BERKALA KEDOKTERAN
doi: http://dx.doi.org/10.20527/jbk.v20i1.18823
CASE REPORT
OPEN ACCES

A Rare Case: Stenosis Doudeni Congenital Et Causa Ladd Band Et Causa Malrotation with Situs Inversus in 12 Days Old Baby

Yhohan Ziantprayogi Thaihutu[1], Muhammad Syahibuddin Rifa'i[2]

[1]Department of Pediatric surgery, Doris Sylvanus Hospital, Palangka Raya, Indonesia
[2]Medical Study Program, Faculty of Medicine, University of Palangka Raya, Palangka Raya, Indonesia
Coresspondence Author: yhohanth@gmail.com

Abstract:

We are sharing a rare presentation of congenital duodenal obstruction with combined intrinsic and extrinsic causes with situs inversus, namely, duodenal stenosis with gastrointestinal malrotation in a neonate. The patient underwent successful exploratory laparotomy, Ladd's procedure, and appendicectomy were carried out. Early recognition of signs and symptoms, prompt corrective surgery, and adequate optimization of metabolic components post-operatively are important to determine the decreased morbidity and mortality of neonates.

Keywords: Doudenal stenosis; situs inversus; ladd's band; neonates; malrotation

Introduction

The duodenum is the part where obstruction occurs most often its affect approximately one in 2.500-10.000 lives birth and almost half of the neonatal cases. The causes of congenital duodenal obstruction can be classified into 2 broad congenital factors: congenital intrinsic duodenal obstruction and congenital extrinsic duodenal obstruction. Congenital intrinsic duodenal obstruction includes duodenal atresia, duodenal stenosis, and duodenal web.whereas extrinsic causes comprise malrotation with Ladd's band, anteriror portal vein, duodenal duplication and annular pancreas is often found incidentally in cases of duodenal atresia and stenosis.[1,2,3]

Congenital duodenal stenosis in pediatric patients is often underreported because of its inconspicuous signs and symptoms. Diagnosing duodenal stenosis is often challenging because the disease causes partial intestinal obstruction and thus presents with more indolent and atypical clinical manifestations. Poor weight gain is one of the most common symptoms in children with duodenal stenosis. However, these clinical manifestations are often not detected by parents due to inappropriate feeding practices or giving children concentrated formula milk. In comparison, in cases of complete small bowel obstruction such as duodenal atresia or volvulus, most patients present with acute and severe symptoms. signs and symptoms of obstruction such as vomiting profuse bile.[1,4,5,6]

Situs inversus is a rare condition with a frequency of about one in 10,000 of the normal population. This condition is found to be associated with cardiac and splenic malformations. However, the association of duodenal atresia with situs inversus is very rare, with just about 20 cases reported in the literature so far.[7,8,9]

As doctors, initial evaluation of children suspected of having intestinal obstruction is mandatory to focus on distinguishing whether the cause of the obstruction is an emergency or no, to avoid worse consequences. Hence, this case report aims to describe a case of marked malrotation pediatric duodenal stenosis with recurrent vomiting and poor weight gain.

Case Report

We reported the case of a 12-day-old baby girl born full-term, born normally with birth weight 2.300 gram. The patient is a referral from Dr. Murjani's Sampit Regional General Hospital with the main complaint in the form of green vomiting experienced by the patient since the first day of birth, the patient will vomit when given milk or drugs that enter through the gastrointestinal tract. Based on the X-ray results conducted at Dr. Murjani Sampit Hospital, it is known that patients experience inversus sites with dextrocardia, and double bubble sign images are obtained indicating small bowel obstruction in the form of duodenal stenosis, for these indications the patient is satisfied and decompressed using open ogt and given fluid therapy to replace the patient's nutrition temporarily.

When arriving at Doris Sylvanus Hospital, the patient was fasted for 6 days and gastric decompression using open orogastric tube (OGT) obtained a greenish liquid. When it arrives, the patient's stomach appears sunken with residue still greenish in color. The patient is then given an attempted breast milk drink and an anal washout. The trial of drinking the patient's breast milk took place well with a trial for 5 days with breast milk fluid that continued to be increased for 5 days of residual experiments from the patient's clear ogt, in addition to breastfeeding the patient also carried out anal wash out with very little fecal. On physical examination ictus cordis was palpated in right hemithorax, no additional heart sound was found On abdominal inspection, there was distension in the epigastrium and right hypocondrium, the

anus was present, patient come to our no signs of acute respiratory distress and a patent airway, the patient has no fever with body weight at hospital admission 2.100 g hospital. The patient had an anteroposterior thoracoabdominal radiograph taken at the previous hospital with double bubble sign, the orogastric tube insertion seen to right ended. At this time, we made a clinical assessment of preterm neonate with low-birth-weight baby with obstruction at the level of duodenum and dextrocardiac with suspect situs inversus.

