Case Report

Bilateral Morgagni Hernias Association with Left Bochdalek Diaphragmatic Hernia: A Very Rare Anomaly

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Morgagni hernia association with Bochdalek diaphragmatic hernia is a very rare congenital anomaly. The authors reported a 2-year-and-2-month-old boy with Down syndrome who has a history of recurrent pneumonia over a one-year period. A chest film of the first admission at 6 months of age revealed only minimal pulmonary infiltration and normal findings of both sides of the diaphragm. The last investigations with chest films and CT scan were suggestive of sequestration of the right lung with left Morgagni and left Bochdalek diaphragmatic hernias. An exploratory laparotomy revealed bilateral Morgagni and left Bochdalek hernias with hernial sacs in all of the diaphragmatic defects. All of the hernial sacs were excised and the diaphragmatic defects were closed with 2-0 silk interruptedly. Postoperative course was uneventful and he was doing well during his follow-up at one year.

Keywords: *Morgagni hernia, Bochdalek hernia, Retrosternal hernia, Parasternal hernia, Posterolateral hernia, Acquired congenital diaphragmatic hernia*

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The occurrence of bilateral diaphragmatic hernias is a rare condition[1,2] but combination of bilateral Morgagni hernias and left Bochdalek hernia is extremely rare. To our knowledge, this has not previously been reported in the world literature.

The aim of the present study was to report one case of this entity who was recently treated at the Queen Sirikit National Institute of Child Health (Children's Hospital), Bangkok, Thailand.

Case Report

A 2-year-and-2-month-old boy, body weight 9.6 kg, with Down syndrome was referred from a tertiary hospital due to 10 episodes of recurrent pneumonia over a one-year period. A chest film of the first admission at 6 months of age revealed only minimal pulmonary infiltration and normal findings of both sides of the diaphragm (Fig. 1). He then intermittently developed pneumonia with dyspnea and cyanosis. Upper gastrointestinal (UGI) series appeared normal. The last investigations at the tertiary hospital by chest films and Computerized tomogram (CT) scan revealed a mass in the right anterolateral aspect of mediastinum with a feeding vessel from the abdomen, herniation of the colon into the chest cavity through the left antero-medial parasternal defect and partial herniation of the left kidney through the left posterolateral aspect of the diaphragm (Fig. 2-4). The provisional diagnosis was left Morgagni and left Bochdalek diaphragmatic hernias with a probable sequestration of the right lung. An exploratory laparotomy was done through a subcostal incision in the left upper quadrant. Bilateral parasternal and left posterolateral diaphragmatic hernias (bilateral Morgagni and left Bochdalek hernias) were noted (Fig. 5, 6). Hernial sacs were present in all of the

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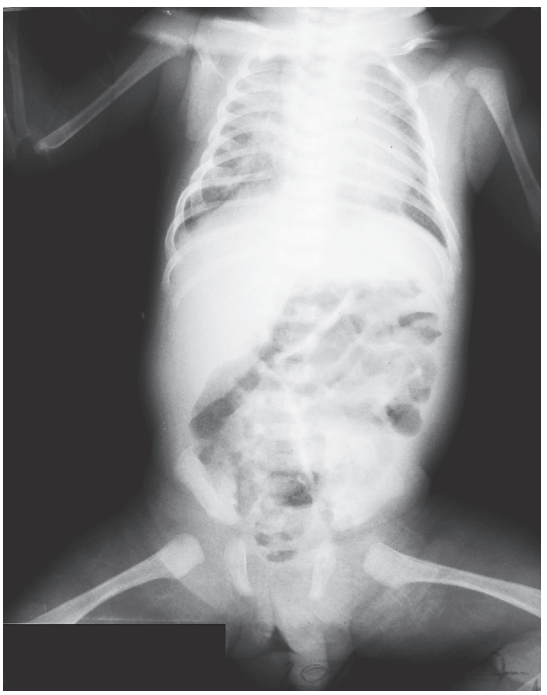

Fig. 1 Minimal pulmonary infiltration and normal findings of the diaphragm in the first chest film

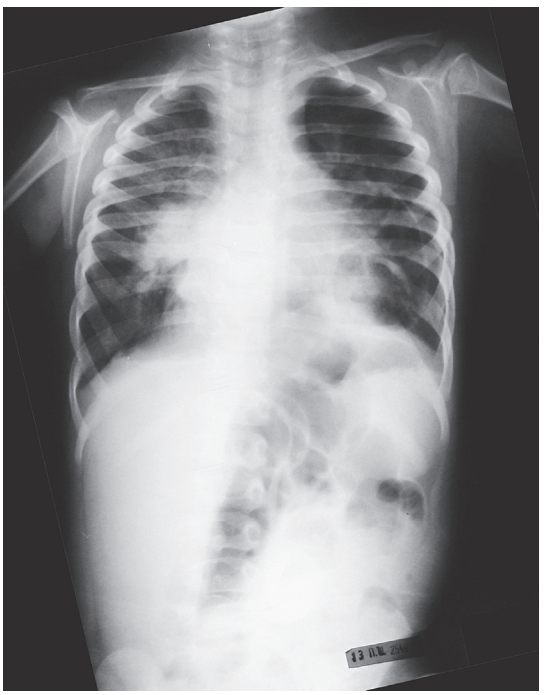

Fig. 2 A mass in the RLL and a cystic lesion in the LLL of the last chest film before the CT scan examination

