Recurrent Choking in a 40 days Old Infant: A Diagnostic Challenge.

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Abstract

Malrotation of the gut is a surgical problem. Clinical presentation is asymptomatic to symptomatic likes vomiting, abdominal distension, constipation, or sub-acute or acute intestinal obstruction. Rotational anomalies occur due to the arrest of normal rotation of the embryonic gut. Intestinal malrotation occurs when the normal embryological process of bowel rotation happens incorrectly or incompletely. Malrotation of gut was diagnosed by clinical features plus contrast radiograph and/or laparotomy. Our patient 40 days old infant presented with recurrent choking attack after breastfeeding with fever, cough, and respiratory distress. Infant was treated a case of aspiration pneumonia with gastroesophageal reflux, with keeping in mind trachea esophageal fistula and achalasia cardia like rare entity after exclusion of common etiology of choking. Pneumonia improved by treatment but choking persisted. Finally it was diagnosed as a case of partial malrotation of upper gut per-operatively.

Keywords: *Choking, diagnostic challenge, recurrent.*

Introduction

Choking can occur at any age of child even in adult. Choking is caused by either food material or nonfood materials.Coins are the common causes of choking in young children. Buttons, plastic toy parts, earrings,small magnets,fishing tackle, and metal hardware common choking hazards also. Balloons can completely block the child's airway and it is particularly very dangerous because sudden death can occur.

Food material commonly can cause choking in a young child due to improper position and attachment of breastfeeding or other food. In lying conditions, breastfeeding or other feeding is most dangerous resulting in an easy choking attack. Some gastrointestinal conditions like GEDR, tracheoesophageal fistula, achalasia cardia presented with choking. Laryngotacheomalacia, choanal atresia, congenital heart disease, GBS, Poliomyelitis, neuromuscular diseases, and many other conditions may be present with choking. Recurrent choking or frequent choking can lead to recurrent pneumonia, failure to thrive, and increase hospital admission with increase morbidity & mortality. Here, we want to mention that there are many medical and surgical causes of choking and recurrent choking. So, surgical causes must be kept in mind when a case of choking according to the age of presentation.

Vomiting due to any cause from medical or surgical may lead to choking. Surgical causes from abdominal origin may presente with vomiting, constipation, bloody diarrhea, abdominal distension, and abdominal pain. Frequent vomiting in a very younger infant may present with recurrent choking. In this view, evaluation of recurrent choking attacks sometimes a diagnostic delay and challenge resulting in a bad prognosis. So needful care, attention, and suspicion about many surgical causes of choking is needed when dealing with a case of recurrent choking.

Case report

A forty-day old female baby, the first issue of non-consanguineous parents was admitted with complaints of fever for 6 days, cough and cold for the same duration, and respiratory distress for 1day. He had a history of repeated choking attacks during breastfeeding. A choking attack did not occur when the child on an upright position for a few minutes after breastfeed and no history of vomiting. When the baby was choking; the mother stopped feeding. The baby

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was delivered by LUCS at term having a birth weight of 3.5 kg. She was exclusively breastfed till now. She had no family history of the same type of illness.

On examination, the baby was sick looking, dehydrated, mildly anemic. She had fever with a respiratory rate of 68/min. Her weight was 3.4 kg, and her height was 51 cm. There was no apparent congenital anomalies. Respiratory system examination revealed that the infant was dyspnoic, bilateral fine crepitation was found in both lung fields with poor air entry. The examination of other systems were unremarkable. So, our provisional diagnosis was aspiration pneumonia with GERD. Differentially we thought about pneumonia with tracheoesophageal fistula (H-Type). The baby was treated conservatively with O_2 inhalation, nasogastric tube feeding, injectable antibiotics, and other supportive treatment for GERD. Here, one thing is to mention that NG tube easily passed through up to the stomach.

Complete blood count revealed anemia (Hb-9.4gm %) with total leukocyte count (TLC) 12,400/cumm; neutrophil-58%, Lymphocytes 35%), platelet count 7,40,000/cumm. Peripheral blood film showed moderate microcytic anemia with thrombocytosis. CRP was 1.5 mg/dl, serum electrolytes and other biochemical studies were within normal ranges. The blood group was AB positive. The chest X-ray demonstrated bilateral patchy opacities with streaky densities suggesting bronchopneumonia and the presence of the fundal gas shadow with the tip of the NG tube into the stomach. The plain X-ray abdomen showed no abnormalities. USG of the whole abdomen showed no abnormalities. On subsequent follow-up pneumonia responded to antibiotic therapy, the baby was well alert, vitals was good, lungs clear with good air entry, and NG tube in situ with nasogastric feed. But again choking attacks occurred during the trial of breastfeeding; that means choking persisted. The presence of choking due to the regurgitation of feeds guided us to perform contrast swallow-meal with water-soluble dye (Iopamira) to rule out a tracheoesophageal fistula. Swallow X-Ray of esophagus showed hold-up of contrast materials and tapered end of the esophagus, hugely dilated and fluid-filled esophagus, and esophageal reflux was noted at T-position, fundus of stomach appeared normal in position, globular shape stomach with deformed duodenum, subsequently dye passed to the intestine. (Fig.-1 and 2). As symptoms and investigational findings and pediatric surgical consultation suggested achalasia cardia, the infant underwent a diagnostic laparotomy and modified Heller's cardiomyotomy through an open abdominal approach with an anti-reflux procedure fundoplication. Per-operative findings suggested it was a case of incomplete malrotation of the upper gut. Ladd's procedure was done. The postoperative period was asymptomatic and she started to gain weight with the improvement of her general condition.

