Case Report

Community acquired *Clostridium difficile* in an infant without antibiotic exposure

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Abstract

Clostridium Difficile is the most common cause of hospital acquired and antibiotic associated diarrhoea, but it is important to note that this can be a colonizer. The rates of community carriage is not very well described in children. We hereby report a case of Community acquired Clostridium Difficile in an infant without antibiotic exposure.

Keywords: *Clostridium Difficile*, community acquired, infant

Background

Clostridium difficile is a gram positive, spore forming, anaerobic and motile bacteria, which is one the most common causes of hospital acquired and antibiotic associated diarrhea.[1-3] There is a significant rise in health care costs associated with morbidity and mortality from *C. difficile* infections.[2,4] The incidence and prevalence of *C. difficile* diarrhea in children, especially infants, has been less well characterized than in adults.[5] Two thirds of patients with diagnosed *C. difficile* could be attributed to hospital associated.[6] Different guidelines have been laid down for in hospital settings to prevent spread of Clostridium difficile.[7] Hence the antibiotics should be used only when they are really indicated.[3] So, being able to identify between the *C. difficile* infection and carrier is an important aspect in primary care practice, while dealing with such patients.

Case Review

A five month old infant, daughter of an expat living in New Delhi, India for three and a half months before presentation, was brought by her parents into the health unit with one day of frequent loose bowel movements (frequency one episode per hour), which were green and watery, with mucus but no blood. There was no vomiting or fever. The family had travelled to Rajasthan, India for a week and returned four days previously. Patient was breast and formula feeding normal and had usual activity level. She was passing clear and adequate quantity of urine. No prior hospitalizations and no significant history of infections or diseases in the past. No antibiotic use and no known allergies. She was a full term vaginal delivery at a hospital in Washington DC. Birth weight was six pounds and one ounce. Antenatal history was uneventful, but required phototherapy for one and a half days after birth for neonatal hyperbilirubinemia. No history of intensive care stay. Patient was developing appropriately as assessed on ages and stages questionnaire.

On examination, patient was borderline hydrated, afebrile with normal vitals. There was a benign abdominal exam with normal active bowel sounds and no distension. She was observed in the health unit for two hours, was tolerating *Pedialyte*. A stool sample was assayed by multiplexed PCR (*BioFire FilmArray*) which demonstrated *C. difficile* as the only pathogen. Complete blood count, renal functions, liver associated enzymes and lactate were normal.

Since the child was feeding well and adequately hydrated with no fever, she was discharged on *Pedialyte*, zinc supplementation, probiotics (lactobacillus) by mouth. Her parents were asked to look out for red flags and report back if any of that happens.

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She was set for follow up again the next day with her parents. Parents reported that her bowel movements got better and were now at one episode every three hours, with same consistency and symptoms but without any red flags. She was told to continue the same symptomatic management and was followed up next day. She continued to get better and continued further follow ups as advised until she recovered fully in a couple of days.

Conclusions and Recommendations

The baby's stool sample demonstrated *C. difficile* with PCR assay, a very sensitive and specific finding.[8] So, the possibilities of *C. difficile* could be either due to colonization from the hospital discharge at birth or from care givers as nanny had diarrhea at the same time. The cause of diarrhea could be unknown or viral etiology which couldn't be determined.

The treatment for *C. difficile* involves stopping the offending antibiotic and starting on metronidazole, tinidazole, vancomycin or fidaxomicin or vancomycin.[9,10] Prevention of infection of *C. difficile* can done by regular handwashing, which is a small ting often overlooked in practice.[11] The rates of community carriage are well described in adults but not well describes in children and even less so in infants. Predicting the actual community carriage of *C. difficile* in infants would require further trials possibly involving higher number of cases.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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