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Laparoscopic surgery for a Bochdalek hernia triggered by pregnancy in an adult woman: A case report

Shotaro Matsudera*, Masanobu Nakajima, Masakazu Takahashi, Hiroto Muroi, Maiko Kikuchi, Yosuke Shida, Keisuke Ihara, Satoru Yamaguchi, Kinro Sasaki, Takashi Tsuchioka, Hiroyuki Kato

First Department of Surgery, Dokkyo Medical University, Tochigi, Japan

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ABSTRACT

INTRODUCTION: A Bochdalek hernia (BH) is a type of congenital diaphragmatic hernia. We herein describe an adult woman with a BH triggered by pregnancy and treated by laparoscopic surgery.
PRESENTATION OF CASE: A 26-year-old woman was referred to our hospital because of abdominal pain and dyspnea resulting from a left diaphragmatic hernia. She was diagnosed with a BH and underwent laparoscopic surgery. Her postoperative progress was satisfactory, and no recurrence was found at follow-up approximately 1 year later.
DISCUSSION: A recently published study reviewing detailed cases of laparoscopic and/or thoracoscopic repair of adult BH from 1999 to 2016 identified 30 cases. A laparoscopic approach for treatment of BH has recently attracted increasing interest.
CONCLUSION: Laparoscopic surgery can be safely performed on adults with BH without complications.

1. Introduction

A Bochdalek hernia (BH), a form of congenital diaphragmatic hernia, occurs when muscular portions of the diaphragm fail to develop normally, resulting in displacement of abdominal organs into the thoracic cavity. BH occurs mainly during the 8th to 10th week of foetal life [1]. Most BHs cause severe cardiorespiratory distress immediately after birth and should therefore be surgically treated during the neonatal period [1]. BH is relatively rare in adults.

We performed laparoscopic surgery for a BH in an adult woman after she had given birth.

This case report has been reported in line with the SCARE criteria [2].

2. Presentation of case

A 26-year-old woman was referred to our hospital because of abdominal pain and dyspnoea resulting from a left diaphragmatic hernia. She had no history of previous abdominal or thoracic trauma. Left abdominal tenderness was found on physical examination. Laboratory analyses were within normal limits. Chest X-ray films showed an air bubble with an air–fluid interface in the left thoracic cavity (Fig. 1). Contrast-enhanced chest and abdominal computed tomography showed prolapse of the spleen, stomach, and colon into the left thoracic cavity (Fig. 2). The patient was therefore diagnosed with a BH.

We attempted endoscopic reduction, but it was difficult. So, a decision was made to perform laparoscopic hernia repair. The patient was placed in the supine position with her legs apart. Three trocars were used, one each in the umbilical (12 mm), right hypochondriac (5 mm), and left hypochondriac (12 mm) regions (Fig. 3). A 7- × 5-cm hernial defect without a hernial sac was found (Fig. 4). The stomach, spleen, small intestine, and left side of the colon were protruding into the hernia orifice. A suspended thread covered by an 8-F Nelaton catheter was used to elevate the left lobe of the liver to minimise liver injury and facilitate laparoscopic repair of the BH. The visceral organs were placed back into the abdominal cavity. Because the spleen had adhered to the thoracic cavity, the adhesions were exfoliated using Harmonic ACE shears (Ethicon, Somerville, NJ, USA). Thereafter, the spleen was carefully placed back into the abdominal cavity using an Endo Retract Maxi (Covidien, Dublin, Ireland) covered by gauze (TroX; Osaki, Nagoya, Japan). The defect was repaired with absorbable suture (3-0 Vicryl; Ethicon) and reinforced with Parietex Optimized Composite mesh (Covidien). The mesh was fixed to the diaphragm with an Endo Universal stapler (Covidien) (Fig. 5).

Abbreviations: BH, Bochdalek hernia.

* Corresponding author at: Department of Surgery, Dokkyo Medical University, 880 Kitakobayashi, Mibu, Shimotsuga, Tochigi 321-0293, Japan.
E-mail address: matsu-s@dokkyomed.ac.jp (S. Matsudera).

