

Masquerader of Unilateral Neuro-retinitis: Salmonella Typhi

Vijaykumar S Gulwe*, Mrs Kharche JM, Sohel Khan, Awani Paithankar, Umesh Malu, Pawanraj Bhosale, and Parth Maindarker

Department of Medicine, MGM Medical College, Aurangabad, Maharashtra, India

Corresponding author:

Dr. Vijaykumar S Gulwe,
Department of Medicine,
MGM Medical College,
Aurangabad, Maharashtra, India;
E-mail: drvkg14@gmail.com

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Abstract

Despite its rarity, atypical typhoid clinical presentation has gained substantial ground in clinical practise in recent years. Abdominal lymphadenopathy, acute acalculous cholecystitis, osteomyelitis, splenic abscess, pneumonia, liver abscess, jaundice, pancreatitis, meningitis, orchitis, and parotitis are some of the more unusual typhoid symptoms. Complication of typhoid fever usually occurs in 3rd or 4th week of illness and especially in inadequately treated patients. Commonest complications being intestinal haemorrhage and perforation occurring due to necrosis in the Peyer's patches of intestine. Present case reports atypical typhoid presentation with neuro retinitis with serous retinal detachment following a typhoid fever.

Keywords: Typhoid; Retinitis

Introduction

Atypical presentation of typhoid although rare has taken significant space in clinical practice nowadays [1]. Classical clinical features of typhoid include fever, toxemia, constipation occurring in 1st week and abdominal discomfort, rose spots on trunk, splenomegaly, diarrhoea, vomiting occurring in 2nd week. Atypical presentation of typhoid includes abdominal lymphadenopathy, acute acalculous cholecystitis, osteomyelitis, splenic abscess, pneumonia, liver abscess, Jaundice, Pancreatitis, meningitis, Orchitis and Parotitis [2,3]. Typhoid infection involves bacterial invasion of Peyer's patches in the ileum leading to bacteraemia. Multiplication of bacteria in the phagocytic cells of liver, spleen and lymph nodes may occur. Various organs can be involved in the course of typhoid fever resulting in wide spectrum of presentations from simple fever to involvement of multiple organs, leading to multi-organ failure. Complication of typhoid fever usually occurs in 3rd or 4th week of illness and especially in inadequately treated patients.

Commonest complications being intestinal haemorrhage and perforation occurring due to necrosis in the Peyer's patches of intestine which requires prompt medical or surgical intervention. William Osler stated in 1899 that the liver was involved in typhoid disease. It is uncommon and caused either by hematogenous seeding or contagious spread from reticuloendothelial system which is clinically manifested as Jaundice, hepatomegaly and abnormal liver function tests.

Typhoid caused by the bacterium *Salmonella typhi* or paratyphi has been documented to produce ocular diseases in rare cases. Lid edema or abscess, dacryoadenitis, conjunctival petechiae or chemosis, corneal ulceration, uveitis, vitreous haemorrhage, retinal haemorrhage and detachment, stellate maculopathy, pigmentary retinopathy, optic neuritis, internal or external ophthalmoplegia, and orbital haemorrhage [4]. Mechanism involved is thought to be direct invasion by microorganism into the ocular tissue or *via* immune complex mediated

hypersensitivity reaction [5]. This case report presents a case of post typhoid fever with atypical presentation and neuro retinitis with serous retinal detachment following a typhoid fever

Case Report

45-year-old female presented at our hospital with two weeks history of fever, pain, swelling, redness, sudden vision loss and one episode of bleeding from left eye, abdominal distension along with severe abdominal pain and hematuria. On questioning she was apparently alright 1 month back with no known medical illness. She first developed fever with chills and right sided upper limb pain for which patient was taken to local hospital and treated symptomatically for 5 days with antibiotics and Injection hydrocort. Anemia diagnosed during routine investigation was corrected too and discharged. After taking discharge on next day midnight patient had complain of fever with chills again and observed swelling over left eye. Patient taken home medication and her fever was relieved but had episode of severe ophthalmic pain with redness of left eye and sudden vision loss [Figure 1]. Patient was taken to local hospital but was referred to ophthalmologist for further evaluation. She was diagnosed with flat anterior chamber, vitritis with choroidal thickening with serous retinal detachment inferior quadrant of left eye. Chest X-ray was suggestive of bilateral haziness. Patient was also complaining of abdominal distension along with severe abdominal pain which was associated with fever and chills so referred to our hospital for further management [Table 1].

HIV, Paul Buny test, Weil Felix, IgM and IgG antibodies to scrub typhus, QBC for malarial parasite, dark field microscopy

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for Leptospira, dengue and leptospiral serology all came back negative. Ultrasound of the abdomen indicated moderate hepatomegaly with minor splenomegaly, bilateral pleural effusion, and enhanced echogenesity of the renal parenchyma, all of which were suggestive with medicorenal disease grade I.