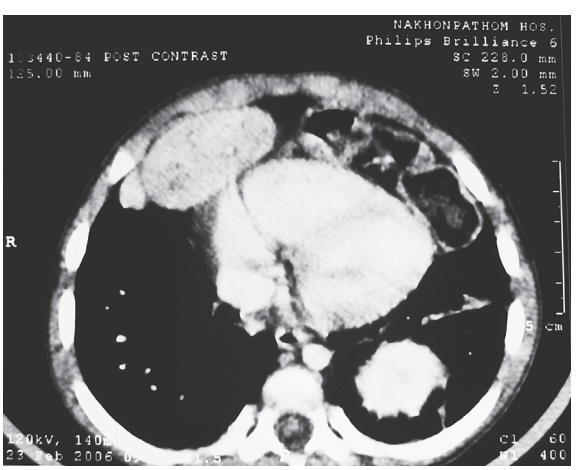

Fig. 3 A mass in the right lower lung field with a feeding vessel from the abdomen, left parasternal hernia and suspected of left posterolateraldiaphragmatic hernia in the CT scan

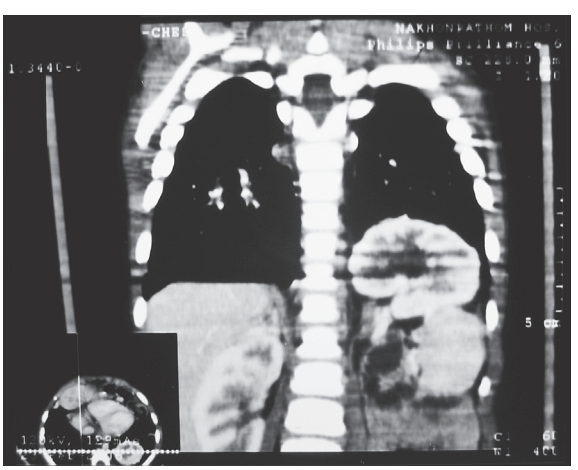

Fig. 4 Herniation of the left kidney into the left posterolateral diaphragmatic hernia

hernias. The medial segment of the left lobe of the liver herniated into the right parasternal hernia whereas the transverse colon herniated into the left one. The left kidney was in the posterolateral diaphragmatic defect. After the abdominal viscera had been reduced into the abdomen, the hernial sacs were excised. The three diaphragmatic defects were closed with 2-0 silk interruptedly. The abdominal incision was closed without intercostal drainage. His postoperative course was uneventful with normal radiological shadow (Fig. 7).