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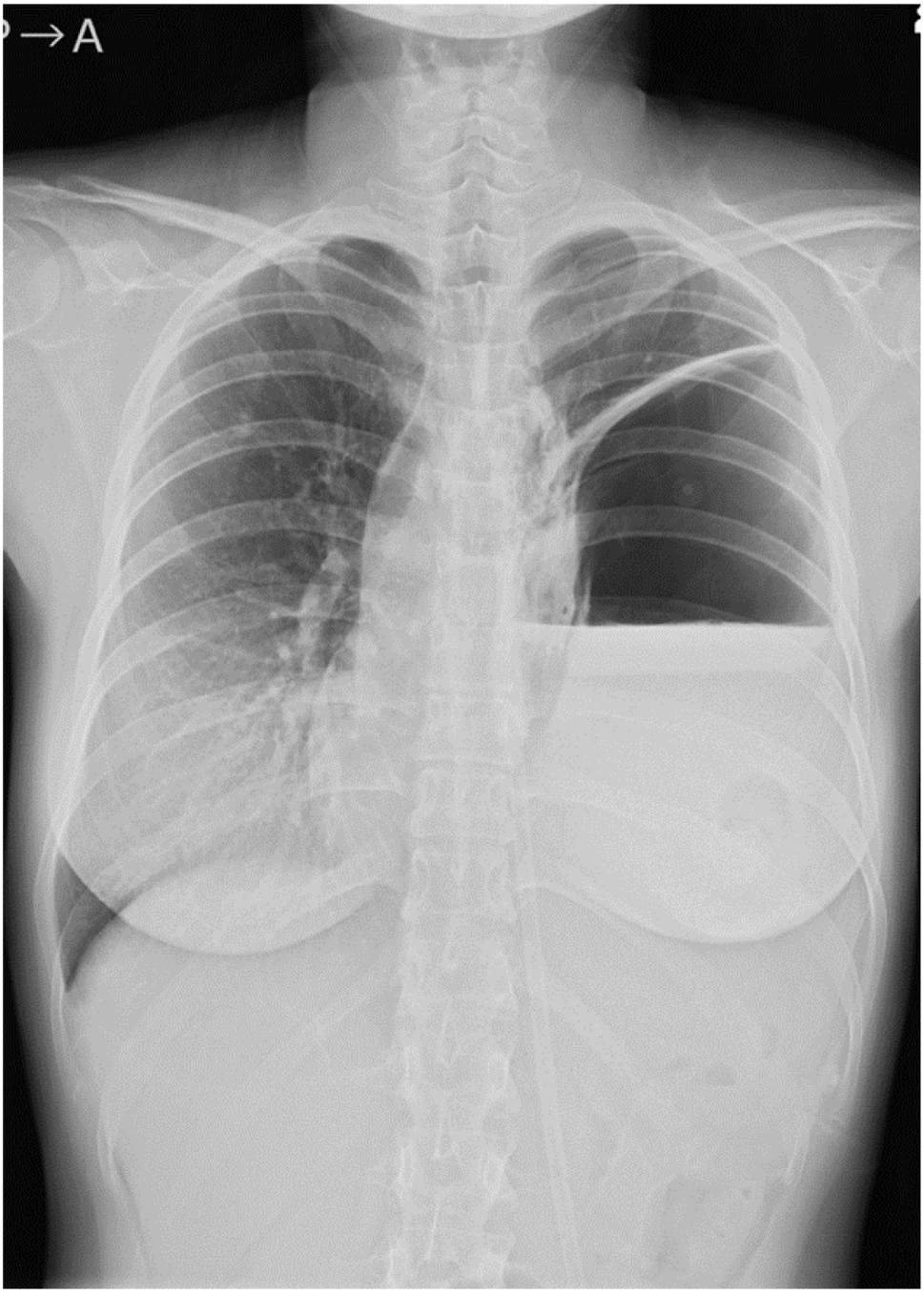

Fig. 1. Chest radiograph shows gastric bubbles occupying the left thoracic cavity.

The postoperative course was uneventful, and the patient was discharged 4 days after surgery. At the 1-year follow-up, physical and radiological examinations showed no signs of recurrence (Fig. 6).

3. Discussion

A BH, which is caused by posterolateral defects of the diaphragm, was first described by Bochdalek in 1848 [1]. Its incidence is reportedly 1 in 2200–12,500 live births [3]. Most BHs are detected after birth on the left side [3]. BHs are relatively rare in adults, most of whom present with chronic atypical symptoms such as chronic dyspnoea, chest pain, recurrent chest infection, pleural effusion, recurrent abdominal pain, and vomiting. The cause remains unknown [3]. Wiseman et al. reported that increased intra-abdominal pressure, such as that occurring in pregnancy, during exercise, and in patients with obesity, is an important influential factor [4]. In the present case, we surmised that the BH had developed during late pregnancy, when the patient first became aware of abdominal pain on her left side. After giving birth, her intra-abdominal pressure increased rapidly during exercise, exacerbating her symptoms. When symptoms such as abdominal pain and/or dyspnoea develop during pregnancy, clinicians should consider the possibility of a BH.

Radiological investigations can be helpful in the diagnosis of BH. Chest radiographs may show abnormal contents above the