

# Neonatal Gastric Volvulus: Another Cause of “Mucousy Baby” with Gasless Abdomen

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## ABSTRACT

Neonatal acute gastric volvulus is rare and often associated with diaphragmatic anomalies. Patients usually present with vomiting and respiratory distress, but excessive salivation, failure to pass a nasogastric tube beyond 20 cms and the presence of a space occupying thoracic lesion should also prompt a search for the entity. The authors describe a case presenting with these atypical findings and stress the importance of the plain radiograph chest to make a diagnosis. [*Indian J Pediatr* 2010; 77 (6) : 691-692] E-mail: [achattopadhyay@yahoo.com](mailto:achattopadhyay@yahoo.com)

**Key words:** Gastric volvulus; Neonate; Gasless abdomen; Excessive salivation

Neonatal acute gastric volvulus is extremely rare disease and is often associated with diaphragmatic anomalies.<sup>1,2</sup> The authors encountered a 2 day old newborn who presented with respiratory distress and excessive salivation, with confusing chest radiograph features. This case report emphasizes the difficulty in making the diagnosis, and important clues that chest radiograph provide to aid diagnosis.

## REPORT OF CASE

A 3.1 Kg, 2 day old full term, vaginally delivered baby boy presented with the complaints of respiratory distress since birth and excessive salivation from the mouth. There was a history of vomiting on attempted feed, but no history of choking/coughing after feed.

On examination, the child was in respiratory distress, with a respiratory rate of 78/min and a heart rate of 160/min. The child had excessive salivation and peripheral cyanosis. Examination of the chest revealed decreased air entry on the left side, with mediastinal shift to the right, as evidenced by the heart sounds. The abdominal examination and other systemic examinations were unremarkable. The chest X-ray (CXR) done soon after birth, showed a Lt. opaque hemithorax, mediastinal shift and no gas in the abdomen. Considering the possibility of a hydrothorax, a needle thoracocentesis was done and a small amount of

“whitish purulent” material was obtained. A nasogastric tube (NG) was passed well beyond 10 cm, ruling out esophageal atresia as the cause of frothing. A fresh CXR showed a gas filled structure in the left hemithorax, a dilated gas filled esophagus with the NG tube held up at the lower end of the esophagus, and a gasless abdomen. (Fig. 1) A red rubber catheter was passed orally, only to find a block at around 20 cm from the alveolus. The child was shifted to the intensive care unit; intubated and ventilated; the profuse oral secretions persisted, necessitating regular oral suctioning. A diagnosis of Lt. diaphragmatic hernia (CDH) with gastric volvulus was made, as this was the only condition that could explain the clinical and radiological findings. The child was taken up for surgery after 12 hrs of ventilation.

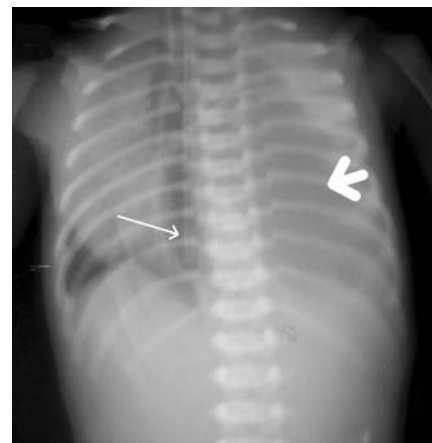


Fig. 1. Chest X ray showing hold up of NG tube in a gas filled esophagus (thin arrow) and a gas filled structure in the L hemithorax (thick arrow).

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The abdomen was opened with a Lt. subcostal incision and a Lt. CDH was found. The stomach was in the Lt. hemithorax, was distended and had undergone a volvulus. On detorsion, the NG could be placed into the stomach, and there was no evidence of vascular compromise. A small circular perforation was detected in at the esophagogastric junction which was closed with 5/0 vicryl and buttressed with a Thal type fundal patch. The CDH was repaired easily using Prolene sutures leaving a chest tube in the thorax.