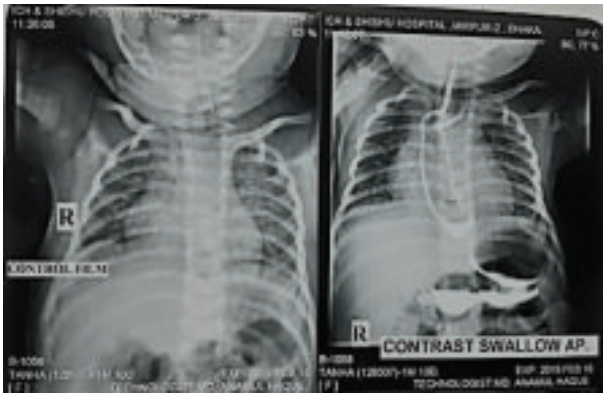

Fig.-1: *Contrast swallow-meal with water-soluble dye (Iopamira) showing NG tube in situ (control film). Hold-up of contrast materials, fluid-filled esophagus, and hugely dilated with the tapered end of the esophagus (contrast swallow AP view).*

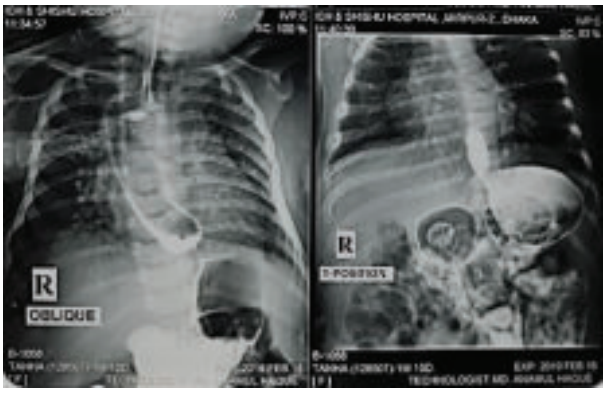

Fig.2: *Contrast swallow-meal with water-soluble dye (Iopamira) showing hold-up of contrast materials, fluid-filled esophagus, hugely dilated with the tapered end of the esophagus (oblique view). Esophageal reflux was noted at T-position, fundus of stomach appeared normal in position, globular shape stomach with deformed duodenum (T-position view).*

Discussion

Rotational anomalies occur due to the arrest of normal rotation of the embryonic gut. During normal embryologic development, the gut expands too rapidly that the embryonic cavity cannot accommodate; resulting in the intestines extrude out outside the fetal abdomen. By the 8th to 10th week of gestation, the bowel returns to the abdomen, the loops of the intestine rotate around the superior mesenteric artery normally about 90° counterclockwise, then an extra 180°, resulting in a complete rotation of 270°. As a result, the bowel is placed into a normal anatomical position.

With incomplete intestinal rotation, the duodenojejunal part is positioned vertically and the ceco-colic part is rotated 90° instead of 180°. The cecum is placed in the mid to upper left abdomen instead of the right lower quadrant. Peritoneal bands or Ladd bands fix the cecum to the lateral abdomen. Occasionally, these bands may cause intermittent intestinal obstruction when compressing the duodenum.[1, 2]

Our patient age was 40 days only. Meanwhile, a case report similar to our reported that a 4-week-old male with increasingly frequent spit-ups and constipation for 1 week; initially significantly improved with the head-up position after feeds. It became more voluminous & frequent and provisionally diagnosed as gastroesophageal reflux with failure to thrive; started to special formula milk for reflux. But the mother noticed that the frequency of spit ups had worsened, so advised an upper gastrointestinal (GI) series with follow through and hospitalization was done for severe gastroesophageal reflux, failure to thrive, and intestinal malrotation. The final diagnosis was gastroesophageal reflux and malrotation.[3]

Throughout a person's life span rotational anomalies may remain asymptomatic, the true incidence is not known. Symptomatic malrotation was found in 1 in 6000 live births. Intestinal malrotation has been considered as a primary disease of infancy. Children up to 17 years of age were found intestinal malrotation; whereas only 30% presentation by one month of age.[1, 2]

Our case presented as a recurrent choking after breastfeeding. Malrotation can cause a variety of clinical presentations. Infants with malrotation presented with bilious vomiting, acute intestinal obstruction, obstipation, and hypovolemia with or without septic shock.Ninety percent of cases are presented within the first year of life most commonly in the first month. Recurrent bilious or non-bilious vomiting, failure to thrive, solid food intolerance, malabsorption, diarrhea, bloating, and abdominal pain also are the manifestation of Malrotation. Some infants may present with nonspecific findings, which mimic colic, gastroesophageal reflux, pancreatitis, or biliary obstruction.[4-6]

This young infant was diagnosed by diagnostic laparotomy where upper GI contrast X-ray gave us clue gastroesophageal reflux only. Upper GI series imaging study is the choice for diagnosing malrotation patients which has a sensitivity of approximately 96% in the case of infants.[7]

Our case was found as incomplete or partial malrotation of upper gut per-operatively and was treated surgically by Ladd's procedure.The Ladd's procedure, which involves lengthening the mesentery and positioning the intestine inappropriate anatomical position.[7] A Ladd's procedure prevents the life-threatening complication of volvulus and relieves symptoms associated with malrotation.[4,6,8] This surgical intervention reduce the risk of volvulus as well as alleviate other symptoms.[7] The current standard of care for malrotation is Ladd's procedure which leads to better outcome, including reduced morbidity and mortality.[9]

The limitation is the unavailability of esophagoscopy, esophageal manometry, upper GI endoscopy, and fluoroscopic guidance upper GI contrast swallow, meal, and follow-through in our settings.

Conclusion

The common disease has a common presentation but also common diseases may have uncommon presentations. Here malrotation of gut presented with choking attack unlike that of common features of intestinal obstruction.

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