

Diplopia Caused by Salmonella enteritidis Infection

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Abstract: The aim of this paper was to show the potential of Salmonella enteritidis infection to cause Diplopia as a consequence of Papilledema. A case of Salmonellosis in a 23 year-old female, who presented with high grade fever, non-specific abdominal pain, nausea and diplopia only on dextroversion, is presented. Prompt diagnosis and early management with IV antibiotics resulted in resolution of symptoms and drastic improvement. Salmonella infection can lead to significant Papilledema. Early diagnosis and adequate management can lead to resolution of infection.

Key words: Salmonella, infection enteritidis, diplopia, Papilledema.

I. Introduction

Typhoid fever is caused by Salmonella typhi. It leads to enteric fever, septicaemia and gastroenteritis. Salmonella can rarely affect the eye either by direct infection or rarely by immune-mediated mechanism. Ophthalmic complications occur in a small number of patients with Salmonella induced fever. Duke Elder reported occurrence iritis, uveitis, choroditis and panuveitis¹. Encephalitis and bilateral optic neuritis have been described in patients with typhoid fever, in whom the vision recovered to normal². There is also a report on a case of bilateral optic neuritis in a 3-year-old girl, consequential to enteric typhoid, which entailed transitory loss of vision and restitution of vision within 3 months³. Papilledema following a Salmonella enteritidis infection has not been reported in literature, this case is reported for its rarity and varied presentation.

II. Case Report

23 year old female presented to Nethradhama Super speciality eye hospital with a 15 days history of high grade fever, headache and nausea and non-specific abdominal pain following consumption of sea food at a local restaurant, following which she developed diplopia on dextroversion.

On ophthalmic examination, her best corrected visual acuity was 20/20, N6 in the both eye. Anterior segment examination including slit lamp bio microscopy was normal. Colour vision (using Ishihara's pseudo isochromatic chart) was normal in BE. Contrast sensitivity in BE using the Pelli Robsons chart was 90%. Diplopia charting showed diplopia only on dextroversion. Fundus examination in the both eye (Figure 1a, 1b) revealed c lear media with blurring of the disc margins, with elevation of the disc by 2 DD.



Figure 1a -RE Figure 1b-LE

Field examination was normal in BE. (Figure 2a, 2b)

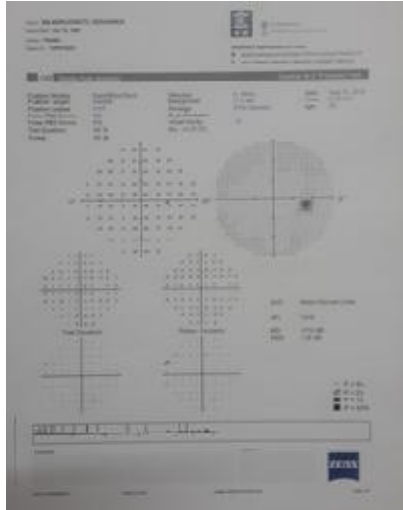


Figure 2a- RE

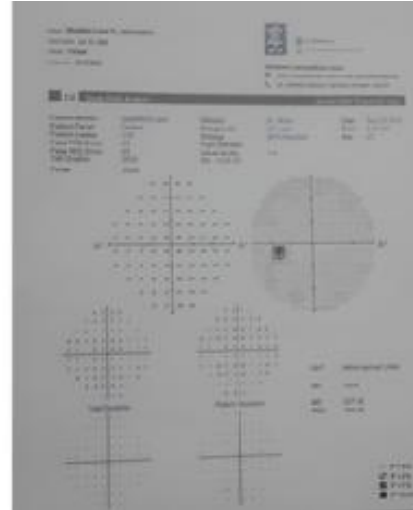
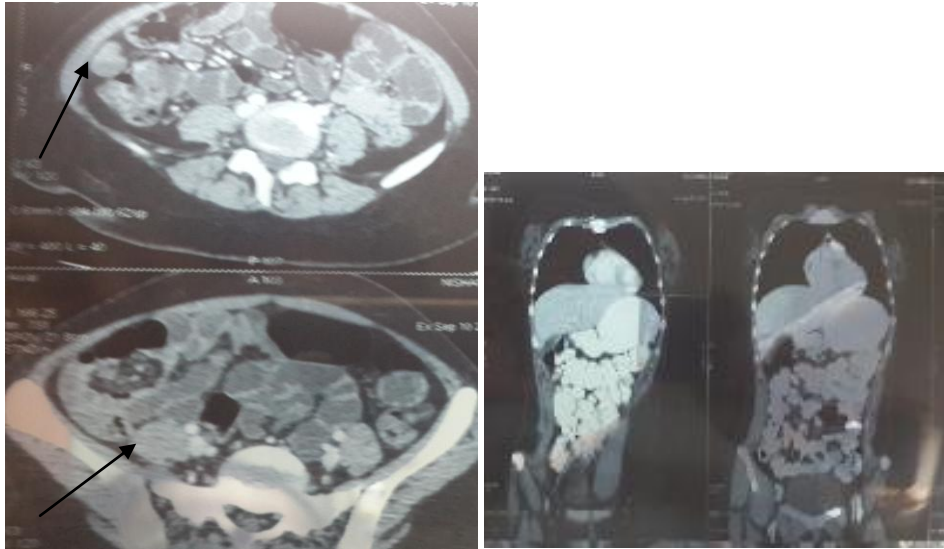


