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Prolonged Fever in a 2-Year-Old Girl Revealing Complicated Suppurative Appendicitis Initially Mimicking Incomplete Kawasaki Disease: A Case Report

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Abstract **Case Report**

Acute appendicitis is uncommon in young children and frequently presents atypically, with abdominal signs that may be minimal or absent, which can lead to diagnostic delay and a higher rate of complications. We report the case of a previously healthy 2-year-old girl admitted for fever reaching 39°C, evolving for eight days without digestive complaints. On admission she was febrile at 38.8°C, hypotonic, and hemodynamically and respiratory stable, with tenderness in the right iliac fossa. Cutaneous and mucosal examination showed a cheilitis, and the clinical picture initially suggested incomplete Kawasaki disease; echocardiography was normal, a first abdominal ultrasound performed during the fever work-up was unremarkable, and the patient received intravenous immunoglobulin, aspirin, and empirical antibiotic therapy. Because fever persisted, clinical reassessment and repeat imaging were performed: abdominal ultrasound demonstrated a thickened, dedifferentiated laterocecal appendix with an adjacent poorly organized collection, and contrast-enhanced computed tomography confirmed complicated acute appendicitis with a distal abscessed collection containing a stercolith. Laboratory investigations showed a marked inflammatory syndrome (erythrocyte sedimentation rate 78 mm/h, elevated C-reactive protein) with microcytic anemia and thrombocytosis. The patient underwent surgical management with a favorable postoperative course. This case highlights that complicated appendicitis can present as isolated prolonged fever in young children and should remain part of the differential diagnosis of incomplete Kawasaki disease, particularly when abdominal signs are absent or non-specific. Repeated clinical examination and imaging are key to a timely diagnosis.

Keywords: Appendicitis, prolonged fever, incomplete Kawasaki disease, young child, abdominal ultrasound, computed tomography, case report.

INTRODUCTION

Acute appendicitis is the most common surgical emergency of the abdomen in children, but it remains rare and diagnostically challenging under the age of three years [2,3]. In this age group, the classical triad of abdominal pain, vomiting, and localized tenderness is frequently absent, and non-specific complaints such as fever, irritability, or poor feeding often predominate, which delays diagnosis and increases the risk of perforation and abscess formation [2–5]. When fever is the dominant or sole presenting symptom, clinicians may instead consider systemic febrile illnesses such as Kawasaki disease, an acute vasculitis defined by fever of at least five days together with several mucocutaneous and lymph node criteria; when only some of these criteria are met, the condition is classified as incomplete Kawasaki disease [1]. Overlap between incomplete or atypical Kawasaki disease and intra-abdominal inflammatory conditions has previously been reported and can further complicate the diagnosis of appendicitis in young children [6,7]. We report a case of complicated suppurative appendicitis in a 2-year-old girl, initially presenting as isolated prolonged fever with cheilitis, that was first considered to represent incomplete Kawasaki disease.

CASE REPORT

A previously healthy 2-year-old girl, with no relevant past medical history, was admitted to the Department of Pediatrics II for fever reaching 39°C, evolving for eight days, without any associated digestive symptoms. At admission, she was febrile at 38.8°C, hypotonic, and hemodynamically and respiratory stable (heart rate 118 beats/min, blood pressure 9/5, respiratory

rate 33 breaths/min). Abdominal examination revealed tenderness in the right iliac fossa. Cutaneous and mucosal examination revealed a cheilitis. Given the prolonged fever together with this mucocutaneous finding, incomplete Kawasaki disease was suspected.

Transthoracic echocardiography was normal, and a first abdominal ultrasound performed as part of the fever work-up did not reveal any abnormality. Laboratory investigations obtained around admission showed a marked inflammatory syndrome, with an erythrocyte sedimentation rate of 78 mm at the first hour (reference 3–13 mm) and C-reactive protein of 8.1–9.0 mg/L on serial samples (reference <5 mg/L). The complete blood count showed microcytic anemia (hemoglobin 8.1 g/dL, mean corpuscular volume 51.9 fL) with thrombocytosis (platelet count 987×10³/µL) and a normal leukocyte count (8.0×10³/µL). Serial biochemistry showed mild hyponatremia (down to 133 mEq/L), a low alkaline reserve (down to <10 mEq/L), transient hypoglycemia (down to 0.22 g/L), hypertriglyceridemia (up to 2.38 g/L) and elevated lactate dehydrogenase (up to 499 U/L), with mildly elevated creatinine (up to 3.9 mg/L) and total proteins (up to 86.9 g/L); ferritin remained within normal limits (53–65 ng/mL). Viral serologies excluded an acute infection and were consistent with prior immunity or exposure (positive IgG for hepatitis A, Epstein–Barr virus and cytomegalovirus, and vaccinal immunity against hepatitis B), while HIV, hepatitis C and herpes simplex virus 1/2 serologies were negative. A urinary tract infection was also considered but excluded by a negative urine culture. A specialist opinion was sought, and the patient received intravenous immunoglobulin and aspirin for presumed incomplete Kawasaki disease, together with empirical antibiotic therapy with ceftriaxone.

