unimmunized. Abdominal tuberculosis was commonly found in unimmunized children.

The fact that considerable number of children with tuberculosis in this study were vaccinated, shows that BCG vaccination does not prevent infection. However, it offers a partial protection by preventing serious forms of tuberculosis (5-7).

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Typhoid Fever in a Neonate

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Typhoid fever is rare in the neonatal period. Several studies on typhoid fever in young children(l-4) do not include a single neonate. Even when typhoid fever complicated 1-3% of pregnancies in the early part of the 20th century in the United Slates, only few cases of typhoid fever were reported in neonates(5). The rarity of the condition in this age group prompted us to report this case.

Case Report

An 1820 g male infant was born **at** 34 weeks' gestation to **a** fifth gravida mother by spontaneous vaginal delivery. The Apgar scores were 7 and 8 at 1

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and 5 minutes, respectively. The mother had prolonged rupture of membranes for 7 days. The baby remained well for 4 days when he developed fever, lethargy and refusal to feed. Investigations revealed a leucocyte count of 12,500/cu mm with 56% neutrophils and 44% lymphocytes, hemoglobin 16 g/dl, and ESR 13 mm in the first hour. Urine and CSF examinations were normal and cultures were sterile. Blood culture grew *Slaphylococcus aureus.* He was given cefotaxime and amikacin and became afebrile after 4 days. The baby remained well until 14 days of age when he became sick again while still receiving cefotaxime and amikacin. He had fever, diarrhea, bilious vomiting, and refusal to feed. Antibiotics were changed to ceftriaxone. An erythematous maculopapular eruption was noticed on the second day of illness over the trunk and extremities which lasted for 2 days. The liver and spleen were not enlarged. Herhogram including ESR was normal. Examination of stool, urine and CSF did not reveal any abnormality and cultures were sterile. The radiographs of chest and abdomen were normal. Blood culture grew *Salmonella typhi* sensitive to chloramphenicol, ceftriaxone, ciprofloxacin, and resistent to ampicillin and trimethoprim. The widal test on the 10th day of illness was negative. Mother had no history of typhoid fever and her stool cultures were negative. The child showed a good response to ceftriaxtme, the fever subsided after 6 days but antibiotic was given for 14 days. Follow-up stool culture grew *S. typhi* at 2 months of age but became negative by 4 months.

Discussion

Several studies have reported typhoid fever in children less than 2 years of age(l,4-7), but few cases have been described in early infancy and it is rare under 1 month of age. Duggan and Beyer(7) found 2 neonates among 57 children with typhoid fever. Both the cases presented with a septicemia like illness and the diagnosis was confirmed by a positive blood culture. More recently, Garg and Krashak(4) reported 18 culture positive cases among children under 2 years of age but none of the children was a neonate.

The rare occurrence of typhoid fever in neonates may be related to their limited diet. Unlike older children, neonates are not exposed to food or drink contaminated with *S. typhi,* by virtue of their exclusive milk-based diet. However, infection may be acquired during delivery through direct inoculation of bacteria present in the maternal birth passage, or postnatally through contact with a person with active disease or a carrier. Transplancental transfer of infection from mother to fetus is extremely uncommon.

There are no distinctive features of typhoid fever in the neonatal period. Clinically, it presents as a septicemia like illness. The diagnosis is established by a positive blood culture. The widal test is not of much help. The disease carries a high mortality in this age group. Both the neonates reported by Duggan and Beyer(7) expired. Our patient showed a favorable response to ceftriaxone. The excretion of *S. typhi* in stool disappeared by 4 months of age. The risk of becoming a chronic carrier is low in children but increases with age(9).

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Widal Reaction in Kala-Azar

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Enteric fever(l) and Kala-azar (visceral leishmaniasis) are endemic, in and around Patna. Kala-azar usually has an indolent course but it can present as an acute disease with fever, anorexia and vomiting(2,3). At times both the diseases are so closely similar in their presentation, that differential diagnosis is not always clear, Widal test, inspite of its limitations and fallacies is still widely used as a proof of enteric fever. We found that some of the widal positive patients did not respond to the conventional treatment for enteric fever. Later on they were proved to be cases of Kala-azar (by demonstration of *Leishmania donovani* bodies, in bone marrow or splenic aspiration) and responded to anti kala-azar treatment. This prompted us to take up a study to determine the behavior of Widal reaction in proven cases of Kala-azar.

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