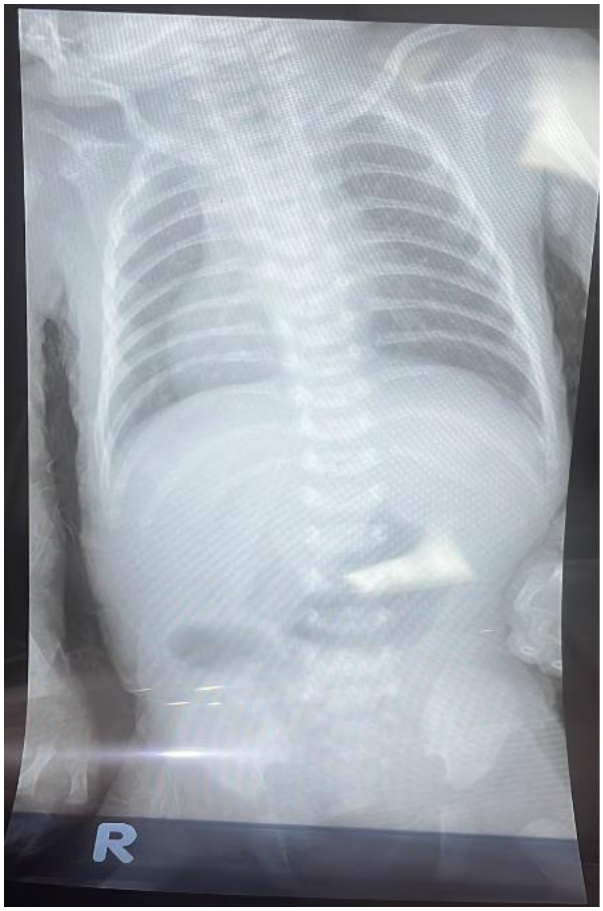

Figure 1. Babygram show double bubble sign.

On the sixth day of the breastfeeding experiment, the patient again experienced vomiting with a greenish residue, fasting was again carried out on the patient with washout. Then a re-radiological examination is carried out.

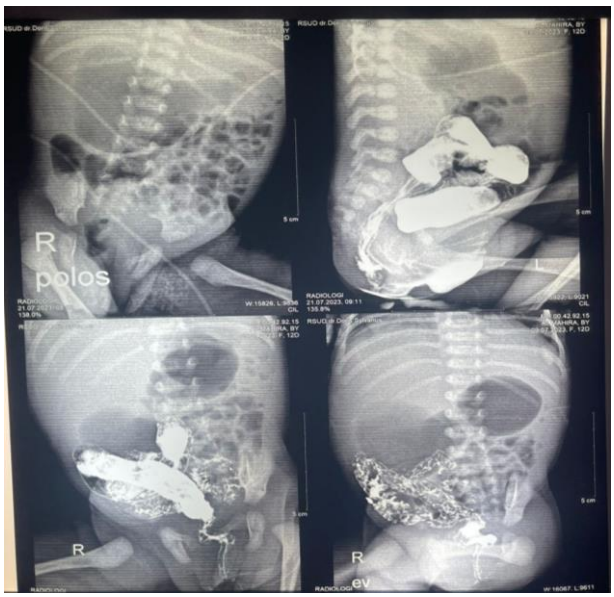

Figure 2. Colon in loop show intestine collected in the left abdomen.

From the results of the re-radiology colon in loop confirmed that there was dextrocardia with a double bubble image indicating the presence of duodenal stenosis and intestine collected in the left abdomen. As long as the patient fasting again, there is no improvement in the condition, the patient's stomach is increasingly distended with OG residue which is still greenish.

We decided to perform surgery with the initial plan of exploratory laparotomy, incisions carried out supraumbilical transverse when it reached the peritoneal cavum obtained serous fluid was identified to determine doudeni stenosis that occurred in patients. When surgery was carried out, it was found that the gaster appeared dilated with an axis from the right side transversely, the duodenum exposed the position of the kinkin folding retro left with the presence of bands such as ladd's band to the middle due to adheliosis. The liver appears to be on the left side. The Intestinal System collects on the left side of the abdomen and the Caecum-Colon folds behind the small intestines.

