

Enteric appendicitis: An unusual complication of enteric fever

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ABSTRACT

We present an 11-year-old boy admitted with fever, loose stools, vomiting, diffuse abdominal pain, and hepatosplenomegaly. Ultrasound and contrast enhanced computerized tomography of the abdomen was suggestive of appendicular lump. Widal done on day 8 showed elevated TO (1:320) and TH titers (1:80); repeat Widal on day 15 was suggestive of increasing titers (TO-1:320, TH-1:160). The patient improved with conservative management with intravenous ceftriaxone and azithromycin. This case highlights that appendicitis could rarely present as a complication of enteric fever in children; which may not always need surgery. In such cases, early initiation of appropriate antibiotics for enteric fever is curative.

Key words: *Appendicitis, Appendicular lump, Enteric fever*

Acute appendicitis is one of the most common surgical emergencies; however, appendicitis occurring as a complication of enteric fever is described in as only few case reports in the literature [1-6]. Although appendicitis and enteric fever are two distinct entities; however, rarely there could be an association also. We present an unusual case of enteric fever, which also had radiological features suggestive of appendicular lump, and managed conservatively.

CASE REPORT

An 11-year-old male child, presented to our hospital, with fever for 14 days. On day 4 of illness, the child started to have loose stools, along with vomiting. On day 7 of illness, the child also had pain abdomen, diffuse, and dull aching. With these complaints, the child was admitted to a private hospital. Widal test done on day 8 showed elevated titers (TO-1:320, TH-1:80). Ultrasound (USG) abdomen done on day 9 was suggestive of appendicular lump. The child received intravenous antibiotics there in view of the persistence of fever and was referred to us on day 14.

On examination, the abdomen was soft; there was hepatomegaly (span of 12 cm) and splenomegaly. Laboratory investigations showed elevated total leukocyte count (13,800/mm³) with differential count of P-55, L-34, M-07, and E-04. USG showed hepatomegaly and cholelithiasis but appendix was not visualized. Contrast enhanced computerized tomography (CECT) abdomen showed heterogeneously hypodense elongated lesion in right iliac fossa suggestive of inflamed appendix with abscess formation with hepatosplenomegaly and mesenteric lymphadenopathy (Fig. 1). Repeat Widal test done on day 15 of illness was suggestive

of TO titers of 1:320, and increase in TH titers of 1:160. Blood culture sent was sterile.

Pediatric surgery consultation was taken and conservative treatment (Ochsner Sherren regimen) continued as per their advice. The child was continued on intravenous ceftriaxone (100 mg/kg/day). In view of the persistence of fever on day 9 of intravenous ceftriaxone, oral azithromycin was added in a dose of 20 mg/kg/day. The child became afebrile in next 2 days; antibiotics were stopped after 14 days. The child was discharged with a diagnosis of typhoid fever complicated by appendicular lump. Child remained asymptomatic in follow-up and repeated USGs at 3 and 6 months follow-up did not show any evidence of appendicular lump.

DISCUSSION

Acute appendicitis is one of the most common surgical emergencies; however, appendicitis occurring as a complication of enteric fever is described in as only few case reports in the literature [1-4,7,8]. Appendicitis can occur with enteric fever due to mucosal ulceration and direct invasion of appendicular wall by the typhoid bacilli or due to lymphoid hyperplasia resulting in obstruction of appendicular lumen [5-6]. It can also mimic appendicitis by causing mild inflammation of appendix and ileum [9]. The time course of illness leading to the presentation is a critical component of the history. Appendicitis in enteric fever tends to subside by itself once enteric fever is treated unless signs of gangrene/perforation are present that mandate laparotomy.

Because both acute appendicitis and enteric fever can cause fever and pain abdomen, often differentiation clinically between



Figure 1: Contrast enhanced computerized tomography abdomen showing a heterogeneously hypodense elongated lesion in right iliac fossa likely inflamed appendix with abscess formation

the two can be difficult, if history and clinical features are not typical. For diagnosis of enteric fever, culture remains the gold standard, but early initiation of antibiotics might turn culture sterile, as happened in our case. Widal test is one of age-old test, still being used for the diagnosis of typhoid fever. The rise of antibody titer in typhoid fever is not affected by prior antimicrobial therapy. A single Widal test in an unvaccinated patient showing H and/or O titers $\geq 1:160$ in patients having typhoid-like symptoms is strongly suggestive of typhoid fever [10].

The sonographic diagnosis of acute appendicitis is based on 1 or more of the following criteria: Increased anteroposterior diameter of the appendix (>6 mm); distended, fluid-filled appendix, lack of compressibility, hyperechoic periappendiceal fat, and periappendiceal fluid collection (abscess). The CT diagnosis of acute appendicitis has high positive and negative predictive values, 96% and 95%; respectively. CECT is most useful in advanced appendicitis to identify and guide percutaneous drainage of fluid collections.

In our index case, we thought of enteric fever with appendicitis rather it being a simple appendicitis; because history was suggestive of high-grade fever as the first symptom and diffuse abdominal pain appeared later (not localized to left lower abdomen); also our child

has systemic manifestations such as hepatosplenomegaly and lack of localizing signs of appendicitis. Localized abdominal tenderness is the single most reliable finding in the diagnosis of acute appendicitis (pyogenic), which usually precedes fever. Other findings consistent with appendicitis (pyogenic) are guarding, rigidity of overlying rectus muscles, which were not there in our case.

CONCLUSION

Appendicitis could be a rare but known complication of enteric fever; it needs a high index of suspicion for diagnosis, as an early institution of appropriate antibiotic could be curative, like in index case.

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