CASE REPORT

Intracranial Haemorrhage in Typhoid Fever

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ABSTRACT

Intracranial haemorrhage in typhoid fever is very rare. We report another case of non-traumatic intracranial hemorrhage in a 6-year-old boy suffering from typhoid fever, unconsciousness, seizure and non-coherent speech. Investigations revealed severe thrombocytopenia and prolonged prothrombin time. CT scan of brain showed intraparenchymal haemorrhage in frontal regions bilaterally with perilesional oedema, subarachnoid bleed and extension into the lateral ventricles. No aneurysm or arterio-venous malformation was seen on MR angiography. The patient recovered without any neurological deficit.

Key words: *Typhoid. Intracranial Haemorrhage. Thrombocytopenia. Prothrombin time.*

INTRODUCTION

Various reports have documented a wide range of neuropsychiatric manifestations of typhoid.[1] Intracranial haemorrhage in typhoid fever is, however, very rare.[2] We report another case of the same.

CASE REPORT

A 4-year-old male child developed high grade continuous fever 8 days prior to admission. Five days later, he suddenly fell backwards while squatting on his bed, which was followed by a brief spell of unconsciousness, without any headache, vomiting, seizures, bleeding, otorrhoea or rhinorrhoea. The patient soon afterwards began behaving abnormally with irrelevant and sometimes incoherent speech. On the day of admission, he had generalized tonic spasm of the body followed by altered sensorium. During illness, he was receiving paracetamol and amoxicillin-clavulanic acid in doses appropriate for his weight. He had measles-like illness 28 days prior to this febrile episode. There was no past history of headaches or seizures. On examination, he was found to be toxic looking with coated tongue, fever, tachypnoea and tachycardia. His blood pressure was normal. Severe pallor was noted without any significant lymphadenopathy or skin haemorrhage. Skull examination was normal with no cranial bruit on auscultation. He was comatose with generalized hypertonia and hyper-reflexia. There were no demonstrable cranial nerve palsies, cerebellar signs or meningeal irritation signs. Per abdomen examination revealed splenomegaly (2 cm palpable below the costal margin), and hepatomegaly (liver span 12.5 cm). No abnormality was detected on examination of other systems. His hemoglobin was found to be 5 gm%. Total leukocyte count was 8,200/cu mm with 68% polymorphs and 32% lymphocytes. Platelet count was 20,000/ cu mm. Blood urea nitrogen, creatinine and electrolytes were normal. Liver function tests were abnormal with aspartate aminotransferase being 64 I.U/dl and alanine aminotransferase 72 I.U/dl. Alkaline phosphatase and bilirubin were normal. APTT was normal, whereas prothrombin time was prolonged with INR of 1.54. Tube Widal test was positive with titres of O and H antibodies being 1/320 and 1/640 respectively. Blood culture was sterile. Fundus examination showed papilledema. Non-contrast and contrast enhanced CT scan of the brain revealed intraparenchymal haemorrhage measuring 6.8 x 4.2 x 3.2 cm in both frontal regions with perilesional oedema, subarachnoid haemorrhage and extension into the lateral ventricles bilaterally (Figure 1). No aneurysm or arterio-venous malformation was seen on MR angiography.

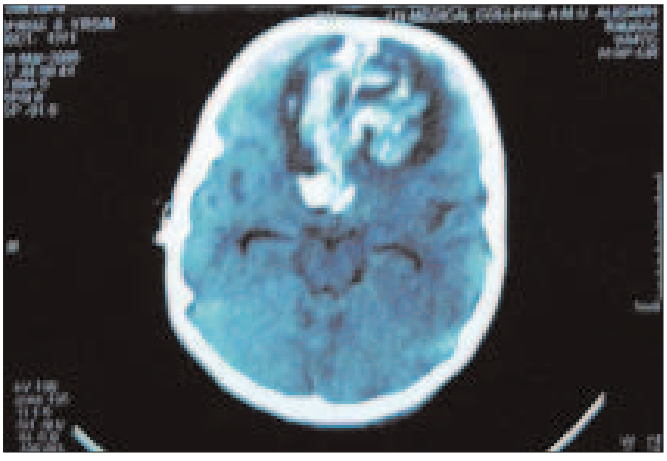

Figure 1: Non-contrast CT scan of the brain showing intraparenchymal bleed in bilateral frontal regions with perilesional oedema.

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The patient was given blood transfusion, injection ceftriaxone, and injection vitamin K besides supportive management. The parents of the patient refused any neuro-surgical intervention. He showed progressive improvement and at the time of discharge (after 8 days of hospitalization) he was fully conscious with no neurological deficit. The platelet count after 3 weeks of illness had risen to > 1,00,000 /cu mm and liver enzymes and prothrombin time had returned to normal.

DISCUSSION

The present case was diagnosed as having typhoid despite the blood culture being sterile. Blood culture was negative probably due to the prior use of antibiotics. In the absence of a positive blood culture, a single Widal test needs to be interpreted with care, keeping a high cut off titre for agglutinins can be diagnostic for typhoid. O agglutinin titre of >1/160 have a sensitivity of 70%, specificity of 97%, positive predictive value of 87.5%, negative predictive value of 91.5%, and overall accuracy of 90.8%.[3] Similarly in Vietnam, using a cut off of >200 for O agglutinin or > 100 for H agglutinin, test performed on acute phase serum could correctly diagnose 74% of blood culture positive typhoid fevers.[4] According to some authors at a cut off titres of O agglutinin = 80, the diagnostic sensitivity and specificity were 90% and 87.3%, and for H agglutinin = 80, the diagnostic sensitivity and specificity were 90% and 88.5% respectively.[5]

Neuro-psychiatric manifestations of typhoid include delirium, aphasia, seizures, meningitis, encephalomyelitis, transverse myelitis with paraplegia, peripheral and cranial neuritis, optic neuritis, Guillain Barre syndrome and psychotic syndromes and hemiplegia.[1,6] Pathological changes in the central nervous system have been poorly described but include ring haemorrhages, capillary thrombi, perivenous demyelinating leukoencephalitis, and meningitis. To the best of the author's knowledge, only a single case of intracerebral haemorrhage, as a complication of typhoid fever, has been reported till date.[2] Intracranial haemorrhage in the presently reported case could probably be attributed to thrombocytopenia and coagulopathy that was documented. Any underlying arteriovenous malformation or aneurysm was excluded by MR angiography.

Thrombocytopenia and coagulation abnormalities like hypofibrinogenemia, elevated prothrombin time, partial thromboplastin time, and elevated FDP are common in enteric fever and are usually self- limited.[8] Prevalence of thrombocytopenia in this disease is 10-15%.[9] According to some authors, thrombocytopenia is a marker of severe disease and accompanies DIC.[10] Approximately 10% patients experience a haemorrhage.[8] Salmonellae have been reported to stimulate phagocytosis of neutrophils, red blood cells and platelets by histiocytes within the bone marrow resulting in pancytopenia.[11] Salmonella endotoxin has also been incriminated in the causation of features of typhoid including thrombocytopenia.[12] Other mechanisms of thrombocytopenia in infection include decreased production, immune mediated destruction, and platelet phagocytosis mediated by increased macrophage-colony stimulating factor.[13]

This case report shows that although the thrombocytopenia and partial coagulopathy in typhoid is usually self-limited, it could be a cause of a potentially serious bleed and may warrant the use of appropriate replacement of blood, platelets and clotting factors.

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