CASE REPORT

Catatonia and parkinsonism as a sequelae of typhoid fever: a rare experience

Payel Talukdar,¹ Arghya Dutta,¹ Sukriti Rana,² Arunansu Talukdar³¹Department of Psychiatry, NRS Medical College Hospital, Kolkata, West Bengal, India²Department of Medicine, LDV Hospital, Kolkata, West Bengal, India³Department of General Medicine, Medical College Kolkata, Kolkata, West Bengal, India**Correspondence to**

Dr Arunansu Talukdar, arka_talukdar@yahoo.com

SUMMARY

Although neurological manifestations of typhoid fever was thought to be obsolete from modern world, emergence of multidrug resistant typhoid bacilli and reporting of outbreak of typhoid fever with a range of early neuropsychiatric manifestations from various parts of world has led clinicians and investigators to re-evaluate the clinical spectrum of this endemic sinister disease. An 18-year-old male student was admitted in psychiatry ward with mutism, staring look, posturing and rigidity. There was history of typhoid fever 1 week before for which he was prescribed cefuroxime. Although investigations fail to provide any clue, his catatonic symptoms disappeared 2 weeks later giving way to resting tremor, bradykinesia, cog-wheel rigidity but without gait abnormality. He was successfully treated with lorazepam, amantidine, olanzapine and pramipexole. The patient was asymptomatic within a month. He had no recurrence of symptoms till last follow-up, 6 months from the illness.

BACKGROUND

Neurological illness has been described in untreated typhoid fever since ages, most frequently as meningoencephalitis and psychiatric complications like coma vigil, carphology and others as late complications of enteric fever. With the advent of potent antibiotics, these perils have been digressed to sporadic case reports of such neuropsychiatric manifestations of typhoid fever in modern world. However, emergence of multidrug-resistant typhoid bacilli and reporting of outbreak of typhoid fever with a range of early neurological signs from various parts of world has led clinicians and investigators to re-evaluate the unfamiliar damages caused by a known disease. Although features of parkinsonism as a sequela of typhoid fever is rarely reported, the neurological manifestations are reversible when recognised and treated early. Neuropsychiatric manifestations may complicate typhoid fever, and the diagnosis should be considered in persons with acute febrile neurological illness in endemic areas like India where multidrug resistance is rampant.

CASE PRESENTATION

An 18-year-old male student of tenth grade, resident of rural West Bengal, was admitted in the psychiatry ward with immobility, mutism, staring look, posturing, rigidity, negativism and withdrawal occurring for last 1 week and diagnosed as catatonia with Bush-Francis Rating Scale (BFRS) score of 18. On enquiry, it was revealed that he had a

history of fever 2 months back with abdominal pain, vomiting with subsequent hospitalisation where he was diagnosed with typhoid fever on the basis of blood culture positive for *Salmonella typhi* infection. He had no history of any psychiatric illness or similar episodes in the past or any occurrence of seizures. He was not taking any drugs other than oral cefuroxime and paracetamol. There was no history of substance abuse recently or in the past. Fever subsided after 7 days with oral cefuroxime. One week later, he developed muttering to self, social withdrawal, persecutory ideas, irritability persisting until catatonia set in. On admission his temperature was 98.6°F, pulse rate 88 bpm and blood pressure 120/78 mm Hg. His systemic examination revealed nothing suggestive. Kernig's sign was negative and Kayser-Fleischer ring was absent on slit lamp examination.

INVESTIGATIONS

His haematological and biochemical parameters were within normal limits. Cerebrospinal fluid analysis showed normal cytology and biochemical parameters. MRI of brain showed normal appearance. EEG was also within normal limits. Serological markers for malaria, leptospira, HIV, hepatitis B and C virus were negative. Levels of vitamin B₁₂ and B₆ were also within normal limits.

DIFFERENTIAL DIAGNOSIS

- ▶ Acute psychotic state
- ▶ Malaria
- ▶ HIV encephalopathy

TREATMENT

He was put on injection lorazepam 8 mg/day with which his catatonic symptoms improved the next day, only to reappear later. The reappearing symptoms of catatonia had very slow recovery rate. Then he was put on olanzapine 5 mg/day and 2 days later lorazepam 8 mg/day was added. Within a week his symptoms partially alleviated with BFRS score of 12.

OUTCOME AND FOLLOW-UP

His catatonic symptoms disappeared 2 weeks later but thereafter he developed resting tremor, bradykinesia, cog-wheel rigidity but without gait abnormality. He was started on amantidine 200 mg/day, tab lorazepam 2 mg/day and tab olanzapine 2.5 mg/day. Symptoms of parkinsonism improved partially and after 2 weeks pramipexole extended release 0.75 mg/day was added with complete recovery of symptoms within another 2 weeks.

