
CASE REPORT

Encephalitis in Enteric Fever – A case report

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Abstract:

Typhoid fever is a bacterial infection caused by *Salmonella typhi* or *S. paratyphi*, recognized as a classical cause of fever in returning travellers. However, its neuro-psychiatric presentations are rarely reported in travellers diagnosed in western countries, whereas they are more commonly described in patients treated in endemic areas. We report an interesting case of encephalitis in enteric fever at a tertiary care hospital in Karachi, Pakistan.

Case Report:

We present an interesting and unusual case of a 22 year old female, married with no known comorbid, no travelling history, came to emergency with fever for 15 days and altered level of consciousness along with generalised stiffness and frothing from mouth. All relevant base-lines investigations were done, multi-disciplinary teams were taken on board, blood cultures reported salmonella typhi and thus she was being managed on the lines of enteric encephalitis.

Keywords: Typhoid fever, encephalitis, rare presentation, corticosteroids

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Introduction:

Typhoid fever, also known as enteric fever, is a potentially fatal multi-systemic illness caused primarily by *Salmonella* sero type typhi and, to a lesser extent, other strains are *Salmonella enterica* sero types para-typhi A, B, and C. The terms typhoid and enteric fever are commonly used to describe both major sero types. The neurological complications are rare and unusual but are equally fatal.

Case report:

22 year old female, married with prior no comorbid presented to the ER with: the two chief complaints; Fever -15 days and altered level of consciousness for past 4 hours. However; family mentioned an important event besides these two complaints; One episode of generalized stiffness and frothing from mouth for 1 hour before, time of arrival to the emergency.

According to the patient she was in usual state

of health 15 days back then she had developed fever that was high grade undocumented, associated with chills and rigors, it was continuous throughout the day, for that they got treatment at local clinic but fever subsided temporarily.

For last 1 day she got irritable and developed rigidity in limbs associated with frothing. Her extensive workup was done pan cultures were sent blood cultures reported salmonella positive, trach and urine culture were insignificant. Gene xpert, AFB smear were both unremarkable and BFM was insignificant too.

Lumbar puncture was done which showed raised TLC count with lymphocyte predominance. Infectious disease was taken onboard; she was managed with IV steroids, antibiotics (vancomycin for three days and meropenem for two days), with ATT (2 days only until reports came negative). MRI brain was done which reported: Subtle patchy lepto-meningeal contrast

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enhancement along the cerebellar folia, brainstem and

visualised cervical cord. CSF correlation is advised. She was being managed on the lines of encephalitis caused by salmonella typhi and she responded well to the treatment along with physiotherapy.

Discussion:

Enteric fever also known as typhoid fever is a potentially fatal multi-system illness caused primarily by salmonella typhi and its other serotypes to a lesser extent, S enterica serotypes paratyphi A, B, and C.¹ It is a serious health threat in the developing world, especially for children.² Contaminated food and water or close contact with an infected person cause typhoid fever.³ Signs and symptoms usually include: high grade fever, headache, abdominal discomfort, altered bowel habits and rarely can cause neurological sign and symptoms such as seizures, altered level of consciousness and even come.⁴

Even after antibiotic treatment, a small number of people who recover from typhoid fever continue to harbor the bacteria. These people, known as chronic carriers, no longer have signs or symptoms of the disease themselves. However, they still shed the bacteria in their feces and are capable of infecting others.⁵

Enteric encephalitis is the inflammation of brain parenchyma the cause is usually the viral infections and other causes included bacterial and fungal infections rarely Enteric encephalitis is one of the most lethal and unfamiliar complication of salmonella typhi and the documented data is seen in patients with travelling history.⁶

We report a case of enteric encephalitis on which not much of the data is documented, according to a few researches enteric encephalitis is rare and was only seen in travellers, we however reported enteric encephalitis in a non-traveller young female at a tertiary care setup in Karachi Pakistan at Aga Khan University Hospital, Karachi.

According to a study; Neurological manifestations were seen in 63 out of 232 patients. 27 (42.8%) patients had acute delirium and 36 (57.2%) had specific neurological complications,⁷ namely: Encephalitis (25%), Psychiatric manifestations (19.44%), Cerebellar ataxia (19.44%) and Meningitis (13%).⁸

Individual characteristics of specific neurological complications includes;

Encephalitic disorders Coma, semi coma, Meningism, seizures, psychiatric disorders paranoid psychosis, hysteria, delirium, aggressive behavior, cerebellar ataxia gait ataxia, bilateral finger nose ataxia, dys-diado-cokinesia and hypotonia.⁹

A total of 232 patients of enteric fever, admitted between 1999 and 2001, at Mahatma Gandhi Hospital, Jodhpur were evaluated. The diagnosis of enteric fever was based on typical presentations, blood culture. CT scan of brain, CSF study, and electro-physiological studies of the nervous system were done in appropriate patients.¹⁰

An early diagnosis and prompt treatment can help revert the state of enteric encephalitis

IV steroids and culture sensitive antibiotics plays promising role in the treatment of encephalitis, it is must to evaluate and screen thoroughly for salmonella encephalitis patients who presents with history of fever and generalised seizures.¹¹

Conclusion:

Although rare but a serious and fatal complication of enteric fever is encephalitis hence any patient who presents with fever and generalised seizures must be evaluated for enteric encephalitis.

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Role and contribution of authors:

Naeemuddin Shaikh, critically review the article and made final changes

Shazaf Masood Sidhu, collected the data, references and did the initial writeup, wrote the article.

Haroon Kasi, analysis and interpretation of data

References:

1. Warne B, Weld LH, Cramer JP et al. Travel-related infection in European travelers. *J Travel Med* 2014; 21: 248–54.
2. Caumes E, Ehya N, Nguyen J, Bricaire F. Typhoid and paratyphoid fever: a 10-year retrospective study of 41 cases in a Parisian hospital. *J Travel Med* 2001; 8: 293–7.
3. Crump JA, Luby SP, Mintz ED. The global burden of typhoid fever. *Bull World Health Organ.* 2004;82:346–353. [PMC free article] [PubMed] [Google Scholar]
4. Ameh EA. Typhoid ileal perforation in children: a scourge in developing countries. *Ann Trop Paediatr.* 1999;19:267–272. [PubMed] [Google Scholar]
5. Encephalitis in a Traveller With Typhoid Fever: Efficacy of Corticosteroids
6. *J Travel Med* 2017 Sep 01;24(6):tax063, G Mellon, AL Eme, B Rohaut, F Brossier, L Epelboin, E Caumes
7. Salmonella enterica serovar Typhi and the pathogenesis of typhoid fever.
8. Dougan G, et al. *Annu Rev Microbiol.* 2014.PMID: 25208300 Review.
9. Osuntokun, B.O., Bademosi, O., Ogunremi, K. & Wright, S.G. Neuropsychiatric manifestations of typhoid fever in 959 patients. *Arch Neurol* 1972, 27: 7-13.
10. Wadia, R.S., Ichaporia, N.R., Kiwalkar, R.S., Amin, R.R. & Sardesai, H.V. Cerebellar ataxia in enteric fever. *J Neurol Neurosurg Psychiatry* 1985, 48:695-697.
11. Fierer J, Swancutt M. Non-typhoid Salmonella: a review. *Curr Clin Top Infect Dis* 2000; 20:134–157 [Google Scholar]
12. Edwards PR, Hermann GJ. Two new Salmonella types; Salmonella corvallis and Salmonella colorado. *J Bacteriol* 1949; 58:111 [Google Scholar]