Postoperatively (PO) the child was ventilated and required inotropic support for poor perfusion. There was a dramatic reduction in the quantity of oral secretions and the child was weaned from the ventilator on the 4th PO day. On the 6th PO day, dye study showed no leak from the esophageal repair site, but a grossly dilated and pendulous esophagus and a poorly emptying stomach. (Fig. 2) The baby had persistent gastric distension which precluded establishment of feeding till the 10th PO day, after which small volume feeds were tolerated with the aid of proper positioning and prokinetics. Over the next 6 days, full feeds could be established and at three months of age, the child is now feeding and thriving well.



Fig. 2. Post operative dye study: Note the pendulous esophagus and residue in the stomach.

## DISCUSSION

Gastric volvulus (GV) is rare in the pediatric age group and only 54 cases have been reported in the neonatal period.<sup>1</sup> Almost all cases of acute neonatal gastric volvulus are associated with anomalies in the surrounding structures, with diaphragmatic eventration and hernia being the most common.<sup>1,2</sup>

The usual presenting feature is recurrent non bilious vomiting, failure to thrive and abdominal distension.<sup>1</sup>

Respiratory distress has been reported in up to 11% of the patients.<sup>1</sup> However, excessive salivation, as was seen in this baby, has not been encountered. Excessive salivation is typically seen in babies with esophageal atresia (EA) with or without a fistula. It has rarely been reported as a feature in neonatal hiatal hernia.<sup>3</sup> In EA however, a catheter will obstruct 10 cm from the alveolus, while in lower esophageal obstruction, the distance is greater than 15 cm.

Typical findings in chest radiograph in patients with acute GV include the presence of associated anomalies (such as CDH or eventration) and, frequently an air filled stomach in the chest.<sup>1,4</sup> An absence of distal bowel gas has been reported but not emphasized.<sup>4,5</sup> The presence of a dilated air filled esophagus has also been noted in some of these patients.<sup>4</sup> In the present case, the initial chest radiograph showed features of a space occupying Lt. sided pleural lesion, but the absence of gas in the lesion as well as in the abdomen caused confusion about the diagnosis. Later chest radiographs which showed the presence of air, and the fact that there was a lower esophageal obstruction enabled the author to come to a correct pre operative diagnosis.

Emergent operative treatment has been life saving in the condition and ischemia of the stomach with necrosis has been reported as a complication of GV.<sup>6</sup> However, to the best of author's knowledge, an isolated esophageal perforation has not been reported. The degree of esophageal dilatation seen in the post operative dye study, probably reflects the duration of complete esophageal obstruction due to the abnormal position of the stomach, and this may have been a factor in the prolonged gastroparesis seen in the case.

In conclusion, the presence of a diaphragmatic abnormality with features of esophageal obstruction and the absence of abdominal bowel gas should prompt a diagnosis of gastric volvulus. Early surgical treatment with adequate supportive care leads to satisfactory outcomes.

## REFERENCES

1. Cribbs RK, Gow KW, Wulkan ML. Gastric Volvulus in Infants and Children. *Pediatrics* 2008; 122: e752-e762.
2. Chattopadhyay A, Vepakomma D, Prakash B, Kumar V. Is gastropexy required for all cases of gastric volvulus in children? *Int Surg* 2005; 90: 151-154.
3. Samujh R, Kumar D, Rao KL. Paraesophageal hernia in the neonatal period: suspicion on chest X-ray. *Indian Pediatr* 2004; 41: 189-191.
4. Manikoth P, Nair AK, Zachariah N, Sajwani MJ. Images in neonatal medicine. Neonatal acute gastric volvulus. *Arch Dis Child Fetal Neonatal Ed* 2004; 89: F388-F389.
5. Oh SK, Han BK, Levin TL, Murphy R, Blitman NM, Ramos C. Gastric volvulus in children: the twists and turns of an unusual entity. *Pediatr Radiol* 2008; 38: 297-304.
6. Sharma S, Gopal SC. Gastric volvulus with perforation in association with congenital diaphragmatic hernia. *Indian J Pediatr* 2004; 71: 948.