Her greatest corrected visual acuity in the left eye was 2/60 and

Table 1: Lab Investigations.

Lab investigations	Values
Hemoglobin	7.2 GM%
Total leucocyte count	25400/CU.MM
Platelets	129000/CU.MM
Packed cell volume	22
Mean corpuscular volume	54
Serum urea	118 MG/DL
Serum creatinine	2.51 MG/DL
Total bilirubin	2.83MG%
Direct bilirubin	2.14MG%
Indirect bilirubin	0.69MG%
Sgot	26
Sgpt	23
Alp	140
Serum sodium	140-142 meq/L
Serum potassium	4 meq/L
Peripheral smear	Normocytic Normochromic RBC
	Thrombocytopenia+
Urine sample	Normal and Culture is sterile
Viral hepatitis markers	HEPATITIS A,B,C AND E were Negative
Blood cultures	Salmonella typhi.
Widal test	Raised T(H) titres of 1:160

6/6 in the right eye at the time of the presentation. The anterior segment findings were unremarkable, and both eyes' IOPs were within normal limits. The left eye's fundus examination revealed white fluffy lesions along the superior and inferior arcades, as well as superficial haemorrhages around the macula, indicating retinitis. The foveal reflex was intact in the right eye fundus [Figure 2]. Optical coherence tomography revealed a macular serous retinal detachment in the left eye's inferior quadrant. Mycobacterial Tuberculosis, Toxoplasma Gondii, Hepatitis Simplex virus, Cytomegalovirus, and Varicella Zoster Virus (VZV) were all found to be negative in an X-cyton study of the anterior chamber aspirate. In the left eye, post-typhoid retinitis was diagnosed. Left eye Enucleation was done as per Ophthalmologist opinion. However histopathological examination was not possible due to non viability of tissue.

Parenteral ceftriaxone, ofloxacin, and oral prednisolone 1 mg/kg body weight were given to the patient over the course of two months. After four days of medication, platelet counts returned to normal. After seven days, the jaundice was clinically undetectable. After nine days on antibiotics, she became afebrile. After ten days on oral cefixime and ofloxacin, she was discharged. Within 15 days of discharge, follow-up LFTs, platelets, and renal biochemistry returned to normal. The Best Corrected Visual Acuity (BCVA) in the left eye improved to 6/6 after only two months of treatment. Right eye fundus examination was done to detect early changes and involvement as soon as possible. Fundus examination indicated resolving lesions, and OCT demonstrated that the serous detachment had resolved.



Figure 1: Severe ophthalmic pain with redness of left eye.

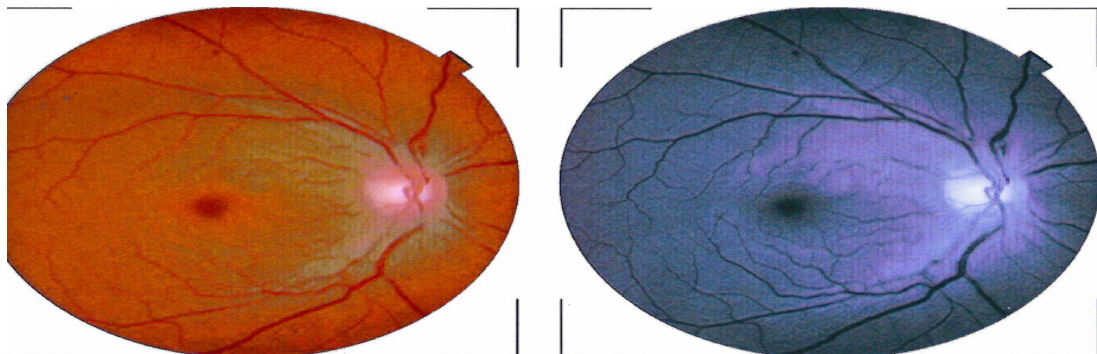


Figure 2: Right eye fundus.