Figure 2b- LE

III. Laboratory Findings

- CRP was elevated **149 mg/ml**.
- ESR was high **105 mm/hr**.
- Urine routine showed **8-10 cells/HPF**.
- Routine liver and kidney function tests were normal.
- Peripheral smear examination for malarial parasite was negative.
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- CSF cytology showed no malignant cells.
- CSF analysis was normal .
- PCR of CSF fluid for TB was negative.
- Indian ink examination of CSF for Cryptococcal infection was negative.
- CSF culture for AFB was negative.
- Gram staining of the CSF **showed occasional pus cells**.
- GeneXpert MTB /RIF a semi nested Real time PCR of CSF was negative for TB
- ANA profile was negative .
- Blood culture showed no growth in aerobic culture.
- WIDAL test (tube agglutination)-** Salmonella typhi O < 20
- Salmonella typhi H was 320**
- Salmonella para typhi A H <20
- Salmonella para typhi B H < 20
- Urine culture **was positive for Salmonella typhi .**
- Complete blood count showed Blood haemoglobin to be **9.8 g/dl**
- Bone marrow aspiration showed a normoblastic bone marrow.
- Gram staining of the bone marrow showed no organism.
- TB PCR of the bone marrow was negative.
- IgM and IgG ELISA for dengue was negative.
- Tube agglutination test for brucella was negative.
- HIV rapid test was non reactive
- Contrast CT of the chest , abdomen and pelvis showed mild terminal ileal wall thickening suggestive of **terminal ileitis with mild adjacent mesenteric lymphadenitis and few tiny para- aortic group of lymph nodes** .(Figure 3 a, 3b)



Figures 3a, 3b,

After a wide range of investigations were performed a final diagnosis of salmonella enteritidis was made and the patient was started on Inj Ceftriaxone 1gm IV BD for 5 days. The patient was reviewed 1 week after starting iv antibiotics when she showed improvement and resolution of papilledema and diplopia.(Figure 4a, 4b) . Her Contrast sensitivity in BE using the Pelli Robsons chart improved to 95%.



Figure 4a- RE



Figure 4b-LE

The repeat CT cans scans showed resolving ileitis(figure 5a).

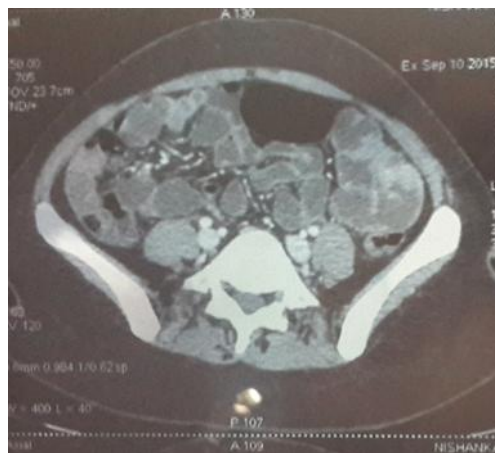


Figure 5a

IV. Conclusion

The Salmonella H antigens or the Flagellar antigens are strongly immunogenic which are positive in the 2nd week of infection and induce antibody formation rapidly and in high titres following infection or immunization. Blood culture is usually positive in 1st week in only half the cases. The stool and the urine culture is positive in the 3rd and 4th week and is not usually positive during the acute phase of the disease. Bone marrow culture increases the diagnostic yield to about 80 % of cases.

Unilateral 6th cranial nerve palsy which occurs in the context of raised ICT may be the false localising sign due to stretching of the nerve in its long intracranial course or compression against the petrous temporal bone. Diplopia can be a consequence of the compression.

The combination of a history of being at risk for infection and a gradual onset of fever that increases in severity over several days should raise suspicion of typhoid. Patient may present to the ophthalmologist with ocular symptoms and a few systemic complains, a high index of suspicion and a thorough systemic evaluation will facilitate early diagnosis and reduce the morbidity and sequelae that would result in a more complicated scenario.

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