

# Enteric Fever Complicated to Acute Pancreatitis; a Case Report

Jitendra Singh<sup>1</sup>, Anju Dinkar<sup>2</sup>, Kamlesh Kumar Gupta<sup>3</sup>

<sup>2</sup>Junior Resident, Department of Microbiology, King George's Medical University, Lucknow-226003, U.P, India

**Abstract:** Enteric fever (or Typhoid) is one of the common infectious diseases in developing countries such as India. It is a common cause of morbidity and hospital admission in developing countries. We report a case of enteric fever complicated to acute pancreatitis in a 40 years old male who was admitted to our medical emergency unit with complaints of fever for 11 days followed by severe abdominal pain. Enteric fever infection can manifest a variety of systemic complications including life threatening conditions. Acute Pancreatitis is a very rare complication of them. Patient was recovered completely with appropriate antibiotic therapy and supportive management.

**Keywords:** Enteric fever, *Salmonella*, Acute Pancreatitis, Abdominal pain, Acute Abdomen

## 1. Introduction

Enteric fever is caused by gram negative bacteria, *Salmonella typhi* or *S. paratyphi*. It is a systemic disease characterized by fever and abdominal pain.<sup>[1]</sup> Enteric fever can cause a wide range of gastrointestinal complications like intestinal hemorrhage and perforation, acute pancreatitis, acute cholecystitis, hepatitis, hepatic abscess and splenic rupture.<sup>[2]</sup> only few cases of acute pancreatitis secondary to typhoid fever are reported in literature and isolated initial presentation as acute pancreatitis within a 11 days duration is very uncommon.<sup>[3],[4],[5]</sup> Therefore, it is essential to make correct diagnosis and management to reduce the morbidity and mortality in typhoid endemic zones.

## 2. Case Report

A 40 years old male, worker was presented in our emergency department with complaints of high grade fever for 11 days and severe upper abdominal pain since last two days. Pain was mainly located in the epigastrium region and radiating to the back. Pain was constant. He had no history of jaundice, trauma, diabetes mellitus, hypertension, drug intake, alcoholism or any similar episodes of abdominal pain in past. On general examination patient was conscious and well oriented. He had no pallor or icterus. He was febrile (103°F) and dehydrated. His pulse rate was 104/min and regular, B.P-132/80mmHg and respiratory rate was-22/min. Systemic examinations revealed tenderness on palpation in epigastric and right hypochondrial region without any organomegaly. Rest of the systemic examinations are within normal limits. The investigations revealed haemoglobin 13.2.0 g/dl, total leukocyte count 10200/mm<sup>3</sup>, differential count- polymorphs 76%, lymphocytes 18% monocyte 6%, and platelet counts 15,000/mm<sup>3</sup>. Serum electrolytes, renal function tests and fasting lipid profile were within normal range. His random blood sugar-110 mg/dL, and serum Ca<sup>2+</sup> was 8.2 mg/dL. His liver function test revealed serum bilirubin 0.8 mg/dL, serum aspartate aminotransferase (AST) 88 U/L, alanine aminotransferase (ALT) 132 U/L, serum alkaline phosphatase 70 U/L, serum protein 7.2g/dL and serum albumin 4.0 g/dL. Routine urine analysis showed trace proteinuria. Enzyme-linked immunosorbent assay for human immunodeficiency virus, Australia antigen for Hepatitis B and antibody against Hepatitis C virus were

negative. Serology (IgM antibody) for dengue infection and smear examination for malaria parasite were also negative. The serum amylase and lipase level were 2200 U/L and 800U/L respectively. Serology (IgM antibody) for *Salmonella typhi* was positive while blood culture was sterile. Most of the patients have been taken antibiotics prior hospitalisation and the same thing was with our case. He was already on oral antibiotic at the time of admission which could be a reason for sterile blood culture. Electrocardiography showed sinus tachycardia and chest X-ray was within normal limit. Contrast enhanced Computed Tomography (CECT) of abdomen showed acute pancreatitis. (Figure 1) Final diagnosis of acute pancreatitis due to enteric fever was made. Patient was kept nil per oral and managed with adequate intravenous fluids, ceftriaxone and analgesics. Patient was started improving day by day and got discharged on 15<sup>th</sup> day of admission in asymptomatic condition.

## 3. Discussion

Typhoid fever is a very common infectious disease of tropics, associated with high morbidity and mortality.<sup>[6]</sup> The causes of abdominal pain in a patient with enteric fever may be intestinal haemorrhage and perforation, acute cholecystitis, typhoid, hepatitis, hepatic abscess, splenic rupture and acute pancreatitis.<sup>[7], [8]</sup> The common cause of pancreatitis are gallstones, alcohol, hypertriglyceridemia, endoscopic retrograde cholangiopancreatography, trauma, postoperative, dysfunction of sphincter of Oddi while infections are rare causes.<sup>[9]</sup> Pancreatitis due to bacterial etiology has been reported in several literatures. Pathogenic bacteria of gastrointestinal tract such as *Salmonella typhi*, *Yersinia enterocolitica*, and *Y. pseudotuberculosis*, *Compylobacter jejuni*, *Brucella*, *Legionella* and *Nocardia* have been associated as the causes of sporadic cases of pancreatitis.<sup>[10]</sup> The first case of pancreatic abscess due to *Salmonella typhimurium* was reported by Strand and Sanders.<sup>[11]</sup> Retrospective studies have reported a frequency of hyperamylasemia of 50% and a frequency of clinical pancreatitis ranging from 28 to 62% in patients with *Salmonella* infection.<sup>[12]</sup> The exact pathogenesis of pancreatic involvement in salmonella infection is not fully known which requires further studies. The possible mechanisms are direct pancreatic localisation of bacteria, toxin induced or immune mediated pancreatitis.<sup>[13], [14]</sup>

