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Case Report

Scrub Typhus with Partial Superior Orbital Fissure Syndrome

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Abstract

We report a case of a 33 year old woman suffering from scrub typhus who presented with binocular horizontal diplopia. Magnatic Resonance Imaging of Brain showed thickening and enhancement of the lateral wall of cavernous sinus, extending to involve orbital apex. She improved after treatment with doxycycline. Various ophthalmological manifestations of scrub typhus have also been reviewed.

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Introduction

Scrub typhus is caused by Orientia tsutsugamushi, transmitted to humans by bite of larval stage of trombiculid mite. It is an acute febrile, infectious illness characterized by fever, headache, myalgia, cough, injected conjunctiva and gastrointestinal symptoms. An eschar at the site of chigger bite, regional lymphadenopathy and a maculopapular rash may provide a clue to diagnosis. Detection of O.tsutsugamushi by pooled antigen ELISA has shown very good sensitivity (94%) and specificity (91%).[1] Scrub typhus was first documented in our region in 2006.[2]

The disease is characterized by focal or disseminated vasculitis and perivasculitis which may involve the lungs, heart, liver, spleen and central nervous system.[3] Common ocular presentation are conjunctivitis, keratitis, non-granulomatous uveitis, retinitis, retinal vascular & optic disc involvement and neuroophthalmic manifestations.[4] We report a case of young female suffering from scrub typhus with partial superior orbital fissure syndrome.

Case Report

A 33 years old female, farmer by occupation, presented with fever, generalised body aches and headache for 10 days. She complained of double vision for 6 days which was worse on looking towards her left. There was no history of drooping of upper eyelid or deviation of angle of mouth. On ophthalmological examination, Visual acuity was 6/6 in both eyes with left eye convergent about 15˚ and limitation of abduction in left eye. Both pupils reacted normally to light without any afferent pupillary defect. Slit lamp examination of the anterior segment of both eyes was normal. Fundus examination on direct and indirect ophthalmoscope was also normal. There was no proptosis. On systemic examination, she was conscious and well oriented to time and space. On per abdomen palpation there was splenomegaly. On CNS examination, along with the involvement of the left sixth nerve there was sensory loss in the region of ophthalmic division of trigeminal nerve on left side and rest neurological examination was unremarkable.

Total leucocyte count, liver and kidney function tests, cerebrospinal fluid examination (CSF) were normal. Anti nuclear antibodies in serum were also negative. In view of the endemicity of scrub typhus in the region, patient was empirically treated with oral capsule doxycycline 100 mg twice daily. The diagnosis of scrub typhus was confirmed when IgM antibodies to scrub typhus were detected by ELISA. MRI Brain showed thickening and enhancement of the lateral wall of cavernous sinus, extending to involve orbital apex on left side (Figure 1). Patient improved and she became afebrile within 24 hours. Over next 3 days, her headache and diplopia also decreased. She was discharged after 6 days but still had diplopia which improved over next 4 weeks. On follow up visit after 2 months, she was asymptomatic.

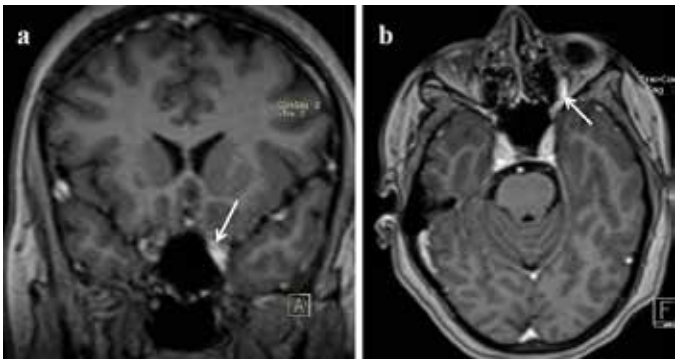

Figure 1: *Post contrast MRI coronal (a) and axial (b) images of brain showing increased enhancement in the left orbital apex (arrows)*

Discussion

Superior Orbital Fissure Syndrome (SOFS) consists of dysfunction of the oculomotor nerve (III), the trochlear nerve (IV), the abducens nerve (VI) and the ophthalmic division of the trigeminal nerve (V1). In Orbital Apex Syndrome (OAS) there is involvement of the optic nerve (II) additionally. The causes of both SOFS and OAS are many, i.e. inflammation, infection, neoplasia, iatrogenic, trauma and vascular conditions.[5] There is a wide range of neurological manifestations reported with scrub typhus. The CNS invasion is much more common than is suggested by symptoms alone. Necropsy studies show brain parenchymal lesions but in contrast, the meningeal involvement which are more commonly involved by O. tsutsugamushi and the overall histological picture in the CNS is best described as a meningoencephalitis. Dissemination of rickettsia from the periphery to the CNS is hematogenous.[6]

Scrub typhus is characterized by focal or disseminated vasculitis and perivasculitis which can lead to various ophthalmological manifestations depending upon extent of

involvement of various structures. Various ophthalmological manifestations reported are conjunctivitis, keratitis, non-granulomatous uveitis, retinitis, retinal vascular changes, optic disc involvement and neuroophthalmic manifestations, most of patients are asymptomatic and disease is self limiting.[3] Recently Kim et al reported a 69-year-old man suffering from scrub typhus who developed ptosis and ophthalmoplegia. MRI Brain showed a focal nodular lesion in the anterior cavernous sinus. He was treated with doxycycline and his ptosis and ophthalmoplegia resolved after treatment.[7] Our patient had paresis of left lateral rectus with diplopia worst on left lateral gaze along with sensory loss in the region of ophthalmic division of trigeminal on the same side. She had complete recovery after treatment.

Kim et al and Lee YH et al described 6th nerve palsy in patients suffering from scrub typhus.[8,9] Cho et al reported bilateral optic neuritis with scrub typhus.[10] D'sa et al reported a patient of scrub typhus with difficulty in seeing objects clearly; his family members also noted that his eyes were moving irregularly in different directions. His ophthalmic examination showed Spontaneous Rapid Saccades present in all directions of gaze, voluntary movement present in all directions and no restriction of eye movement in any direction with normal visual acuity. His IgM antibodies for scrub typhus were positive. His CSF analysis and imaging of the brain was normal. He was initiated on doxycycline, opsoclonus decreased upon treatment and he recovered completely on follow up after 2 weeks.[11]

Every case of fever with skin rash living in or returning from endemic area should be evaluated for ophthalmic and neuro-ophthalmic involvement. Doxycycline is the treatment of choice for scrub typhus disease but prevention is the main stay of rickettsial infection control.

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