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Case Report:

Scrub Typhus Presenting as Acute Mastoiditis.

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Abstract: Scrub typhus, a zoonosis, is known to present with varied clinical presentation. We present a case of acute mastoiditis who did not respond to conventional antibiotic therapy. The detailed repeat clinical examination revealed lymphadenopathy with eschar and IgM antibodies for scrub typhus by ELISA were positive. Patient had dramatic response to doxycycline therapy.

Key Words: Ear disease; Rickettsial disease; Himachal Pradesh

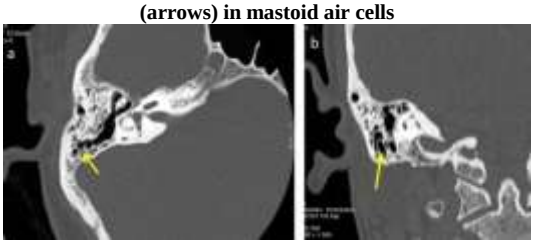
Introduction:

Scrub typhus is caused by *Orientia tsutsugamushi* and it has become a major public health problem in many parts of World. The infection manifest clinically as headache, myalgias, nausea, vomiting, breathlessness and pathognomic "eschar" is noted in 40-50% of cases. Doxycycline is drug of choice for treatment of scrub typhus.[1] Scrub typhus is an established disease in our area.[2] We present a case of scrub typhus with features of acute mastoiditis that did not respond to conventional antibiotic therapy but responded to doxycycline.

Case Report:

A 28 years old female from agricultural background presented with pain in right ear, tinnitus associated with of fever for last 6 days. There was no history of discharge from ear, vertigo or similar complaints in past. On examination she was febrile, pulse was 110/minute, BP was 110/70 mm of Hg and rest of general physical examination was normal. There was no rash and palpable lymph node at this stage. On local examination of ears, there was tenderness over tragus and oedema over mastoid bone with tenderness over right mastoid tip. The examination of external auditory canal and tympanic membrane revealed congestion on right side. Examination of nose and throat was normal except presence of deviation of nasal septum toward left side. Rest of systemic examination was normal. Her haemoglobin was 12.4%, total leucocyte count was 7160/mm3 with 76% polymorphs and ESR was 35 mm in Ist hour. Her blood biochemistry was normal. X-ray Right Mastoid bone was normal. The clinical possibility of acute mastoiditis was entertained and she was treated empirically with Inj. Amoxycillin and Clauvenic Acid, metronidazole and diclofenac sodium. Her HRCT Scan of temporal bone revealed fluid in mastoid air cells on right side without sclerosis(Figure: 1), middle and internal ear on right side and whole of left side was normal. There was no response to therapy for next three days, in the meantime patient developed generalised lymphadenopathy.On repeat systemic examination an eschar was noted on abdominal wall (Figure: 2). Keeping in view presence of eschar and occurrence of scrub typhus in our area, patient was started on doxycycline. Her serum showed IgM antibodies by ELISA (InBios) to scrub typhus. She was afebrile in next two days and pain in ear also improved. She was discharged after 7 days therapy of doxycycline and was advised to complete 14 days therapy.

Fig. 1: HRCT Scan of Right Temporal Bone (a - above) Axial Section (b - below) Coronal Section showing fluid (arrows) in mastoid air cells



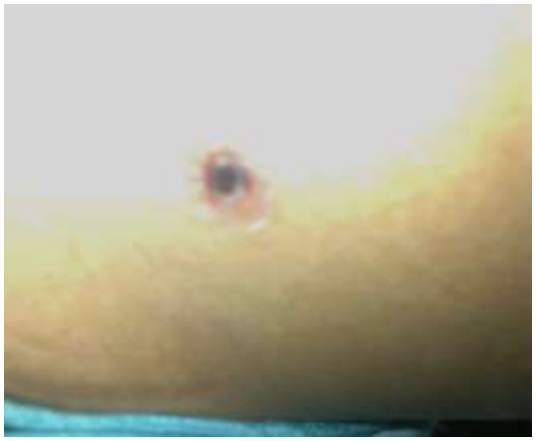


Fig. 2: Photograph showing Eschar on Abdominal wall

Discussion:

Scrub typhus is transmitted to human by the bite of larvae of leptotrombidium species mite. The infection begins by local multiplication at the site of the bite producing a papule which ulcerates and forms a black crust called eschar. Regional lymphadenopathy occurs followed by generalized lympnadenopathy. The bacterium is an intracellular organism which proliferates on the endothelium of small blood vessels releasing cytokines which damage endothelial integrity, causing fluid leakage, platelet aggregation, polymorphs and monocyte proliferation, leading to focal occlusive endangitis causing micro-infarcts. This process especially affects skeletal muscles, skin, lungs, kidneys, brain and cardiac muscles.[1,3] The involvement of the ear in the form of hearing loss has been reported in of patients of scrub typhus and is a useful diagnostic clue to scrub typhus in endemic areas.[4] The exact mechanism is not known, however both vascular injuries as well as immunological mechanisms have been implicated for deafness.[5]

On screening English language literature for reports of scrub typhus and mastoiditis using the MEDLINE/PubMed database till September 2013, we could not get any literature on the subject. Our patient presented with features of acute mastoiditis which was confirmed by HRCT scan also but no identifiable cause could be identified without any response to conventional antibiotic therapy. There was presence of eschar on abdomen with positive IgM antibodies by ELISA and there was a dramatic response to doxycycline. She was afebrile in 48 hours of starting doxycycline. The ELISA is highly accurate for the detection of IgG and IgM antibodies induced by *O. tsutsugamushi.[*6] But in clinical practice, diagnosis of scrub typhus is based upon the geographical history, physical signs and is confirmed by the rapid response to specific chemotherapy.

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