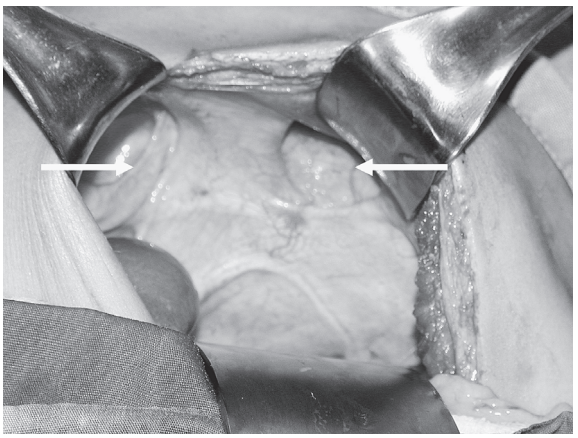

Fig. 5 Bilateral Morgagni hernias from the operative findings

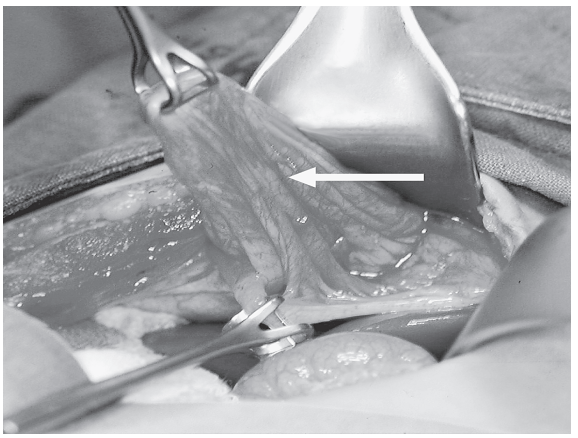

Fig. 6 Left posterolateral diaphragmatic defect with sac

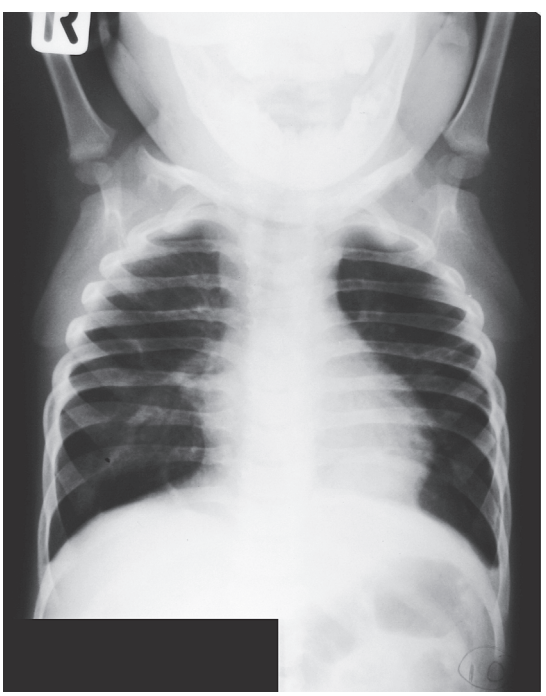

Fig. 7 Normal radiological findings in the postoperative film

He was doing well without the symptoms of respiratory tract infection during his follow-up at one year.

Discussion

Development of Morgagni (retrosternal or parsaternal) hernia results from defective attachment of the anterior portion of the diaphragm to the ribs and the sternum. There is a true opening in the diaphragm posterior to the sternal and costal insertions from this anomaly[1-3]. The vast majority of Morgagni hernia presents after neonatal period and mostly occurs on the right side. The left side and bilateral Morgagni hernias are uncommon. A high incidence of congenital anomalies including congenital heart diseases and trisomy 21 (Down syndrome) was noted[1,2-4].

Bochdalek or posterolateral hernia results from failure in the formation of pleuroperitoneal membrane and incomplete closure of pleuroperitoneal canal by the 8th week of gestation[1-5]. Visceral herniation through the defect into the chest can occur as the intestines return to the peritoneal cavity beginning at the 10th week of gestation. Incidence of the left Bochdalek hernia is more commom than the right one by a ratio of 4:1. Bilateral posterolateral defects are extremely rare.

Almost all of the patients with Morgagni hernias had hernial sacs whereas only 10% of Bochdalek hernias had ones[3,5-7]. A combination of bilateral Morgagni and left Bochdalek diaphragmatic hernias in this patient is extremely rare and, to the best of our knowledge, has not been reported in world literature. Etiology may be caused by either maldevelopment of the diaphragm or rapid return of the intestines to the peritoneal cavity before the 10th week of gestation.

This reported case was presumed to the congenital diaphragmatic hernia (CDH) but the diagnosis was delayed. Wiseman and MacPherson[8] in 1977 used the term “acquired CDH” for lesions presenting at variable times after documented normal chest x-ray. The patient in the present report appeared well during early infancy period but developed respiratory symptoms thereafter. This should, therefore, be regarded as a case of acquired-CDH.

Conclusion

The present study is a report of a very rare case of bilateral Morgagni and left Bochdalek hernias with presentation of recurrent pneumonia over a one-year period. The surgical management obtained a dramatic response without any complications.

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ไส้เลื่อนกะบังลม Morgagni ทั้งสองข้างร่วมกันไส้เลื่อนกะบังลม Bochdalek ข้างซ้าย: ความผิดปกติที่พบได้น้อยมาก

รังสรรค์ นิรามิษ, วรรณนิสา ภู่เจริญ, สุขวัฒน์ วัฒนาธิษฐาน

ไส้เลื่อนกะบังลมชนิด Morgagni ที่พบร่วมกับไส้เลื่อนกะบังลมชนิด Bochdalek เป็นความพิการแต่กำเนิดที่พบได้น้อยมาก คณะผู้รายงานนำเสนอผู้ป่วย 1 ราย เป็นเด็กชายอายุ 2 ปี 2 เดือน พร้อมกับภาวะดาวน์ ที่มีอาการปอดบวมเป็น ๆ หาย ๆ มากกว่า 1 ปี ภาพรังสีทรวงอกเมื่อนอนรักษาในโรงพยาบาลครั้งแรกขณะอายุได้ 6 เดือน พบมีความผิดปกติของปอดเพียงเล็กน้อยและกะบังลมทั้งสองข้างเป็นปกติ การตรวจภาพรังสีทรวงอกและเอกซเรย์คอมพิวเตอร์ครั้งสุดท้ายพบลักษณะคล้าย sequestration ของปอดข้างขวาร่วมกับไส้เลื่อนชนิด Morgagni และ Bochdalek ของกะบังลมข้างซ้าย การผ่าตัดพบไส้เลื่อนกะบังลมที่มีถุงคลุมทั้ง Morgagni ทั้งสองข้างและไส้เลื่อน Bochdalek ข้างซ้าย ได้ตัดถุงที่คลุมไส้เลื่อนออกและเย็บซ่อมกะบังลมที่เป็นรูโหว่ด้วยไหมเป็นคำ ๆ ภายหลังผ่าตัดผู้ป่วยสบายดีไม่มีภาวะแทรกซ้อนและเป็นปกติดี เมื่อมาตรวจซ้ำอีก 1 ปีต่อมา