

DUODENAL ATRESIA REPAIR - CASE REPORT

A Surd¹, H Gocan¹, Rodica Muresan¹

Abstract

Background: Duodenal atresia and stenosis is a frequent cause of congenital high intestinal obstruction. Current operative techniques and contemporary neonatal critical care result in a 5% morbidity and mortality rate. Congenital duodenal atresia complicated by wound dehiscence is very rare, yet not uncommon.

Case presentation: A 3-day-old female baby was hospitalized for bilious vomiting since the day before. After the diagnosis was made a diamond shaped duodeno-duodenostomy was performed through a midline incision. On the 3rd postoperative day clear yellow peritoneal fluid started draining from the wound. To rule out an anastomotic leakage oral methylene blue was given through the NG tube. Wound repair was performed on the 4th postoperative day.

Conclusion: This complication can be treated by early diagnosis and surgical intervention. A number of factors for abdominal wound dehiscence have been identified but the risk of developing abdominal wound dehiscence can be reduced by using a transverse incision, preventing wound infection, and by applying optimal surgical technique in every patient.

Key words: duodenal atresia, intestinal obstruction, wound dehiscence

Introduction

Congenital duodenal obstruction is one of the most common anomalies in newborns and infants. Several embryological defects in foregut development, canalization or rotation lead to congenital duodenal obstruction such as duodenal atresia, duodenal web and malrotation. In addition, anomalies of the pancreas can cause duodenal obstruction. Although advances in management in neonatal intensive care, respiratory support and nutritional therapy have dramatically increased the survival rate, the relatively high postoperative reoperation rate remains a challenge in the treatment of congenital duodenal obstruction.[1] We report a case who required reoperation after initial repair for a wound dehiscence on the 4th postoperative day.

Case report

A full term, 3-days-old baby girl borned in a private clinic by C-section was referred to our hospital because of recurrent bilious vomiting since the second day of life. Plain and contrast radiographs demonstrated a dilated stomach and a dilated proximal duodenum (Fig 1).



Fig 1. A,B,C: Preoperative radiographs showing a dilated stomach and proximal duodenum.
D,E: Postoperative radiographs showing aeration of the bowel and the presence of the transanastomotic tube.
F,G,H: Contrast radiograph showing passage of gastrografin and no anastomotic leakage.

¹Emergency Children's Hospital, Department of Pediatric Surgery, Cluj-Napoca
E-mail: adisurd@yahoo.com, horatiugocan@yahoo.com, muresanrodicaana@yahoo.com

Discussions

Congenital obstruction of the duodenum (CDO) including duodenal atresia and stenosis occurs in approximately 1 in 6000 to 1 in 10,000 births.[2,3] Vomiting in the newborn demands early investigation of the alimentary tract, in particular, a plain film or gastrointestinal series, so that these children will be seen and operated on early with the best chance for survival. Although survival in infants, with congenital intestinal obstruction has improved, duodenal obstruction continues to present unique challenges.

The preferred surgical repair of the primary anomaly is a diamond-shaped (proximal transverse to distal longitudinal) anastomosis. For the surgical treatment of congenital intrinsic duodenal obstruction Kimura, in 1977, introduced an anastomotic technique of side-to-side duodeno-duodenostomy in two layers, placing the bowel incisions to form a "diamond-shaped" (DSD) incision and created a larger stoma. In 1990, he refined his technique based on a transverse incision in the distal end of the proximal duodenum and a longitudinal incision in the distal duodenum. The double-layer anastomosis was completed using 5-0 or 6-0 catgut or Vicryl continuous inner and 6-0 silk interrupted outer layer sutures. By this technique the anastomosis recovered its function in a significantly shorter

time period and early postoperative feeding could be started.[4,5]

Fascial dehiscence is uncommon in newborns but can have serious consequences when it occurs. There are multiple risk factors for fascial dehiscence, including the type of incision used. Pediatric surgeons often use a supraumbilical transverse incision particularly in infants because of the access this incision provides to the entire abdomen.[6] We used a vertical incision which is more apt to dehiscence than transverse incisions in children, particularly babies. Abdominal wound dehiscence is a severe complication of abdominal surgery in children. Its sudden presentation and requirement of surgical repair in the majority of cases underline the stressful character of this complication for both patients and parents. Literature on risk factors for abdominal wound dehiscence in children is limited. Reported incidences range from 0.4–1.2%, with mortality rates reported as high as 45% [6,7-10].

This complication can be treated by early diagnosis and surgical intervention. A number of factors for abdominal wound dehiscence have been identified but the risk of developing abdominal wound dehiscence can be reduced by using a transverse incision, preventing wound infection, and by applying optimal surgical technique in every patient.

References

1. Bailey PV, Tracy TF Jr, Connors RH, et al. Congenital duodenal obstruction: a 32-year review. *J Pediatr Surg* 1993;28:92–5.
2. Fonkalsrud EW, DeLorimier AA, Hays DM. Congenital atresia and stenosis of the duodenum: A review compiled from the members of the Surgical Section of the American Academy of Pediatrics. *Pediatrics* 1969;43:79–83.
3. Haeusler MC, Berghold A, Stoll C, Barisic I, Clementi M; EUROSCAN Study Group. Prenatal ultrasonographic detection of gastrointestinal obstruction: Results from 18 European congenital anomalies registries. *Prenat Diagn* 2002;22:616–23.
4. Zuccarello B, Spada A, Centorrino A, Turiaco N, Chirico MR, Parisi S. The Modified Kimura's Technique for the Treatment of Duodenal Atresia. *Int J Pediatr*. 2009; 2009: 175963.
5. Kimura K, Tsugawa C, Ogawa K, Matsumoto Y, Yamamoto T, Asada S. Diamond-shaped anastomosis for congenital duodenal obstruction. *Arch Surg* 1977;112:1262–3.
6. Waldhausen JH, Davies L: Pediatric postoperative abdominal wound dehiscence: transverse versus vertical incisions. *J Am Coll Surg* 2000;190:688–691
7. Gross RE, Furguson CL (1953) Abdominal incision in infants and children. *Ann Surg* 137:349–355.
8. Campbell DP, Swenson O (1972) Wound dehiscence in infants and children. *J Ped Surg* 7:123–126.
9. Gruessner R, Pistor G, Kotei DN et al (1986) Relaparotomie im Kindesalter. *Langenbecks Arch Chir* 367:167–180.
10. Çıgdem MK, Onen A, Otçu S et al (2006) Postoperative abdominal evisceration in children: possible risk factors. *Pediatr Surg Int* 22:677–680.

Correspondence to:

Adrian Surd
 Moșilor Street, no.68
 Cluj-Napoca
 Romania
 E-mail: adisurd@yahoo.com