

## CASE REPORT

# GUILLAIN-BARRE SYNDROME IN A CASE OF TYPHOID FEVER: AN UNCOMMON ASSOCIATION

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### Abstract:

*Guillain-Barre syndrome (GBS) following typhoid is extremely uncommon and only few case reports are available in literature. The importance of this case report is to highlight upon the fact that a diagnosis of GBS should always be kept in mind whenever a patient of typhoid fever develops weakness. We report a young girl with blood culture proven typhoid fever that developed this very rare neurological complication quite early in the course of the disease. Following treatment with intravenous antibiotics and intravenous immunoglobulin, she was improved.*

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### Introduction:

*Salmonella* group of organisms causes typhoid fever. It has a high prevalence in tropical countries. The typical symptoms may not be seen in all patients and the disease may have unusual manifestations.<sup>1</sup> The incidence of neurological manifestations in typhoid fever varies widely. Central or peripheral system or both are additionally affected.<sup>2</sup> Encephalopathy is perhaps the foremost common neurological complication of typhoid fever.<sup>2</sup> Aphasia, benign intracranial hypertension, and cerebellar ataxia are other possible manifestations.<sup>3,4,5</sup> The cranial nerve palsies within the sort of palatal palsy and abducens palsy are noted.<sup>6</sup> The precise pathogenesis of those neurological manifestations is solely postulatory till now. Probably toxemia and metabolic dysregulation together with non-specific cerebral changes like edema and hemorrhage are to blame for the neurological manifestations.<sup>2,7</sup> Vasculitis or some ill-defined immune-mediated mechanisms might also be responsible.<sup>2</sup> GBS following typhoid is extremely uncommon and only some case reports are available in literature.<sup>4,8,9,10</sup> The importance of this case report

is to spotlight the actual proven fact that a diagnosis of GBS must always be kept in mind whenever a patient communicable disease develops weakness. This case report is to highlight a rare neurological complication of typhoid fever that physicians need to be aware of.

### Case report:

An 18-year-old girl hailing from Mirpur, Dhaka was admitted with fever for 5 days which initially started as low grade but increased progressively reaching highest recorded temperature of 104 °F, it was associated with chills and rigor and subsided by taking paracetamol. She also suffered from headache and had several episodes of vomiting. There was no abdominal pain no burning sensation during micturition. On the 3<sup>rd</sup> day of her admission she noticed weakness in all four her limbs, initially it started as tingling and numbness in her toes and feet later progressing to the point when she could no longer walk on her own. She felt similar weakness in her arms and was unable to lift anything heavy. There was no variation of weakness during the length of the day or with exercise. She also

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felt difficulty in swallowing on the 4<sup>th</sup> day of her admission which was both to liquids and solids. There was no pain in her throat or any regurgitation of food. She did not have any breathing difficulties, ptosis, or diplopia. Her bladder and bowel habit were normal. On examination she was found to be mildly anaemic, BP 100/70 mmHg, pulse 92 beats/min, Temp 102° F, Respiratory rate of 22 breaths/min, no lymphadenopathy, no organomegaly. On neurological examination, he was conscious, oriented with anxious looks. Depressed gag reflex and all other cranial nerves were normal. Motor examination revealed flaccid quadriplegia. Power in all her limbs, more in the lower limbs 3/5, than in the upper limbs 4/5, no planter response. Sensory system was intact.

On the same day she underwent nerve conduction study which revealed Acute Inflammatory Demyelinating Polyneuropathy (Acute Motor Axonal Neuropathy). She was started on IV immunoglobulin (400 mg/kg daily for 5 days). On the next morning she complained of severe respiratory distress with gradual fall in SpO<sub>2</sub>. She was immediately shifted to ICU where she needed intubation and mechanical ventilation (Fig.-1). She was then gradually weaned off from ventilation and extubated. After two more days in ICU she was shifted to cabin in a stable hemodynamic condition with still some weakness in her limbs. LP was done which showed raised CSF protein of 0.7 g/l (Ref 0.15-0.45 g/l) and cell count of only 2/ cm<sup>3</sup>. Routine hemogram and biochemistry were all normal except CPK which was 375 mcg/L. Blood culture showed growth of *Salmonella Typhi*. She was treated with IV immunoglobulin along with mechanical ventilation for GBS, IV antibiotics for typhoid, other supportive care and physiotherapy. A final diagnosis of typhoid fever complicated by GBS was made. Muscle power started to return after 5 days of therapy. On the 15<sup>th</sup> day of admission, power in all 4 limbs improved to 4/5 and

was discharged with some residual weakness, and advised follow-up in Neurology OPD and at one month of follow up she had made a complete recovery

#### **Discussion:**

Typhoid fever is a common infectious disease in developing countries like Bangladesh. Two thirds of people with GBS have experienced an infection before the onset of the condition. In many cases, the exact nature of the infection can be confirmed.<sup>12</sup> Neurological complications are not uncommon. In children, known and reported neurological complications are encephalopathy, meningism, spastic paralysis-cerebral origin, convulsions, meningitis, parkinsonian syndrome, sensory motor neuropathy, cerebellar involvement, and schizophrenic psychosis.<sup>1,13</sup> However, GBS is not common neurological presentation in typhoid fever.

GBS is an immune-mediated polyneuropathy that has often been associated with a variety of infectious agents such as bacteria, and virus.<sup>13</sup> A plausible mechanism for GBS in typhoid is that the generation of IgM antibodies against the bacterial capsule by a non-T cell-mediated mechanism, which cross-react with myelin gangliosides.<sup>11</sup> There are, however, very few reports of GBS associated with typhoid fever in pediatric age group<sup>11,14,15</sup> Datta et al. also reported a case of typhoid fever in a 10-year-old girl, who developed GBS subsequently as a complication of typhoid fever.<sup>16</sup> The present case report differs from the previous reports in age of presentation (presented at the age of 17 years), early development of GBS following typhoid fever (by day 8 of illness).

#### **Conclusion:**

This case report attempts to highlight the fact that typhoid fever can be associated with unusual neurological complication like GBS quite early in the course of the illness; also, prognosis in such cases seems to be relatively good. In contrast to the usual benign course of uncomplicated typhoid fever, development of GBS can dramatically change the course as without prompt diagnosis and institution of management, the condition may be life-threatening.

#### **Conflict of Interest:**

The authors stated that there is no conflict of interest in this article.

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**Fig.-1:** 1 A 18 years old girl with typhoid fever admitted into ICU severe respiratory distress following GBS.

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