Neonatal Septic Arthritis due to *Salmonella typhimurium*

Dear Editor,

*Salmonella* infection is endemic in developing countries. Isolation of *Salmonella* species from aberrant sites with variety of clinical syndromes, where they are hardly expected, has been reported. Septic arthritis and osteomyelitis are uncommon due to this organism, compared to other gram negative bacteria. They are usually associated with underlying disease including haemoglobinopathies, previous joint trauma, surgery, connective tissue diseases, lymphoma or immunosuppressive state. Arthritis usually involves large joints such as hip, knee, ankle and shoulder. *S.choleraesuis, S.typhimurium* and *S. enteritidis* have a high arthritogenic potential. We report this case of septic arthritis of left knee joint caused by *S.typhimurium* in a neonate.

A 15-day-old male neonate, with a history of full term normal institutional delivery, diagnosed to have a patent ductus arteriosus, was admitted in our institute with complaints of fever and swelling of left knee since one week. There was no history of trauma of any kind. On examination, the swelling was soft, fluctuating, painful, tender with increased local temperature and restricted movements. A provisional diagnosis of septic arthritis of left knee with septicaemia with patent ductus arteriosus with congestive heart failure was made.

All the vital parameters and peripheral blood picture were within normal limits, except for a low haemoglobin percentage of 6.2 gm%. With the clinical suspicion of septic arthritis of the knee joint, the synovial fluid was aspirated from the joint and sent for microbiological evaluation. A Gram stained smear of the purulent synovial fluid showed plenty of polymorphonuclear cells and gram negative bacilli.

The synovial fluid was inoculated onto blood agar, MacConkey agar, Lowenstein Jensen medium and Sabouraud dextrose agar (SDA). Lactose fermenting and non-lactose fermenting colonies were observed on MacConkey agar after 24 hours incubation at 37°C. Biochemical tests confirmed the isolation of *Klebsiella pneumoniae* and *Salmonella* spp. The *Salmonella* isolate was sent for confirmation and serotyping to National *Salmonella* and Escherichia reference centre, Kasuali, Himachal Pradesh, India. It was identified as *S.typhimurium* 4, 5 12:i:1,2. The isolate was sensitive to ciprofloxacin and norfloxacin with resistance to third generation cephalosporins, aminoglycosides, ampicillin, chloramphenicol and co-trimoxazole. No *Mycobacterium* or fungus was isolated. Blood culture was sterile and Widal test did not show any diagnostic titre.

The patient was started on intravenous cefotaxime and metronidazole before the culture result was available. Arthrocentesis was done. On postoperative follow up, active movements were elicited, on stimulation showing a clinical improvement. The patient was treated for a week and was discharged. *S.choleraesuis* and *S.typhimurium* are the most commonly reported strains causing arthritis. The joint aspirate culture yielded *S.typhimurium* along with *K.pneumoniae*, the most important causative organisms of septic arthritis in infants. Synovial fluid gram stained smears have been reported to be positive in two-thirds of the cases. *Salmonella* has been isolated from blood in 65% of cases. The combination of blood culture and joint aspirate culture results in very high rate (72%) of bacterial isolation. In this case, the blood culture was sterile probably because the patient was on prior antibiotic therapy.

Two to four weeks of appropriate intravenous antibiotics and repeated arthrocentesis result in good clinical outcome in most cases of *Salmonella* septic arthritis. Surgical drainage is indicated only in cases with inadequate aspirations. To conclude, where enteric infections with *Salmonella* are endemic, bacteraemia could occur in immunosuppressed individuals or in children with congenital disease in whom the infection has a tendency to spread haematogenously to the larger joint metaphysis which is one of the most commonly affected sites. *S.typhimurium* being invasive, should be added to the spectrum of potential list of pathogen that cause septic arthritis in immunosuppressed state.

References

Prevalence of Rotaviral Diarrhoea in Hospitalized Children

Dear Editor,

Human rotaviruses are the most important etiologic agents of acquired diarrhoea in infants and young children worldwide. Rotavirus diarrhoea is more frequent during the winter. Limited reports are available from India about diarrhoea due to rotavirus. Some reports of rotaviral diarrhoea in children between 1 month - 4 years of age are available. Therefore, we studied the prevalence of rotaviral diarrhoea in hospitalized children in the age group of 5-12 years. Total samples processed for rotavirus were 92. All of them were liquid stools. There were 83.7% patients in the age group of 5-8 years and 16.3% in 8-12 years. All the stool samples were examined macroscopically and microscopically for the presence of any ova and/or cyst. For bacterial pathogens, enrichment was done in alkaline peptone water and gram negative broth and incubated at 37°C for 24-48 hours. The bacterial enteropathogens were identified by standard laboratory methods. ELISA was performed by using Ridascreen® Rotavirus manufactured by R-Biopharm GmbH, Darmstadt, Germany which utilizes monoclonal antibodies directed against VP6 (group specific antigen for all known human rotaviruses), in a solid phase sandwich type ELISA.

Out of 92 stool samples tested, 31 (33.7%) were greenish liquid, 56 (60.9%) yellow liquid and five (5.4%) liquid with mucus and blood. Moderate diarrhoea was seen in 53 patients (57.6%), 32 had severe diarrhoea (34.8%) and seven had mild diarrhoea (7.6%). Fever was present in 49 patients (53.3%), followed by abdominal pain in 26 (28.3%), vomiting in five (5.4%) and other symptoms in four (4.4%). Bacterial pathogens isolated were Escherichia coli in 14 samples (15.2%) and Aeromonas hydrophila in one sample (1.1%). In one sample, cysts of Entamoeba histolytica were detected. Ten were positive for rotavirus by ELISA, giving an overall positivity rate of 10.9%. Out of 10 positive cases, eight were greenish liquid (80%) and two were yellow liquid (20%). Fever was present in six (60%) patients, abdominal pain in three (30%), vomiting in one (10%) and respiratory tract infection in a patient who also had fever. Moderate diarrhoea was present in seven cases and remaining three had severe diarrhoea. All the positive cases were between October and January.

Prevalence rate of rotaviral diarrhoea was 10.9% in our study. Lee et al had reported 24% positivity in cases of diarrhoea due to rotavirus. Though majority of the studies have been in children upto 5 years of age, our study shows that rotaviral diarrhoea is also present in older children with a lesser prevalence rate. Lee et al had reported 92% cases with dehydration. All our positive cases had dehydration (70% moderate and 30% severe). Rotaviral diarrhoea episodes always tend to be more acute, causing vomiting and greater dehydration, and more often require hospitalization. All our patients were hospitalized with acute diarrhoea, only one child presented with vomiting. An Indian study has reported 26% positivity by ELISA and all were from children with acute diarrhoea. All the positive cases were detected during the months of October to January, which is in accordance with other studies. All the positive cases presented with liquid stools, and greenish liquid was a sensitive predictor of rotaviral diarrhoea (p value < 0.001) in this study. Severity of diarrhoea was not statistically significant.