

## Case Report

# Intussusception in an infant complicating dengue infection

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### ABSTRACT

Intussusception is the most common abdominal emergency in children younger than 2 years of age. A 6-month-old child presented as dengue with gross abdominal distension to our hospital. Dengue was managed using standard therapy as per world health organization protocol, while abdominal pathology, later found out to be intussusception, required exploratory laprotomy. At the outset, abdominal distensions in the setting of a severe dengue infection, could be misdiagnosed as ascites due to capillary leakage, masking the clinical findings of acute abdomen on examination. Although unusual, it is possible to find two concurrent illnesses simultaneously, one complicating the typical clinical course expected from the other, and this needs high index of suspicion due to different management strategies of both. We describe here the diagnostic dilemma of such a case.

**Keywords:** Intussusception, Dengue, Infection

## INTRODUCTION

Intussusception is said to occur when a portion of the alimentary tract telescopes into an adjacent segment. It is the most common cause of intestinal obstruction between 5 months and 3 years of age, and the most common abdominal emergency in children younger than 2 year. The classic pediatric triad of abdominal pain, palpable abdominal mass and bloody stool is quite rare, and is present in less than 15% of cases.<sup>1</sup> This may also be a late sign.

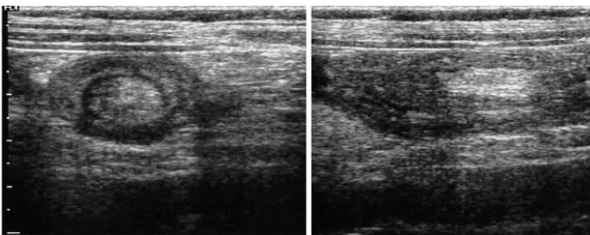
Dengue infection is very common in endemic regions like India. Patients may present with myriad symptoms like visible petechiae spots, signs of shock, respiratory compromise, and abdominal distension due to capillary leak and its complications.<sup>2</sup> As such it can mimic any illness thus warranting a high index of suspicion for timely diagnosis and correct management. It is worthwhile to note that the burden of severe dengue lies predominantly in infants between 4-9 months of age.<sup>3</sup> While detection of NS1 antigen is preferred as a confirmatory diagnostic tool, IgM based ELISA test can

also be used reliably for the same. The anti-dengue IgM antibody is usually detectable by day 5 of the illness. It is especially useful for hospitalized patients, who are generally admitted late in the illness after detectable IgM is already present in the blood.<sup>4</sup> We describe a case of an infant in the susceptible age group for both intussusception and severe dengue infection, and the diagnostic paradox that follows when a patient has two different illness at the same time.

## CASE REPORT

A 6-month-old, previously healthy infant boy, with up to date immunizations as per the universal immunization program of India (UIP), and recently started on supplementary diet as per local practice, presented to us with fever since last 8 days, for which he was initially being managed conservatively at home. There was abdominal distension noted by the mother which was gradually increasing since day 3 of illness. Child was brought to our attention on day 8 of illness. At the time of admission, he had rapid breathing, with petechiae spots present over the face, abdomen and chest, rapid pulse,

