Isolated Thoracoschisis: Case Report and Review of Literature

Hamed Mahmoud Seleim1 Mahmoud M.A. ElFiky1 Ahmed E. Fares1 Mohamed M. Elbarbary1

1Department of Pediatric Surgery, Cairo University, Cairo, Egypt

Address for correspondence Hamed Mahmoud Seleim, FEBPS, Cairo University Specialized Pediatric Hospital, Cairo 11632, Egypt (e-mail: hamed_seleim@yahoo.com).

Introduction

Evisceration of abdominal contents through a defect in the thoracic wall is an extremely rare congenital malformation. It may present itself as an isolated anomaly or usually or more commonly be associated with limb and abdominal wall defects representing the limb–body wall complex (LBWC).1–3 Early amnion rupture and embryonic maldevelopment are possible issues relating to the pathogenesis of this malformation.4

Case Report

A full-term male baby weighing 2.7 kg was delivered by cesarean section at 39 weeks of gestation to a 29-year-old woman who had three earlier pregnancies and three live births by cesarean sections. No prenatal ultrasonography was done. The baby presented at day two postnatal from a remote village in Upper Egypt, where no tertiary care neonatal center is available. The infant’s condition was mishandled and the baby was wrapped in nonsterile cotton clothes. The baby was admitted at the surgical NICU at Cairo University Specialized Pediatric Hospital two days after delivery.

Examination revealed poor general conditions with absent suckling and Moro reflexes, mostly due to lack of any resuscitative measures for an entire day. Much of the abdominal viscera were eviscerated through the left anterior thoracic wall leaving scaphoid abdomen. Both the upper and lower limbs were normal. There were no other apparent phenotypic anomalies. Resuscitation was started after wrapping the eviscerated gut with a sterilized transparent plastic film.

Transthoracic echocardiography showed dextrocardia, mostly due to displacement, and 3 mm patent ductus arteriosus.

After about 6 hours of resuscitation, operative exploration was taken under general inhalational anesthesia. The chest wall defect was located at the left side of the thoracic cage, just above and lateral to the left nipple. Operative conversion into a gastroschisis-like defect with construction of a silo bag was done. On thorough review of literature, it was found that this is only the second male infant reported with isolated thoracoschisis.

Keywords

- thoracoschisis
- gastroschisis
- silo
- limb–body wall complex

Abstract

A full-term male baby presented at day 2 postnatal with Riedel liver lobe, stomach, and much of the bowel herniating through a thoracic wall defect located just above and lateral to the left nipple. Operative conversion into a gastroschisis-like defect with construction of a silo bag was done. On thorough review of literature, it was found that this is only the second male infant reported with isolated thoracoschisis.

Received September 11, 2014
Accepted after revision October 16, 2014
Published online December 3, 2014

ISSN 2194-7619.

© 2015 Georg Thieme Verlag KG Stuttgart · New York

License terms
negligence, dehydration, and contamination was sufficient to cause such a miserable course.

Discussion

Thoracoschisis is a very rare congenital malformation where there is herniation of abdominal contents through a lateral rib cage defect. This anomaly usually presents itself as part of LBWC, where there is associated ipsilateral phocomelia and diaphragmatic defect, or presents as an isolated malformation.

LBWC was originally diagnosed when there are two of the following three malformations combined, as proposed by Van Allen: (1) exencephaly/encephalocele and facial clefts, (2) thoraco- and/or abdominoschisis, and (3) limb defects.

The constellation of reduction anomaly of the upper limb, ipsilateral deficiency of the anterior chest wall, and diaphragmatic hernia may occur during the 5th and 6th week of gestation as an early embryonic maldevelopment.

Various theories have been proposed to explain these malformations. Van Allen postulates that many congenital malformations could develop as a result of early vascular disruption, which leads to structural maldevelopment. This

### Table 1 The documented thoracoschisis cases

<table>
<thead>
<tr>
<th>Author</th>
<th>Anomaly</th>
<th>Gender</th>
<th>Site</th>
<th>Defect diameter</th>
<th>Covering amniotic sac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davies et al</td>
<td>LBWC</td>
<td>Female</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Bamforth et al</td>
<td>LBWC</td>
<td>Female</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Derbent and Balci</td>
<td>LBWC</td>
<td>Female</td>
<td>Right</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Biri et al</td>
<td>LBWC</td>
<td>Female</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Karaman et al</td>
<td>Isolated</td>
<td>Male</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Bhattacharyya et al</td>
<td>LBWC</td>
<td>Female</td>
<td>Right</td>
<td>&gt;4 cm</td>
<td>Present</td>
</tr>
<tr>
<td>Present case</td>
<td>Isolated</td>
<td>Male</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent</td>
</tr>
<tr>
<td>Total (n)</td>
<td>Isolated</td>
<td>Male</td>
<td>Left</td>
<td>≤4 cm</td>
<td>Absent = 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td></td>
<td>&gt;4 cm</td>
<td>Present = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 cm = 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 cm = 1</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: LBWC, limb–body wall complex.
theory is considered as a plausible explanation for the occurrence of isolated thoracoschisis.

Riedel lobe of the liver is a tongue-like projection—rather than being a true hepatic lobe—which is attached to the liver surface, mostly at segment VI through a small pedicle, which makes it vulnerable to torsion. It usually occurs as a result of inflammation or attachment to other tissue.6

After thorough review of literature, we found six previously reported cases of thoracoschisis (listed in Table 1). The present case is the second as a male infant with isolated thoracoschisis malformation. Karaman et al reported the first male baby with isolated thoracoschisis, where the Riedel lobe and a small part of the transverse colon were herniated through 2 × 2 cm defect at the left 8th intercostal space. The herniated contents were simply reduced into the abdomen. The two cases reported by Davies (1977)1 and Bamforth (1992)7 were also treated by simple reduction as the small bowel was not herniated. Three other reported cases with this anomaly had died at birth. In the present case, the defect was 3 × 2 cm located at the 4th intercostals space, with Riedel lobe, stomach, and much of the bowel were herniated and covered with fibrinous exudates, necessitating conversion into a gastroschisis/laparoschisis-like defect with a silo bag for safe closure.

Conflict of Interest

None.

References