

Malrotation and Midgut Volvulus Mimicking Duodenal Atresia in the Neonatal Period: Case Report

Ufuk Ateş, Gönül Küçük, Halise Akpınar, Gülnur Göllü,
Aydın Yağmurlu, Murat Çakmak

* Ankara Üniversitesi Tıp Fakültesi Çocuk Cerrahisi Anabilim Dalı, Ankara, Türkiye

Abstract

The neonates with duodenal atresia have bilious vomiting and abdominal distention and “double-bubble” sign is a typical sign for duodenal atresia. Although it is typical for duodenal atresia, it can also be seen in other duodenal obstructing pathologies such as malrotation and midgut volvulus. A neonate who had bilious vomiting had “double-bubble” sign in plain abdominal X-ray and had a prediagnosis of duodenal atresia. Laparoscopy was performed with the prediagnosis of duodenal atresia. Appendix was located at left hypochondriac area, root of mesentery was narrow and intestines were malrotated. Laparotomy by using right upper transverse incision was performed. The intestines were found to rotate twice (720 degrees). Midgut volvulus was manually corrected and perfusion of intestines was found to be normal. Ladd procedure was performed; intestines were opened as a fan. There was no complication during or after the surgery and in his six-month follow-up he has no problem.

As a conclusion, malrotation which is one of the differential diagnoses of duodenal atresia should be kept in mind in patients with duodenal atresia-like symptoms and signs and operation should be planned according to these.

Keywords: Neonate, duodenal atresia, malrotation, “double-bubble”, midgut volvulus

Yenidoğan Döneminde Duodenal Atreziyi Taklit Eden Malrotasyon ve Ortabarsak Volvulusu

Özet

Duodenal atrezili yenidoğanlarda safıralı kusma, karında distansiyon olup “double-bubble” bulgusu duodenal atrezi için tipiktir. Bu belirti duodenal atrezi için tipik olmasına rağmen duodenal tıkanıklık yapan malrotasyon, ortabarsak volvulusu gibi hastalıklarda da görülebileceği göz önünde bulundurulmalıdır. Safıralı kusan bir yenidoğanın ayakta direk karın grafisinde “double-bubble” bulgusu olup duodenal atrezi öntanısıyla ameliyata alındı. Yapılan laparoskopide apendiks sol hipokondriyak alanda olduğu, mezenter kökünün dar olduğu ve barsaklarda malrotasyon olduğu izlendi. Sağ üst kadrans transvers kesiyle laparotomi yapıldı ve barsakların iki tur (720°) döndüğü izlendi. Ortabarsak volvulusu manuel olarak düzeltildikten sonra barsakların dolaşımının normal olduğu izlendi. Ladd prosedürü sonrasında barsaklar yelpaze şeklinde açıldı. Ameliyat sırasında ve sonrasında herhangi bir komplikasyon gelişmedi. Bir yıllık izlemde hastanın herhangi bir sıkıntısı olmadı. Sonuç olarak, duodenal atrezinin ayırıcı tanıları içerisinde olan malrotasyon duodenal atrezi-benzeri belirtileri ve bulguları olan hastalarda akılda tutulmalı ve ameliyat buna göre planlanmalıdır.

Anahtar Kelimeler: Yenidoğan, duodenal atrezi, malrotasyon, “double-bubble”, orta-barsak volvulusu

Introduction

Malrotation and midgut volvulus may have similar signs with duodenal atresia in neonates. The neonates with duodenal atresia have bilious vomiting and abdominal distention and “double-bubble” sign is a typical sign for duodenal atresia¹. This sign consists of one large stomach gas and a smaller gas of duodenum^{1,2}. Pathologies like duodenal atresia which cause complete duodenal obstruction do not have air appearance other than distended stomach and duodenum. In partial duodenal obstruction there is air in distal aspect other than stomach and duodenum. If there is no air distally, duodenal atresia is suspected first. The aim of this study is to present a neonate with prediagnosis of duodenal atresia by having bilious vomiting and a plain abdominal X-ray revealing “double-bubble” sign with no air distally whose operation revealed malrotation and midgut volvulus instead of duodenal atresia.

