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Bilateral abducens nerve palsy secondary to typhoid fever in remote area: A case report

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Abstract

Neurological manifestation is a potential complication related to typhoid fever. Isolated cranial nerve palsy in typhoid fever is extremely rare with no specific guidelines regarding the management of cranial nerve palsy in typhoid fever. We report a 28-year-old woman who was admitted with a 7-day history of dizziness, headache, and binocular diplopia. She had a history of hospitalization due to typhoid fever two weeks earlier. Examination of her eyes showed bilateral abducens nerve palsy. Her head CT scan with contrast showed no radiologic abnormalities. There was improvement after intravenous dexamethasone and oral prednisone administration. Although most cases of typhoid fever are uncomplicated, patient may present to the neurologist or ophthalmologist with neurological and ocular symptoms.

Keywords: Bilateral abducens nerve palsy, case report, typhoid fever

Introduction

Typhoid fever is mainly caused by Typhoidal Salmonella strains with a classic typhoid triad including fever, abdominal pain and chills. A definitive diagnosis of typhoid requires culture test as the gold standard [1]. Typhoid fever has been associated with many neurological manifestations that occur in 3-50% of patients, such as headache, encephalitic disorders, acute psychosis, cerebral edema, myelitis, cerebral abscess, cerebellar ataxia, and meningitis [1]. Cranial mononeuropathy however is a rare complication [2].

Case Report

A 28-year-old woman presented with a 7-day history of dizziness, headache, and binocular diplopia. Symptoms of dizziness and headache worsened when looking at long distances and glancing to the lateral side, thus interfering with her activities. She had a history of hospitalization due to typhoid fever at another hospital two weeks earlier. Her laboratory report at another hospital revealed a low WBC count and the Widal test showed 1/400 for Salmonella typhi O. The results of NS-1, IgM Anti Dengue, and IgG Anti Dengue were negative. She was treated with intravenous antibiotic and symptomatic medications for several days, and later being discharged 8 days prior admission to our hospital. She didn't have any history of past illness, trauma, and immunization. On her initial examination, her blood pressure was 120/70 mmHg, heart rate was 74/min, respiratory rate was 20/min, and temperature was 36.2°C. No abnormalities were found on general physical examination. On ophthalmic examinations, her visual acuity was 2/60 in both eyes and her best corrected visual acuity was 20/30. Slit lamp examination of her eyes did not reveal any abnormalities in the anterior and posterior segments. Fundus examination in both eyes appeared normal. On neurological examinations, bilateral abducens nerve palsy was found (Figure 1). Extraocular movements examination showed that both eyes turned inward toward the nose in the primary gaze and were unable to abduct properly to the temporal sides. The other cranial nerves were normal in the examination. No meningeal signs were present. The results of motor and sensory examinations of the upper and lower limbs were normal. Physiological reflexes were normal and no pathological reflexes were found.

When the patient was admitted to our hospital, laboratory report showed no abnormalities. Computerized tomography (CT) of the brain with contrast was performed and no radiologic abnormalities were found (Figure 2).

The patient was treated with intravenous dexamethasone at a dose of 10mg/day for 3 days, and continued with oral prednisone at a dose of 60mg/day for 5 days. The symptoms improved on the 3rd day of hospitalization