Because fever persisted despite this treatment, repeat abdominal ultrasonography was then performed and was in favor of complicated appendicitis with perforation and a poorly organized adjacent collection: it showed a dedifferentiated laterocecal appendix measuring up to 6 mm in wall thickness, associated with a poorly organized, heterogeneous collection at its distal end measuring 11×10 mm, containing an apparent extra-digestive stercolith, with adjacent fat infiltration, multiple reactive lymph nodes, and no peritoneal effusion (Figure 1A–B). Contrast-enhanced abdominal computed tomography performed shortly afterward confirmed a swollen laterocecal appendix with a thickened wall (7 mm), associated with a poorly limited collection in the right iliac fossa measuring 9×20×10 mm containing a 7×5 mm stercolith, agglutination of adjacent intestinal loops, fat infiltration with multiple lymph nodes (largest 10 mm), and a fine pelvic effusion; the liver, gallbladder, spleen, kidneys, pancreas, and bony structures were unremarkable (Figure 2A–B). These findings were consistent with complicated acute appendicitis with an abscessed collection at its distal end.

The patient underwent surgical management by laparotomy with appendectomy and peritoneal lavage. Histopathological examination of the surgical specimen confirmed suppurative appendicitis. The postoperative course was favorable, with resolution of fever and clinical improvement. This case was managed at the Department of Pediatrics II, Children's Hospital of Rabat, Morocco; written informed consent for publication of the clinical data and imaging findings should be obtained from the patient's parents prior to submission.

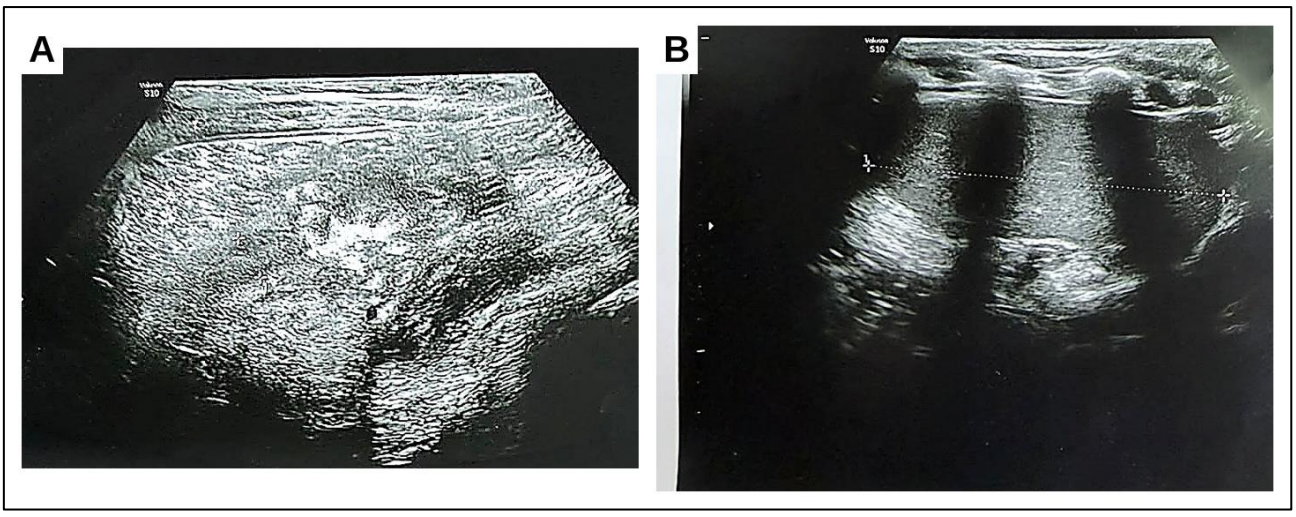

Figure 1: Abdominal ultrasonography. (A) Right iliac fossa ultrasound showing a thickened, dedifferentiated laterocecal appendix with heterogeneous, hyperechoic surrounding fat. (B) View of the periappendiceal region showing a poorly organized, heterogeneous collection adjacent to bowel loops.