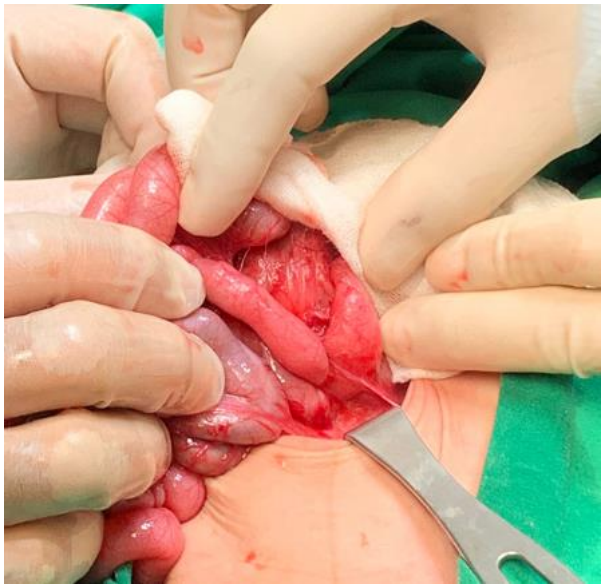

Figure 3. Durante op show ladd band

We decided to make an incision of the ladds band with the ladds procedure after the gaster appeared to deflate, we did a pasase test by inserting D10% liquid through ogt to get a smooth impression and enter the small intestine, then we explored the intestinal system while decompressing the remaining fecal content of the material with good results. Next, we reposition the intestine and check it again. Next, sew the abdominal cavum layer by layer and dressing using tulle and gauze. The operation is completed.

Discussion

This patient came to the hospital with the main complaint of green vomiting which the patient had experienced since the first day she was born. The patient would vomit if she was given milk or medicine that entered the digestive tract. No other symptoms or abnormalities were noted at birth. The presence of biliary emesis suggests duodenal atresia or stenosis. Manifestations of duodenal stenosis appear within 24 to 72 hours after birth, where the age of onset of stenosis depends on the degree of stenosis itself. Symptoms may appear later than with duodenal atresia due to the more distal obstruction, therefore abdominal distension and vomiting are the most common features. Vomiting occurs due to a blockage in the upper digestive tract, so that breast milk or amniotic fluid passes through the digestive tract. The stomach cannot continue to the duodenum, resulting in vomiting several hours after birth.[4,10,11]

The clinical manifestation can vary from repeated vomiting, gastric distension, failure to thrive in infancy, gastroesophageal reflux, and gastric ulcers depending on the patient's age. Distal obstruction of the ampulla of Vater results in greenish colored bile mixed with vomit coming out. The symptoms that appear depend on the location of the blockage itself. Proximal gastrointestinal obstruction can present with symptoms of vomiting that are frequent and accompanied by large volumes. Meanwhile, distal obstruction is characterized by moderate abdominal distension accompanied by progressive vomiting.[2,3,6,12]

The radiology examination found not only gastrointestinal tract problem but also dextrocardia presentation. Babygram that perform this neonate show the double bubble appreance, this appreance indicate either atresia duodenal or stenosis duodenal, then intestine presence collected in the left abdomen. Because the baby still can defecate after the wash out, we think this manisfestation more compatible with stenosis duodenal. According to anamnesis about green vomiting, physical examination with distended abdomen before decompression with OGT and wash out, then in radiology found double bubble sign with situs inversus we diagnosed this patient with stenosis duodenal with situs inversus complete.[10,11,13]

Our case presentation was compounded with gastrointestinal malrotation, and more often than not, the surgical approach is Ladd’s procedure. In this case, the stomach is located to the right of the abdomen with pylorus and duodenum to the right of the abdomen and short mesentery keeping the small bowel within the left side of the abdomen. The caecum and the rest of the large intestine are located to the left of the abdomen. Ladd’s procedure is described in four main steps : (1) counterclockwise detorsion and reduction of any volvulus if present; (2) division of the

abnormal Ladd's band overlying the duodenum; (3) widening of the root of small bowel mesentery via removing the adhesions around the superior mesenteric artery and duodenal mobilization; (4) rearranging the small bowel to the right and caecum to the left of the abdomen with appendicectomy. But because this case has situs inversus complete we are rearranging the small bowel and the caecum opposite with the normal anatomy. After the surgical approach we diagnosed this patient with stenosis doudeni congenital et causa ladd's band et causa malrotation and situs inversus complete.

The surgical approach has to be supported with post-operative optimization of fluid and electrolytes with parenteral nutrition to get better outcome.

