



## **Duodenal Perforation in an Infant with Rotavirus Gastroenteritis**

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**Abstract**

*Reports of intestinal perforations associated with gastroenteritis are few and even rarer for rotavirus related infections. Rotavirus, a common cause of acute gastroenteritis in childhood, is usually a benign and self limiting disease but very rarely can produce perforation which we report here in a 1-Year old infant.*

**Keywords:** *Duodenal perforation; duodenal perforation in an infant; duodenal perforation in an infant with rotavirus; duodenal perforation in an infant with rotavirus gastroenteritis; rotavirus gastroenteritis; gastroenteritis; rotavirus; perforation*

**Background**

Gastrointestinal perforations are rare in the paediatric population and are mainly observed in sick preterm infants or in older children receiving intensive care[1]. Reports on intestinal perforations associated with gastroenteritis are few and are missing on rotavirus related infections. Rotavirus is a common cause of acute gastroenteritis in childhood[2]. It is usually a benign and self limiting disease. However, worldwide it is estimated that rotavirus infections are responsible for half a million annual deaths in children, primarily related to acute severe dehydration. Rotavirus related deaths are also reported in European and Asian countries, most frequently among infants[3] and in neonates with rotavirus associated necrotizing enterocolitis. [4,5]

**Case Presentation**

A previously healthy 1-year-old male baby was admitted with clinical signs of severe dehydration after 3 days of diarrhea, vomiting and fever. Upon admission he was lethargic and had clinical signs of shock with cold extremities, a prolonged capillary refill time (>3s) and tachycardia and abdominal distention. He was managed conservatively and advised X ray abdomen supine [Figure 1] which showed post diarrhoeal paralytic ileus with dilated bowel loops. Ultrasonography showed only mild fluid collection with internal septations. A plain abdominal x ray (erect) revealed free sub-diaphragmatic air [figure 2]. Suspecting intestinal perforation we decided to perform an exploratory laparotomy which revealed a small post-pyloric

duodenal perforation [Figure 4]. Grahams patch repair was performed [Figure 5]. The postoperative course was uneventful [Figure 3]. Rotavirus antigen was found in feces.

Figure 1 X Ray Abdomen Supine Done On Day Of Admission 1 Showing Dilated Bowel Loops



Figure 2 Right Sided Sub Diaphragmatic Air Fluid Level



Figure 3 : X Ray Abdomen Erect Done Post Operatively Normal X ray Abdomen With Drains In Situ



Figure 4 Intra Operative: Showing small postpyloric Doudenal Perforation



Figure 5 Graham's Patch Repair Done



## Discussion

A gastrointestinal perforation associated with acute diarrhoeal disease in children is very rare. We conducted a structured literature search in pubmed and found only five cases reporting a similar clinical picture as in presented patient [ table 1 ], all with duodenal perforation site and haematemesis and one additional paediatric case with rotavirus-associated gastric rupture. [6-7] None of the cases with duodenal perforation were diagnosed with a rotavirus infection. We urge clinicians to consider gastrointestinal perforation as a potentially severe complication in children with acute gastroenteritis, dehydration and in particular if the abdomen is distended even in the absence of haematemesis. A plain abdominal x ray may reveal

pneumoperitoneum and guide appropriate treatment.

**Table 1 Previous Paediatric Reports On Gastrointestinal Perforations Associated With Acute Diarrhoeal Disease**

<u>Author</u>	<u>Sex</u>	<u>Age</u>	<u>Medical History</u>	<u>Acute Symptoms Of Gastroenteritis</u>	<u>Dehydration</u>	<u>Haematemesis</u>	<u>Site Of Perforation</u>
Johnstone <sup>[6]</sup>	Boy	1 year	Healthy	Loose Stools And Vomiting	+	ND	Duodenal
Tan et al <sup>[9]</sup>	Girl	3 year	Aqueductal Stenosis	Diarrhoea And Vomiting	+	+	Duodenal
Wilson et al <sup>[10]</sup>	Boy	7 Year	Neurologically Disabled	Diarrhoea And Vomiting	+	+	Duodenal
Lee et al <sup>[7]</sup>	Boy	3 Months	Healthy	Diarrhoea	ND	+	Duodenal
Shimizu et al <sup>[8]</sup>	Girl	3 Months	Hypothyroidism	Vomiting	+	-	Gastric

## Conclusion

Gastrointestinal perforation in infants and children with rotavirus is rare, but a severe and potentially lethal complication. Awareness of this complication in children with severe gastroenteritis is important for timely and appropriate treatment.

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## Authors Contribution:

- Dr Shyamendra Pratap Sharma Operating surgeon and clinician taking care of the patient.
- Dr Aman Siloiya , Resident under the Operating surgeon involved in patient care and preparing the manuscript.
- Dr Ajay Jawahar, conceiving , editing the manuscript.

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