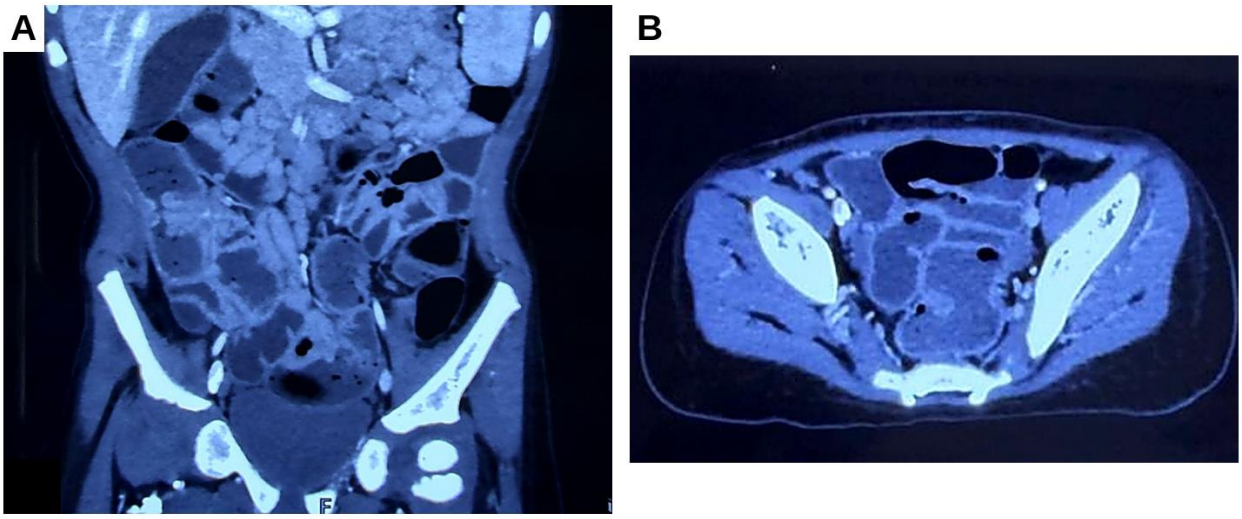

Figure 2: Contrast-enhanced abdominal computed tomography. (A) Coronal view showing inflammatory changes and agglutination of intestinal loops in the right iliac fossa. (B) Axial view at the level of the pelvis showing periappendiceal fat infiltration adjacent to the abscessed collection

DISCUSSION

Acute appendicitis before the age of three years accounts for a small minority of pediatric appendicitis cases, but is associated with disproportionately high rates of perforation and complications, largely because of delayed diagnosis [2,3]. Young children are less able to localize or verbalize abdominal pain, and non-specific findings such as fever, vomiting, or feeding difficulties frequently dominate the clinical picture, leading physicians to first consider more common causes of fever, such as gastroenteritis or urinary tract infection, before appendicitis is suspected [2–5]. In our patient, the combination of prolonged fever, a beginning skin rash, mild conjunctivitis, and cheilitis, together with a reassuring first abdominal ultrasound, initially fulfilled a plausible clinical picture of incomplete Kawasaki disease, a diagnosis considered when fever of at least five days is associated with fewer than four of the principal Kawasaki criteria, supported by ancillary laboratory and echocardiographic findings [1]; intravenous immunoglobulin and aspirin were accordingly administered. Notably, tenderness in the right iliac fossa was already present on admission, illustrating how a prominent systemic and mucocutaneous picture can overshadow a focal abdominal sign in young children. Overlap between incomplete or atypical Kawasaki disease and intra-abdominal inflammatory conditions, including appendicitis, has previously been reported and can complicate the diagnostic process in both directions [6,7].

In this case, two elements ultimately redirected the diagnosis: the persistence of fever despite a normal echocardiogram, and the finding of a poorly organized periappendiceal collection on repeat abdominal ultrasound, later confirmed by computed tomography. This illustrates a point already emphasized in the literature: because abdominal signs may be minimal or absent in young children, the absence of tenderness at a single time point should not exclude appendicitis when fever persists, and repeated clinical examination together with imaging is often required to reach the diagnosis [2,3,5]. Ultrasound remains a reasonable first-line, radiation-free investigation in this age group, but its sensitivity is imperfect, as illustrated by the initially normal study in our patient; computed tomography, although it should be used judiciously given radiation exposure in children, can be decisive once complications such as abscess formation are suspected [3,5]. Early surgical management, as performed in our patient, remains the standard of care for complicated appendicitis and was followed here by a favorable outcome.

The persistence of fever in our patient prompted renewed clinical examination and repeat abdominal imaging, ultimately leading to the correct diagnosis. This dynamic diagnostic approach is particularly important in young children, in whom disease manifestations can evolve rapidly and classic signs may emerge only later.

Diagnostic delay has been associated with a greater frequency of perforation, postoperative complications, and prolonged hospitalization in pediatric appendicitis [2]. Therefore, an initially reassuring clinical or ultrasonographic evaluation should not prevent reassessment when fever or systemic inflammation persists without an alternative explanation.

This case reinforces two practical messages. First, appendicitis should remain in the differential diagnosis of persistent fever in very young children even in the absence of gastrointestinal symptoms. Second, serial physical examinations and repeated targeted imaging may be decisive when the clinical course is inconsistent with the initial working diagnosis.

CONCLUSION

Complicated appendicitis is an important differential diagnosis of prolonged fever in young children, even when digestive symptoms are absent, and it can closely mimic systemic inflammatory conditions such as incomplete Kawasaki disease. A high index of suspicion, together with repeated clinical reassessment and imaging when fever persists, allows timely diagnosis and surgical management, and can prevent further complications.

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