Theoretically it may be possible by the process of haematogenous or lymphatic or transmural migration via the biliary duct system or from duodenum via the main pancreatic duct. Bacteraemia due to *S.choleraesuis* is a usual cause of localised pancreatic salmonella infection but other causes may be gastroenteritis by *S. typhimurium* and enteric fever by *S. typhi*.<sup>[15]</sup> We ruled out other underlying causes for the pancreatitis in our patient. On the basis of clinical and biochemical parameters, final diagnosis of acute pancreatitis due to enteric fever was made. The prompt response to treatment also supports our diagnosis.

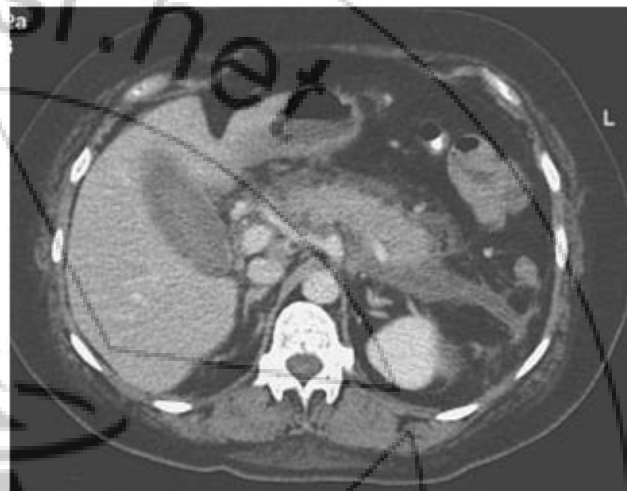
#### 4.Conclusion

With above description, our aim is to highlight the potential dangers in typhoid fever. Acute pancreatitis should be kept in mind as a differential diagnosis in the patients of enteric fever complaining of severe pain located in the epigastrium especially in endemic country like India. Early diagnosis and management of enteric fever improves prognosis by preventing life threatening complications.

#### References

- [1] Ms.Pergues DA, Miller SI. Salmonellosis. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J et al., editors. Harrison's principles of internal medicine. 18th ed. New York:McGraw Hill; 2012, p1247-1280
- [2] Koshi G. Uncommon manifestations of salmonella infections. Indian Journal of Medical Research. 1976;64(2):314-321
- [3] Parmar RC, Bavdekar SB, Houilgol R and Muranjan MN (2000). Nephritis and cerebellar ataxia: rare presenting features of enteric fever. Journal of Postgraduate Medicine 46(3) 184-186
- [4] Kadappu KK, Rao PV, Srinivas N and Shastry BA. Pancreatitis in enteric fever. Indian Journal of Gastroenterology. 2002;21(1) 32-33
- [5] Kune GA and Coster D. Typhoid pancreatic abscess. Medical Journal of Australia 1(9) 417-8
- [6] Khosla SN. Changing patterns of typhoid-A reappraisal. Asian Med J 1982;25:185-98
- [7] Koshi G. Uncommon manifestations of salmonella infections. Indian Journal of Medical Research. 1976;64(2):314-321
- [8] Bhan MK, Bahl R, Bhatnagar S. Typhoid and paratyphoid fever. Lancet. 2005;366:749-762
- [9] Greenberger NJ, Conwell DL, Wu BU, Banks PA. Acute and chronic pancreatitis. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J et al., editors. Harrison's principles of internal medicine. 18th ed. New York:McGraw Hill; 2012, p2634-2648
- [10] Economou M, Zissis M. Infectious cases of acute pancreatitis. annals of gastroenterology 2000, 13(2):98-101
- [11] Strand CL, Sanders SL. Salmonella typhimurium pancreatic abscess - report of a case. Am Surg. 1978, 44:174-176
- [12] Renner F, Nimeth C, Demmelbauer N. High frequency of concomitant pancreatitis in Salmonella enteritis. Lancet 1991;337:1611
- [13] Arendt T. Bile-induced acute pancreatitis in cats: roles of bile, bacteria, and pancreatic duct pressure. Digestive Diseases and Sciences 1993;38(1) 39-44.
- [14] Schmid SW, Uhl W, Friess H, Malfertheiner P and Büchler MW. The role of infection in acute pancreatitis. Gut 1999;45(2) 311-316
- [15] Shankar SK., Tolstoy R., Santini, Shankar JG. case report - an interesting case of enteric fever masquerading as acute pancreatitis. indian journal of medical case reports issn: 2319-3832(online). 2013 vol.2 (3) july-september, pp.14-16

#### Legend of Figure;



**Figure 1:** Pancrease is bulky and irregular with peripancreatic fat plane