and gross abdominal distention which was dull to percussion and apparently non tender on palpation. Initially this abdominal finding was thought to be due to fluid in the peritoneum. Bowel sounds were present on auscultation, but there was history of passage of black colored stools since past 2 days. Initial investigations showed anemia (Hb:9.8 g/dl) with hematocrit of 70% (a jump of more than 20% when compared with previous report from earlier hospitalization one day back), decreased platelet counts (80,000/ul), and white blood counts at 4300/cumm. There was positive dengue NS1 antigen along with a positive dengue IgM test. CRP was raised at 64 mg/L. There was normal chest X-ray, and ultrasound (USG) abdomen showed mild hepatomegaly, with bowel gas in mid and lower abdomen. Renal functions and liver function tests showed no abnormality. Presence of significant hemoconcentration, along with clinical finding of petechiae, positive dengue tests and signs of upper gastrointestinal bleeding in the form of melaena prompted treatment along the standard lines of Dengue Hemorrhagic Shock proposed by the World Health Organisation (WHO). With judicious fluid management, and monitoring of vitals, the hemoconcentration reduced, signs of shock resolved and heightened respiratory efforts of the patient decreased. His vitals were normal. The child however continued to have increased abdominal distension. From the second day of admission, the child started passing red colored, mucoid stools which were scanty in quantity. He was now more agitated, irritable and was refusing feeds. A nasogastric (NG) tube was placed which quickly filled up with bilious aspirates. This prompted us to consider an etiology more than ascites for his abdominal distention. A repeat USG abdomen was urgently done which showed features of intussusceptions (Figure 1). Following this an urgent exploratory laparotomy was scheduled. This further revealed that the child had ileo-colic intussusception with mesenteric lymphadenopathy. Surgical reduction was done and lymph node biopsy was taken. While the surgery went well, the child developed abdominal distension again on day 2 of surgery, and USG confirmed recurrent intussusception for which re exploration was carried out. Post operatively our patient developed pneumothorax on right side, possibly due to barotrauma, for which he was managed using chest tube drainage, and mechanical ventilation. His condition improved after 4 days on mechanical ventilation. Supportive measures and rehabilitation were continued. He made a slow but sure recovery and was discharged after 2 weeks in stable condition, and on oral feeds.



**Figure 1: The classical doughnut sign.**

## DISCUSSION

While it is unusual for two acute illnesses to occur concurrently in a single infant, it is not uncommon for a presumptive diagnosis to create bias for the presence of another illness, which could have happened in our case, as we attributed his abdominal distention to ascites due to capillary leakage commonly seen in dengue shock. We treated the child adequately for dengue as per protocol but the child did not respond as well as one would expect in the given time frame. This should always lead a clinician to consider additional reasons for the patient's continued suffering, instead of waiting for a delayed response to manifest. We were able to find this cause in our case. Treatment options for intussusception include reduction by air or barium enema in uncomplicated cases or surgical reduction in acutely ill patients.

The recurrence rate after surgical reduction is very low at 2-5%, and most recurrences occur within the first 72 hours.<sup>5</sup> There is also a higher risk of recurrence in patients who delay seeking care >48 hours for initial reduction, as was the case with our patient.<sup>6</sup>

Intussusception has been associated with lymphoid hyperplasia which serves as lead point, with the hyperplasia itself a result of possible previous viral infection, as it seems to have been in our case. While no such causative enteral pathogen was detected in our case, the delay in diagnosing this surgical emergency was most likely, according to us, caused by the dengue infection.<sup>7,8</sup> Dengue NS1 antigen is a highly sensitive marker for acute dengue infections but the test may be negative in some case, particularly when it is performed >7 days of illness onset, hence solely relying on this tool for diagnostic purpose is not advised.<sup>9</sup> Clinical suspicion should be sufficient, in an appropriate demographic setting, to initiate treatment, in order to prevent avoidable complications. Dengue virus causing surgical emergencies in the form of bowel obstruction and intussusception has not been reported to the best of our knowledge, and a direct causal link cannot be established presently, but this may well be the case as other viral infections have been known to cause this. Notwithstanding the cause of intussusceptions, it is important to note that two acute illnesses may rarely co-exist in a single patient, where one illness may complicate the clinical picture of other or masquerade it as it happened in our case, thus delaying prompt diagnosis due to unusual and unforeseen presentation. As clinicians, we need to keep all differentials into consideration at all times, and not let a single diagnostic confirmation bias us towards the possibility of another illness.

## CONCLUSION

This case report underlines the complication encountered while treating dengue patients. With the surge in cases expected in the present season, it is likely in a busy

emergency department to come across sick infants with severe dengue. When such an infant present in shock and signs of capillary leakage, it is imperative we urgently rule out surgical emergencies like intussusception if there is associated abdominal distension, so that there is minimal delay in seeking correct intervention and the outcome can be improved. Intussusception can occur following any infection, particularly viral, and is especially prevalent in infants after weaning, hence meticulous care is emphasized in this age group.

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