0, Skin closure with Monocryl 4.0. On the first postoperative day in the neonatal intensive care unit, the abdomen was distended, soft, and covered with a surgical wound, with no signs of complications. In regards to the microbiological analysis results, the peritoneal fluid culture revealed the presence of polymicrobial growth of Enterococcus faecalis, Citrobacter freundii, and Klebsiella pneumoniae, consequently, the pediatric infectious disease team adjusted the antibiotic regimen to ampicillin-sulbactam plus cefepime, with satisfactory tolerance and progression.

The subsequent evolution was favourable. The patient achieved tolerance to extubation and transitioned to spontaneous breathing on 08/21/2025. Furthermore, the patient exhibited adequate tolerance to the resumption of the enteral feeding with elemental formula on the seventh postoperative day. The patient was discharged in stable condition, having made adequate weight gain and showing signs of recovery from the initial septic condition.

Discussion

Young infant appendicitis is one of the least common causes of acute surgical abdomen in this period of infant development, accounting for less than 0.1% of cases in newborns. This condition also poses a significant diagnostic challenge because, in most cases, it presents with nonspecific symptoms similar to those of other surgical conditions, such as necrotising enterocolitis [2]. As demonstrated in the previous example, this condition was a key element in the differential diagnosis. According to the report, differentiating between the two conditions is a difficult task, especially in the early stages of the disease 4. Therefore, it is not suspected in the first instance, and as a result, a perforation rate of up to 85% is reported [4].

The clinical presentation observed in the reported case, which is shared with necrotizing enterocolitis, is based on abdominal distension, ileus, and food intolerance, therefore the diagnosis of young infant appendicitis in this case was possible due to the complicated findings [5]. The presence of perforation and clinical decline of the patient was the key to surgical intervention, this finding is generally observed at the time of the condition

diagnosis, hence, it is of vital importance for clinical suspicion to be established from the outset. Furthermore, the diagnostic tool that marked the turning point was abdominal ultrasound and performed better in the diagnosis than abdominal xrays [6].

Among the risk factors described for the development of young infant appendicitis are prematurity, neonatal hypoxia, and sepsis, characteristics that stand out in the case presented as part of the relevant background information [7]. In addition, there is a histopathology report of the peritoneal fluid showing the presence of polymicrobial colonization, which supports this idea. Early surgical intervention is the standard approach for this pathology, as it improves prognosis and increases survival rates [8]. Early identification and intervention by the multidisciplinary team assigned to this case resulted in the patient being discharged with resolution of the septic condition, adequate weight gain, and clinical stability. This is identified as one of the strengths of this case. Limitations associated with the case can begin with the rare presentation of this syndrome and, as it is an individual case, observation bias can be associated. Furthermore, the pathological confirmation of appendicitis was not possible because the resected appendix was not sent to pathology. On the other hand, an algorithm diagnostic approach would simplify the identification of these cases and could be a future investigation subject.

Conclution

Young infant appendicitis still remains a clinical challenge for physicians in the emergency room scenario. Patients may present advanced clinical stages that can mimic other differential diagnoses like necrotizing enterocolitis and can delay surgical interventions [9]. On the other hand, Andean latinoamerican countries have a high incidence and morbimortality related to young infant appendicitis due to late diagnosis [10]. Furthermore, the highlights and the decisive steps of young infant appendicitis remain in an initial clinical suspicion, the use of diagnostic tools and early appendectomy. These factors can determine the development of the clinical status of the infant, morbidity and survival. Moreover, The use of diagnostic tools can define the prognosis of the patient [11]. The first imaging approach that is normally used is abdominal radiography, and it can be helpful to identify free air in the abdominal cavity but it is not a diagnostic indicator. Abdominal ultrasound is the primary tool in the pediatric population with high specificity (>90%) and positive predictive value (98%), as well as it lacks exposure to ionizing radiation. Hence the importance of early diagnosis and the use of imaging as a helping instrument in the identification of young infant appendicitis.

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