Case

A 2650g three-day old boy was admitted to emergency service because of bilious vomiting. His antenatal screening was normal. Physical examination revealed distention in epigastric area and signs of mild dehydration. Other examination and laboratory findings were normal. Plain abdominal X-ray revealed “double-bubble” sign (Fig 1). He had a prediagnosis of duodenal atresia and echocardiography, urinary ultrasonography which were performed for any associated anomalies were normal. Laparoscopy was performed with the prediagnosis of duodenal atresia. It revealed passage of air to jejunum and ileum after compressing stomach. Besides appendix was located at left hypochondriac area, root of mesentery was narrow and intestines were malrotated. Laparotomy by using right upper transverse incision was performed. The intestines were found to rotate twice (720 degrees) (Fig 2).

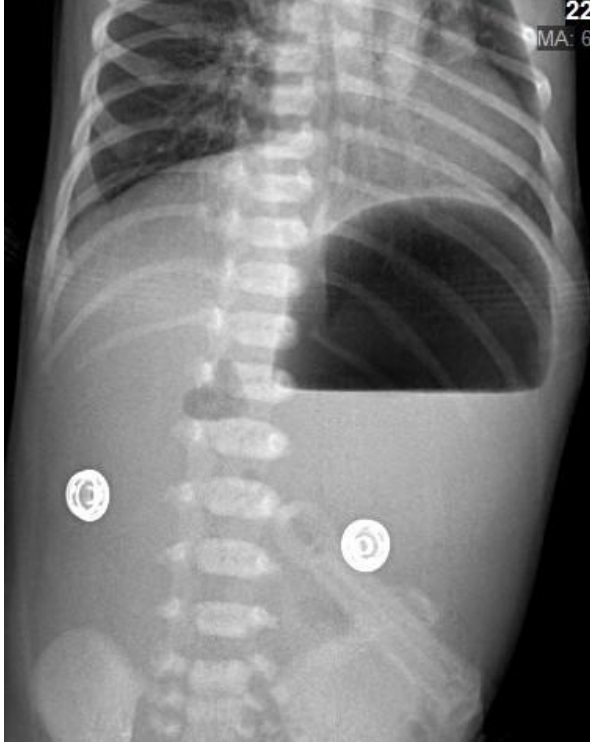


Fig 1. "Double-bubble" sign in plain abdominal X-ray.



Fig 2. The 720 degrees rotation of intestines.



Fig 3. The intestines were opened as a fan.

Midgut volvulus was manually corrected and perfusion of intestines was found to be normal. Ladd procedure was performed; intestines were opened as a fan (Fig 3). There was no complication during or after

the surgery and in his six-month follow-up he has no problem.

Discussion

The incidence of congenital duodenal obstruction is 1:10000³. The most frequent causes of congenital duodenal obstruction are duodenal atresia and duodenal stenosis. Other causes include malrotation, annular pancreas and preduodenal portal veins¹.

The findings may vary from being asymptomatic to abdominal distention and bilious vomiting according to degree of malrotation^{1,4,5}. If diagnosis of volvulus delays, intestines may become necrotic as a result of impairment in lymphatics and vessels. In complete duodenal obstruction, there is no air appearance in distal intestines. On the other hand, in partial duodenal obstructions there is air in distal aspect. If there is no air in distal intestines, the first differential diagnosis is duodenal atresia. The absence of gas distally together with "double-bubble" sign shouldn't exclude malrotation and midgut volvulus¹.

In this patient who had been operated with the prediagnosis of duodenal atresia was found to have malrotation and midgut volvulus instead of duodenal atresia. There was no intestine loss because of quick management.

Conclusion

Malrotation which is one of the differential diagnoses of duodenal atresia should be kept in mind in patients with duodenal atresia-like symptoms and signs and operation should be planned according to these.

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Corresponding author:

G. Göllü

Ankara Üniversitesi Tıp Fakültesi, Çocuk Cerrahisi Anabilim Dalı, 06100 Dikimevi-Ankara, Türkiye,
Tel: +90 (312) 595 6444 Fax: +90 (312) 362 6400.
E-mail: drggollu@yahoo.com