

## Epididymo-orchitis : A rare manifestation of scrub typhus in a child

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**Key words** Doxycycline; epididymo-orchitis; scrub typhus

Scrub typhus is a common infectious disease in tropical countries but has protean manifestations. The classical presentation of fever with eschar and accompanying gastrointestinal, respiratory or neurological involvement is seen only in a small percentage of cases. Unusual and distracting symptoms and signs have been increasingly associated with scrub typhus, hence, a high index of suspicion should be entertained in febrile children, especially in endemic areas. We report a case of scrub typhus presenting as bilateral epididymo-orchitis. This case is being reported for its rarity as there is only one previous report of such a presentation of scrub typhus in children.

### Case report

A 5-yr old male child, from an urban area of south India, presented with a three-day history of fever, vomiting, loose stools, diffuse abdominal and left groin pain. Fever was moderate grade, intermittent without any accompanying rigors. The child was febrile and toxic with no pallor, icterus or bleeding manifestations. Significant lymph node enlargement was found in the left groin. The nodes were discrete, mobile, firm and tender with erythema and warmth of the overlying skin. The right epitrochlear nodes were also palpable. Systemic examination was essentially normal except for a mild, firm splenomegaly. External genital examination was normal at the time of admission.

Total leukocyte count was 4000 cells/mm<sup>3</sup> with a neutrophilic preponderance (70%), thrombocytopenia ( $1.25 \times 10^5$  cells/mm<sup>3</sup>), an elevated erythrocyte sedimentation rate (46 mm/h) and C-reactive protein (187 mg/dl). Smear and antigen testing for malarial parasite was negative. Urinalysis, dengue and leptospira serology were also negative. Serum electrolytes, liver function, renal function and serum amylase were found to be within normal range. Chest X-ray and ultrasound of the abdomen were normal. Cultures of blood and urine were sterile.

In view of acute inguinal lymphadenitis, the child was started on intravenous cloxacillin but there was neither resolution of lymphadenitis nor defervescence of fever even after five days of antibiotics. On Day 6, the child

was found to have bilateral tender, enlarged testes with inflammation of the overlying skin suggestive of epididymo-orchitis (Fig. 1). The usual conditions presenting with epididymo-orchitis in children<sup>1</sup>, namely urinary tract infection, bacterial sepsis, tuberculosis, brucellosis, filariasis and leukaemia were considered in the differential diagnosis and ruled out by appropriate history, relevant clinical examinations and investigations. However, as India is endemic for filariasis, empiric therapy with diethylcarbamazine was started, even in the absence of any positive evidence. The child did not show any resolution of symptoms with antifilarial treatment either.

At this stage, in the setting of moderate grade fever with lymphadenitis, splenomegaly and thrombocytopenia, that was unresponsive to antibiotics, a diagnosis of scrub typhus<sup>2</sup> was considered and confirmed by a positive IgM enzyme-linked immunosorbent assay (ELISA). Treatment with doxycycline<sup>3</sup> was started and there was a prompt defervescence of fever, with complete resolution of lymphadenitis and epididymo-orchitis, within 24 h. Doxycycline was given for a period of five days.

Scrub typhus is a rickettsial infection caused by *Orientia tsutsugamushi*, a small gram negative coccobacillus, which is an obligate intracellular parasite. It is transmitted to humans through the bite of the larva (chig-



Fig. 1: Clinical photograph showing testicular swelling and erythema of the scrotum.

gers) of a trombiculid mite which serves both as vector and reservoir<sup>4</sup>. Humans are accidental hosts. The disease is not directly transmitted from person-to-person and only the infected larval stage can transmit the disease. Humans acquire the disease when an infected chigger bites them while feeding and inoculates *Orientia tsutsugamushi* pathogens. The bacteria multiply at the inoculation site with the formation of a papule that ulcerates and becomes necrotic, evolving into an eschar. Regional lymphadenopathy occurs that progresses to generalised lymphadenopathy within a few days. The target cells of *Orientia tsutsugamushi*, in humans, are endothelial cells throughout the body, macrophages and cardiac myocytes. Rickettsial infection occurs, causing focal or disseminated vasculitis<sup>4</sup> and perivasculitis with significant vascular leakage and end-organ injury to lung, heart, liver, spleen and central nervous system, thus explaining the various unexpected clinical manifestations.

In the child reported, the absence of eschar/ulcer and a presentation without classical symptomatology caused a delay in diagnosis. Though every attempt should be made to look for the presence of eschar, especially at unusual sites, its absence does not rule out the disease since it is reportedly detected in only 30–50% of the cases<sup>5–6</sup>.

In this child, the presence of localized tender inguinal adenitis in the absence of an eschar, prompted us to treat the condition as bacterial adenitis. Furthermore, even after the development of epididymo-orchitis we did not consider the diagnosis of scrub typhus as it is a very rare presentation. Even after a thorough literature search we could find only one case report of scrub typhus presenting as epididymo-orchitis in a child, from Mysore, India<sup>7</sup>. The exact pathogenesis of epididymo-orchitis is presumed to be infection-induced vasculitis as described in other organs. In our experience, in all the cases of scrub typhus, symptoms and signs resolved within 24 to 36 h of doxycycline therapy including those with complications like massive consolidation, cholestatic hepatitis and epididymo-orchitis. Though this child had complete resolution of epididymo-orchitis with doxycycline, data are not available for long-term outcomes, thus, mandating a close follow-up to look for sequelae like testicular atrophy and infertility.

It is increasingly evident that scrub typhus needs to be considered along with enteric fever, malaria, dengue and tuberculosis in the differential diagnosis of all acute febrile illnesses in children irrespective of the symptoms, localizing signs and presence or absence of eschar. Early diagnosis and prompt antimicrobial therapy are the cornerstones of management. Undue delay in administering effective antibiotics can cause fatal complications like acute respiratory distress syndrome, acute renal failure, myocarditis and septic shock<sup>5, 8–9</sup>. Hence, the diagnosis of scrub typhus should be entertained even with unusual or hitherto unreported presentations in a febrile child<sup>7, 9–10</sup>, especially in endemic areas.

#### ACKNOWLEDGEMENTS

We thank Dr S. Shobhana for her continued support and encouragement.

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Received: 30 August 2013

Accepted in revised form: 16 December 2013