To cite: Talukdar P, Dutta A, Rana S, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-010220

DISCUSSION

Typhoid fever is a bacterial disease caused by infection with *S typhi*. Typically, it presents as an acute febrile illness often accompanied by signs and symptoms such as headache, abdominal pain, diarrhoea or constipation and malaise.¹ With many reports of multidrug-resistant typhoid fever outbreaks from India, attention has been drawn to its newer facets, such as neuropsychiatric manifestations.^{2–4} Neurological complications are present in 50.4% of a series comprising 246 patients from India⁵ and in over 57% of a series of 959 patients in Nigeria.⁶

In older literature, a confusional or delirious state is the commonest manifestation occurring in 25–50% of all cases of typhoid.⁶ Other manifestations are less common and include semicoma, coma, generalised myoclonus, polyneuropathy, mononeuropathy, focal neurological deficits, spasticity, hypotonicity, tremor and basal ganglia disorders. Psychiatric manifestations include temporary amnesia, schizophrenia and rarely hypomania. Basal ganglia disorders are well described—a transient Parkinson's syndrome is seen in about 2% of cases⁶ while choreiform movements are well described in children with typhoid.^{7,8}

Recently outbreak of typhoid fever in an area along the Malawi-Mozambique border was associated with a range of early neuropsychiatric manifestations.⁹ The most common manifestations were related to upper motor neuron dysfunction, including spasticity, clonus and hyper-reflexia; a bradykinetic rigid syndrome; and ataxia. Other manifestations, including seizures, tremors and dysarthria, were also observed. Twenty per cent patients demonstrated moderate-to-severe features of parkinsonism, including bradykinesia, postural instability, facial masking and decreased arm swing.⁹

The presence of variable neurological manifestations suggests that typhoid produces dysfunction at numerous sites within the nervous system. Neurological illness associated with typhoid fever appears to resolve over time, with few ongoing sequelae, a feature that is important in the prognostic assessment of cases. The mechanism by which typhoid fever may produce neurological illness is unknown and a better understanding of the underlying pathophysiological mechanisms is needed. However, the possible mechanism is that *S typhi* endotoxins could transiently interfere with cholinergic–dopaminergic control of the basal ganglion in parkinsonian rigidity.¹⁰

Learning points

- ▶ Neuropsychiatric manifestations may complicate typhoid fever, and the diagnosis should be considered in persons with acute febrile neurological illness residing in or travelling from endemic areas.
- ▶ Parkinsonism can be acquired as a sequela of typhoid fever, which is rare but reversible when recognised and treated early.
- ▶ Emergence of multidrug-resistant *Salmonella typhi* infection is rampant all over the world and thus rational and optimum use of antibiotics is to be emphasised.

Contributors PT was treating physician. AD and SR coordinated all investigations and literature review. AT wrote the manuscript.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Parry CM, Hien TT, Dougan G, *et al.* Typhoid fever. *N Engl J Med* 2002;347:1770–82.
- 2 Agarwal S, Madhu SV, Guleriz JS, *et al.* The problem of emerging chloraniphenicol resistance in typhoid fever—a preliminary report. *J Assoc Physicians India* 1991;39:443–4.
- 3 Ali C, Kamili MA, Shah MY, *et al.* Neuropsychiatric manifestations of typhoid fever. *J Assoc Physicians India* 1992;40:433–5.
- 4 Khosla SN, Srivastava SC, Gupta S. Neuropsychiatric manifestation of typhoid. *J Trop Med Hyg* 1977;80:93–5.
- 5 Christie AB. *Infectious diseases epidemiology and clinical practice*. 3rd edn. London: Churchill Livingstone, 1980:47–102.
- 6 Osuntokun BO. Neuropsychiatric manifestations of typhoid fever in 959 patients. *Arch Neural* 1972;27:7–13.
- 7 Pohowalla IN, Ghai JOP. Typhoid encephalopathy in children. *Indian J Paediatr* 1957;24:137–42.
- 8 Sooo SL, Aneta PN. Typhoid fever: clinical picture and diagnosis. *Indian Child Health* 1961;10:69–76.
- 9 Sejvar J, Lutterloh E, Naiene J, *et al.* Neurologic manifestations associated with an outbreak of typhoid fever, Malawi-Mozambique, 2009: an epidemiologic investigation. *PLoS ONE* 2012;7:e46099.
- 10 Khosla SN. Three unusual cases of meningitis in children. *J Pediatr* 1992;43:51–60.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow