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Case Report

Chronic Granulomatous Inflammation Involving Ileocecal Junction: A Rare Presentation of Typhoid Fever

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ABSTRACT

Typhoid fever is an infectious disease caused by Salmonella typhi, a gram-negative bacillus. It presents as high-grade fever, abdominal pain, vomiting, diarrhoea, constipation, headache, hepatosplenomegaly, relative bradycardia and abdominal pain. Granuloma formation is a rare presentation of typhoid fever that occurs at different sites in the body, mainly ileocecal region, liver, bone marrow and spleen. A case studied at Combined Military Hospital, Quetta, Pakistan involved a 21-year-old female with a history of high-grade fever and abdominal pain. Contrast-Enhanced Computed Tomography (CECT) abdomen revealed chronic granulomatous inflammation involving ileocecal junction, also causing hyperplastic erythropoiesis with granuloma formation in bone marrow.

Typhoid fever is one of the causes of chronic granulomatous inflammation involving ileocecal area with no central caseous necrosis. Bone marrow examination and culture are important and gold standard investigations in a case of pyrexia of unknown origin.

Keywords: Abdominal Pain, Granulomatous Ileitis, Typhoid Fever.

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INTRODUCTION

Typhoid fever is the most common differential diagnosis of pyrexia of unknown origin. Symptoms of typhoid fever usually appear within the first week of sickness. The sickness manifests itself in the second week, followed by complications in the third week. Fever, abdominal pain, vomiting, diarrhea, constipation, and headache are all common symptoms, along with hepatosplenomegaly, relative bradycardia, and abdominal pain.[1] Acute abdominal, intestinal perforation, psychosis, pneumonia, ataxia, and nephritis are the most common complications.[2] Typhoid fever can present as chronic granulomatous inflammation involving ileocecal region. In our area, where the prevalence of Salmonella typhi and Mycobacterium TB is significant, a dual infection of Salmonella typhi and Mycobacterium tuberculosis may be considered.[2]

CASE REPORT

On 02/10/21, a 21-year-old married girl from Quetta, Pakistan, appeared to the medical Outpatient Department with an eight-day history of fever. The fever was abrupt, recurrent, and high-grade, with rigours, chills, and broad body pains. She also had loose, watery faces that occurred 3-4 times a day, were devoid of blood and mucous, and were accompanied by colicky abdominal pain. On admission, she was febrile with a temperature of 102°F, blood pressure 100/65 mmHg and pulse 100 bpm. Her weight was 49 kg, respiratory rate was 20 breaths per minute, oxygen saturation was 97% at room air, and she had a respiratory rate of 20 breaths per minute.

She was ill, awake, cognizant, and oriented to time, location, and person on general physical examination. The abdomen was soft, with slight soreness in the hypogastric region and guarding, most likely related to pain. CNS Cardiovascular, respiratory and musculoskeletal system examinations were unremarkable. She was admitted to the hospital with typhoid fever and given a dose of ceftriaxone 1 gm intravenously (IV) twice daily, tablet azithromycin 500 mg once daily, and tablet paracetamol 500mg, 2 tablets as needed.

Laboratory investigations showed TLC 4.7×109/l with normal differentials, hemoglobin 10.1g/dl, platelets 206×109/l. Liver and renal function test (LFTs and RFTs) were within normal range. C-reactive protein (CRP) 95mg/l. Smears for malarial parasite were negative. PCR for SARS Cov-2 was negative. Thyroid function test, lipid profile, cardiac enzyme and stool examination were normal. Lactate Dehydrogenase (LDH) was 1858, Erythrocyte Sedimentation Rate (ESR) was 66mm, and vitamin B12 levels were 1476pmol/l. Blood culture failed to show any growth.

Her fever persisted, so on the 3rd day, her treatment was revised and suspecting XDR typhoid fever, dose of ceftriaxone was stopped and injection

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meropenem 1 gm IV thrice daily was started.

CECT abdomen showed circumferential wall thickening of distal ileum and ileocecal valve, as well as extensive mesenteric and pericolic lymphadenopathy and edematous thick-walled cecum, ascending colon, and mild abdominopelvic ascites, along with extensive mesenteric and pericolic lymphadenopathy and edematous thick-walled cecum, ascending colon, and mild abdominopelvic ascites. Following CECT, a colonoscopy revealed thickened mucosa including the ileum. Biopsies of the patient's ileum and cecum revealed a heavily infiltrated lamina propia with lymphocytes, histiocytes, and neutrophils on histopathology. There were a few epitheloid cells that produce granulomata, as well as multinucleated cells (Figure-1).