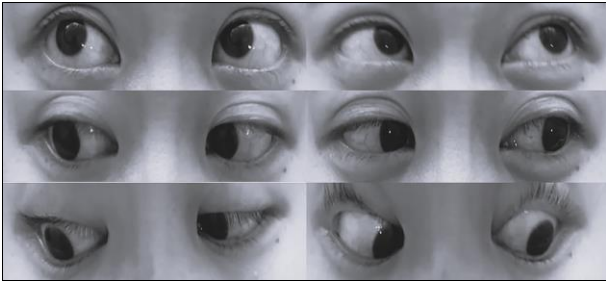


Fig 1: Bilateral Abducens Nerve Palsy

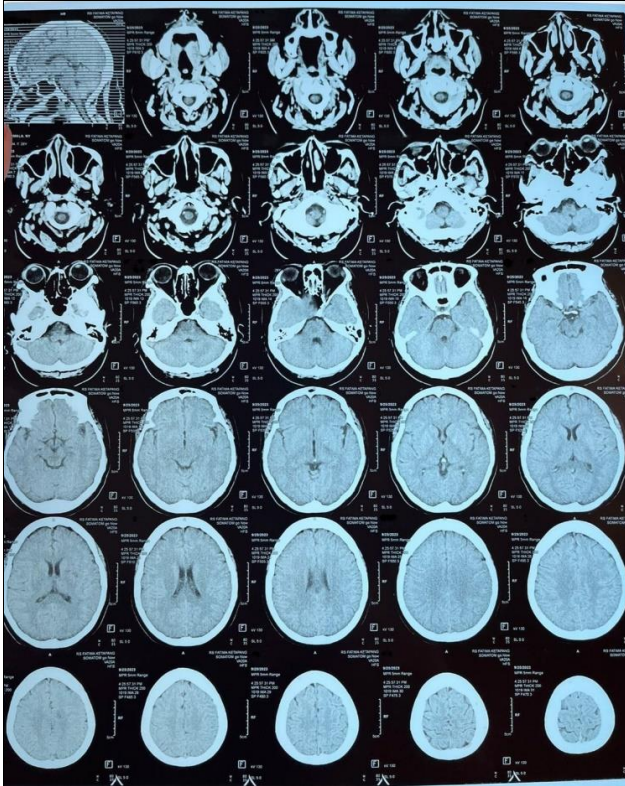


Fig 2: Brain CT with Contrast

Discussion

During the second week of typhoid fever, the spectrum of neurological manifestations usually occurs [3]. The pathogenesis of neurotoxicity in typhoid fever appears from lipid a fraction of the somatic lipopolysaccharide antigen that can affect any part of central nervous system. Abducens nerve palsy with papilledema may develop due to stretching or compression of the nerve in the context of raised intracranial pressure [2]. No papilledema or other signs of increased intracranial pressure were found in our patient so a similar pathogenesis cannot be speculated.

Another possible mechanism which might play a role includes vasculitis with peri-vascular cuffing since arteritis is a reported complication in typhoid fever. It is hypothesized that the vessels supplying the bilateral abducens nerve could have vasculitic changes thus disrupting the function of the nerve [1].

Isolated cranial nerve palsy in typhoid fever is extremely rare with only a few cases being reported in the medical literature until now. Thapa *et al* reported a 17-year-old young woman with typhoid fever who developed left lateral rectus palsy on the 7th day of illness, which resolved after a month [2]. The case of a 17-year-old woman with typhoid fever after consumption of raw fish was reported by Taslimi

et al. Left abducens nerve palsy started on the 3rd day of admission, which resolved after five days of treatment [1]. Joshi *et al* reported three cases of typhoid fever with isolated cranial nerve palsies [4]. A case of bilateral abducens nerve palsy in typhoid fever as presented in our case has been reported by Bhatt *et al*, but in that case, abducens nerve palsy was found alongside the left facial nerve palsy due to pseudotumour cerebri [5].

There are no specific guidelines regarding the management of cranial nerve palsy in typhoid fever. The case reported by Thapa *et al* mentioned earlier showed improvement with methylprednisolone over a month along with lateral rectus muscle strengthening exercises and azithromycin for a week. Consideration of steroid administration was based on the possibility of blood vessel inflammation [2].

The prognosis for neurological deficits in typhoid fever is uniformly good with complete resolution on follow up [4].

Conclusion

Although most cases of typhoid fever are uncomplicated, patient may present to the neurologist or ophthalmologist with neurological and ocular symptoms. Further studies are needed to explain the hidden process of pathologic mechanisms of isolated bilateral abducens nerve palsy in typhoid fever.

Conflict of Interest

Not available

Financial Support

Not available

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