Conclusions

We conclude this case presentation cause by extrinsic factor (malrotation with Ladd's band) that induced intrinsic factor (duodenal stenosis). The association of duodenal atresia with situs inversus abdominus is extremely rare. With prompt recognition of the condition, surgical incision can be planned preoperatively. The "mirror anatomy" should be kept in mind while performing the surgery. The outcome is no different from the duodenal atresia without situs inversus, as the prognosis depends on the gravity of the associated cardiac anomalies.

Acknowledgements

Author would like to thank the director of RSUD dr.Dorys Sylvanus, the Dean faculty of medicine, Universitas Palangkaraya and all parties that involved for their support during this study conducted

Refrerences

1. Miscia, M.E., Lauriti, G., Lelli Chiesa, P. *et al.* Duodenal atresia and associated intestinal atresia: a cohort study and review of the literature. *Pediatr Surg Int* **35**, 151–157(2019).https://doi.org/10.1007/s00383-018-4387-1 .
2. Pijpers, A.G.H.; Eeftinck Schattenkerk, L.D.; Straver, B.; Zwijnenburg, P.J.G.; Broers, C.J.M.; Van Heurn, E.L.W.; Gorter, R.R.; Derikx, J.P.M. The Incidence of Associated Anomalies in Children with Congenital Duodenal Obstruction—A Retrospective Cohort Study of 112 Patients. *Children* **2022**, *9*,1814. https://doi.org/10.3390/children9121814.
3. Bethell, G.S.; Long, A.M.; Knight, M.; Hall, N.J. Congenital duodenal obstruction in the UK: A population-based study. *Arch. Dis. Child. Fetal Neonatal Ed.* **2020**, *105*, 178–183.
4. Mustaqim K, Mohd Shah M, Muhammad Asri N (March 14, 2023) Double Whammy: Duodenal Stenosis and Gastrointestinal Malrotation. Cureus 15(3): e36137. doi:10.7759/cureus.36137
5. Marcadis AR, Romain CV, Alkhoury F. Robotic duodeno-duodenostomy creation in a pediatric patient with idiopathic duodenal stricture. Journal of Robotic Surgery. 2019;13(5):695-8.
6. Win MKK, Mensah C, Kaushik K, Pierre L, Adeyinka A. Duodenal Stenosis: A Diagnostic Challenge in a Neonate With Poor Weight Gain. Cureus. 2020;12(6):e8559.
7. Desdwianto, D. and Matulatan, F. (2022) 'Duodenal obstruction in a neonate with abdominal situs inversus and isolated levocardia', *Journal of Pediatric Surgery Case Reports*, 81, p. 102239. doi:10.1016/j.epsc.2022.102239.
8. Ahmed, Y.B. *et al.* (2012) 'Combination of partial situs inversus, polysplenia and annular pancreas with duodenal obstruction and intestinal malrotation', *Journal of the Belgian Society of Radiology*, 95(4), p. 257. doi:10.5334/jbr-btr.633.
9. Shankar, R., Rao, S. and Shetty, K. (2012) 'Duodenal Atresia in association with Situs Inversus Abdominus', *Journal of Indian Association of Pediatric Surgeons*,

17(2), p. 71. doi:10.4103/0971-9261.93967.
10. Escobar MA, Ladd AP, Grosfeld JL et al (2004) Duodenal atresia and stenosis: long-term follow-up over 30 years. J Pediatr Surg 39:867–871
11. Chen QJ, Gao ZG, Tou JF, *et al*. Congenital duodenal obstruction in neonates: a decade's experience from one center. *World J Pediatr* 2014;10:238–44
12. Saha, M. Alimentary Tract Atresias associated with Anorectal Malformations: 10 Years' Experience. *J. Neonatal Surg.* **2016**, *5*, 43
13. Fiona F, Margiani NN, Sitanggang FP. Proven Cases of Duodenal Atresia on Plain Abdominal Radiography in Correlation With Surgical Findings : a Cases Series. Jurnal Profesi Medika : Jurnal Kedokteran dan Kesehatan. 2020;14(2).
14. Sharma S, Rashid KA, Dube R, Malik G K, Tandon R K. Congenital duodenal obstruction with situs inversus totalis: report of a rare association and discussion. J Indian Assoc Pediatri Surgery 2008;13:77-8
15. Applebaum H. Duodenal atresia and stenosis-annular pancreas. Pediatric surgery. 2006:1260-8.
16. Nawaz A, Matta H, Hamchou M, Jacobez A, Trad O, Al Salem AH. Situs inversus abdominus in association with congenital duodenal obstruction: A report of two cases and review of the literature. *Pediatr Surg Int.* 2005;21:589–92