Discussion

Typhoid or enteric fever is spread through contaminated water or faeces from sick or asymptomatic chronic carriers. Poor sanitation and a lack of access to safe drinking water are linked to its high prevalence in poorer countries. Peyer's patches are infected with *Salmonella typhi*, resulting in bacteremia. It has the potential to influence all of the body's major systems, resulting in a variety of consequences. In typhoid fever, asymptomatic hepatitis is prevalent, with mild increases in SGOT and SGPT [6]. With an incidence ranging from 4.8% to 17.6%, jaundice is a rare clinical manifestation of typhoid [7]. Various typhoid fever sequelae have been recorded in the past literature, however ascites and pleural effusions have received less attention. In their investigation, Chiu et colleagues found ascites/pleural effusion in 4% of 71 typhoid cases. In their investigation, Judet, et al found ascites in two typhoid patients and proposed that typhoid fever in a feverish case be classified peritoneal effusion. In their study, Shinha and Saha et al found that ascites is underreported or ignored in cases of enteric fever. Typhoid-related renal problems occur in about 2% to 3% of cases [8]. Acute renal failure, hypertensive encephalopathy, or nephritic syndrome can all be symptoms of typhoid Glomerulonephritis. Septicaemia may accompany renal failure in typhoid. Except in HIV-positive patients with typhoid fever, hepatitis and nephritis occurring together in typhoid patients are extremely rare. Typhoid glomerulonephritis is caused by an immunological response. Typhoid hepatitis can cause jaundice, which can lead to typhoid glomerulonephritis.

Retinitis is characterised by confluent patches of retinal whitening that advances through the retinal blood vessels, and is frequently associated with intraretinal haemorrhages and hard exudates. Retinitis is mostly caused by toxoplasma gondii (toxoplasmosis), *Leptospira* spp. (leptospirosis), *Mycobacterium tuberculosis* (tuberculosis), and other viral and fungal etiologies [9]. Sarcoidosis and Behcet's disease are two non-infectious causes of retinitis. Infectious causes are frequently unilateral, and mild vitritis may accompany them. Microbial pathogens are responsible for immune-mediated ocular and systemic illness via post-infectious immunological effects caused by molecular mimicry, which elicits an immune response that reacts with self-antigens. Immune mediated response to typhoid fever presenting with neuroretinitis, vasculitis, and retinal detachment was successfully treated with steroids, according to Relhan et al and Laul et al [10,11]. In their study, Fusco et al described a case of bilateral chorioretinitis and stellate maculopathy following typhoid infection [12].

Conclusion

In rare cases, multiple organ involvement in typhoid fever might

occur in the same patient. As a consequence of post-typhoid fever, renal failure and hepatitis may be as common as sepsis or tropical diseases. Immune mediated retinitis is a common clinical diagnosis when there has been a previous infection a few weeks or days before the beginning of ocular symptoms. Steroids can be used to treat it, and the lesions should clear up quickly. Early detection and treatment of typhoid fever, as well as awareness of its unusual manifestations, can assist reduce morbidity.

References

1. Bhutta ZA. Current concepts in the diagnosis and treatment of typhoid fever. *BMJ*. 2006;333:78-82.
2. Ahmed N, Saeed ZI, Tariq M. Abdominal lymphadenopathy: An atypical presentation of enteric fever. *Asian Pac J Trop Biomed*. 2012;2:409-410.
3. Inian G, Kanagalakshmi V, Kuruvilla PJ. Acute acalculous cholecystitis: A rare complication of typhoid fever. *Singapore Med J*. 2006;47:327-328.
4. Curtis TH, Wheeler DT, Roy FH, Fraunfelder FW, Fraunfelder FT. *Current Ocular Therapy*. Sixth ed. London: Elsevier Saunders; 2008:92-94.
5. Hughes EH, Dick AD. The pathology and pathogenesis of retinal vasculitis. *Neuropathol Appl Neurobiol*. 2003;29:325-340.
6. Khan M, Coovadia Y, Sturm AW. Typhoid fever complicated by acute renal failure and hepatitis: Case reports and review. *Am J Gastroenterol*. 1998;93:1001-3.
7. Ahmed A, Ahmed B. Jaundice in typhoid patients: Differentiation from other common causes of fever and jaundice in the tropics. *Ann Afr Med*. 2010;9:135-40.
8. Oh JM, Lee NR, Yim HE, Yoo KH, Jeong WY, Hong YS, et al. Acute tubulointerstitial nephritis with renal failure complicated by typhoid fever. *J Korean Soc Pediatr Nephrol*. 2010;14:236-9. ,
9. Jacobs DA, Guercio JR, Balcer LJ. Inflammatory optic neuropathies and neuroretinitis. In: Yanoff M, Duker JS, editors. *Ophthalmology*. 4th ed. London: Elsevier Saunders. 2014:879-83.
10. Relhan N, Pathengay A, Albini T, Priya K, Jalali S, et al. A case of vasculitis, retinitis and macular neurosensory detachment presenting post typhoid fever. *J Ophthalmic Inflamm Infect*. 2014;4:23.
11. Laul R, Atif Ali MIR, Shafi S. Typhoid aftermath: Presenting as vasculitis, neuroretinitis and macular neurosensory detachment. *Int J Med Res Health Sci*. 2015;4:737-9. ,
12. Fusco R, Magli A, Guacci P. Stellate maculopathy due to *Salmonella typhi*. *Ophthalmologica*. 1986;192:154-8.