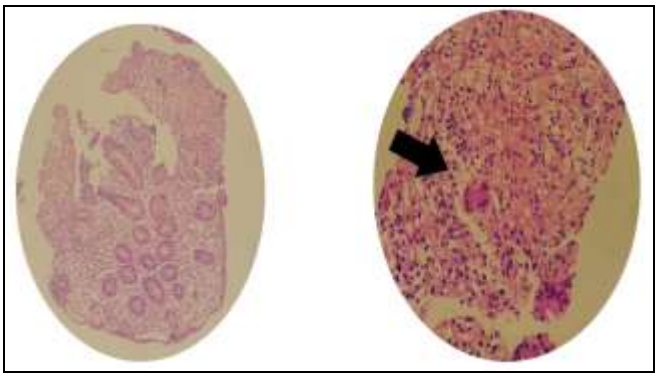

Figure-1 Ileal and Cecal Mucosal Biopsies with Magnification x 10 and x 40 Showing Langhans Type Giant Cell (arrow) and Chronic Granulomatous Inflammation

Marrow from the bones Trephine biopsy revealed cellular marrow, with a cellularity of 50-60% and normal architecture. Lymphocytes and plasma cells were both in normal condition. With no caseous necrosis, there was a focal cluster of epitheloid cells forming a hazy granuloma (Figure-2).

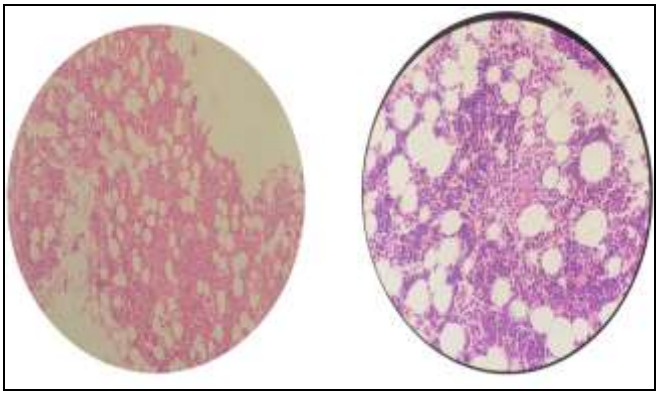

Figure-2: X 10 and x 40 images of Bone Marrow Show a Cluster of Epithelioid Cells creating an ILL-Defined Granuloma

On the tenth day of hospitalization, her bone marrow culture grew Salmonella enterica serotype typhi with extensive drug resistant, susceptible to only azithromycin and meropenem, confirming diagnosis of typhoid fever.

She was already on meropenem and azithromycin. After 12th day of hospitalization, her condition improved and fever started settling. She was discharged after being afebrile for more than 48 hours, with treatment given, which was to be followed at home, and she was called for follow up in OPD. She was afebrile and asymptomatic when she was followed up after one week.

DISCUSSION

Necrosis and histiocytic proliferation with strong erythro- and lymphophagocytosis are common histological features in typhoid ulcers. The histological appearance of granulomatous inflammation is rare.[3] Granulomas are described in locations other than the primary intestinal ulcer when they arise. In literature, only 5 cases of typhoid fever with hepatic granulomas have been described.[4-6] At least five cases of S. Typhi infection have been reported to have haemophagocytosis.[7] Symptoms of hepatitis include fever, lymphadenopathy, hepatosplenomegaly, pancytopenia, coagulopathy, evidence of hepatitis, hyperbilirubinaemia, and hyperferritinaemia. A bone marrow examination typically reveals a considerable loss in megakaryocytes, myeloid precursors, and erythroid precursors, as well as hypocellularity. Our case had a persistent granulomatous lesion with epitheloid cells and histiocytes, and hyperplasia of the bone marrow.[8-10]

In light of the ileocecal biopsy findings, dual infection with Salmonella typhi and Mycobacterium tuberculosis may be considered in our high-prevalence location. We considered intestinal tuberculosis, but diagnosis of typhoid fever was confirmed by bone marrow culture. Furthermore, complete recovery after typhoid fever therapy with meropenem supports the hypothesis that all of the histological abnormalities are related to typhoid fever alone.

Conflict of Interest: None.

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Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

ZK & NF: Conception, study design, drafting the manuscript, approval of the final version to be published.

JA & AI: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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