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LETTER TO THE EDITOR

A case of a patient who experienced diaphragmatic hernia after repair of inguinal hernia

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To the Editor:

Diaphragmatic hernia commonly occurs at birth, and the reported incidence is 1 per 2,000 live births [1]. We encountered a patient who experienced diaphragmatic hernia that was not detected at birth but after repair of an inguinal hernia.

The patient was a 4-month-old female infant measuring 43.9 cm and weighing 2.4 kg who had been delivered by cesarean section at 23 weeks and 6 days, with a birth weight of 642 g. Respiratory care was provided from immediately after birth. No congenital abnormalities were observed, except for an inguinal hernia containing the prolapsed left ovary. The tracheal tube was removed at 56 days of life, and oxygen supplementation was continued thereafter until 120 days of life. At 130 days after birth (corrected age, 42 weeks and 3 days), definitive left inguinal herniorrhaphy was planned. An ilioinguinal nerve-iliohypogastric nerve block was given in addition to general anesthesia for the surgery. The surgery time was 30 min and the anesthesia time 87 min. No specific problems were detected in the postoperative X-ray after the surgery (Fig. 1a). On postoperative day 4, the infant suddenly experienced cyanosis and rapid respiration with a decrease of the oxygen saturation. Chest X-ray showed a left diaphragmatic hernia, seemingly a prolapsed colon (Fig. 1b). Tracheal intubation was performed followed by mechanical ventilation, and repair of the diaphragmatic hernia was performed. General anesthesia was induced and maintained with midazolam, fentanyl, vecuronium, and remifentanil. The surgery time was 93 min, and the anesthesia time 122 min. The postoperative course was uneventful, and the tracheal tube was removed on day 3 after the diaphragmatic hernia repair.

Diaphragmatic hernia normally develops at birth from respiratory failure and abdominal retraction. As a consequence of elective treatment instituted during infancy itself, the mortality rate has decreased [1]. Fetal age at the time of development of the diaphragmatic hernia determines the degree of hypoplasia of the lung. Among cases of congenital diaphragmatic hernia (CDH), the reported incidence of diaphragmatic hernia appearing after birth is 3 %, and in 80 % of these cases, it appears as a complication of cardiac anomalies before 1 month of age [2]. CDH developing within 1 year of birth is more common on the right side and is often chronic in onset. The younger infants present with more respiratory symptoms than gastrointestinal symptoms, and the symptoms are often acute in onset [2–4]. CDH develops after thoracic surgery in some cases [5]. There is a possibility of defects in the diaphragm appearing spontaneously [2].

As the present case was an extremely low-birth-weight infant with a corrected age of 42 weeks and 3 days; although she was 130 days old, there is a possibility that this could have predisposed to anatomical weakness or a preexisting hole in the diaphragm. It is thought that a lower corrected age at the time of surgery may be associated with a higher risk of occurrence of diaphragmatic

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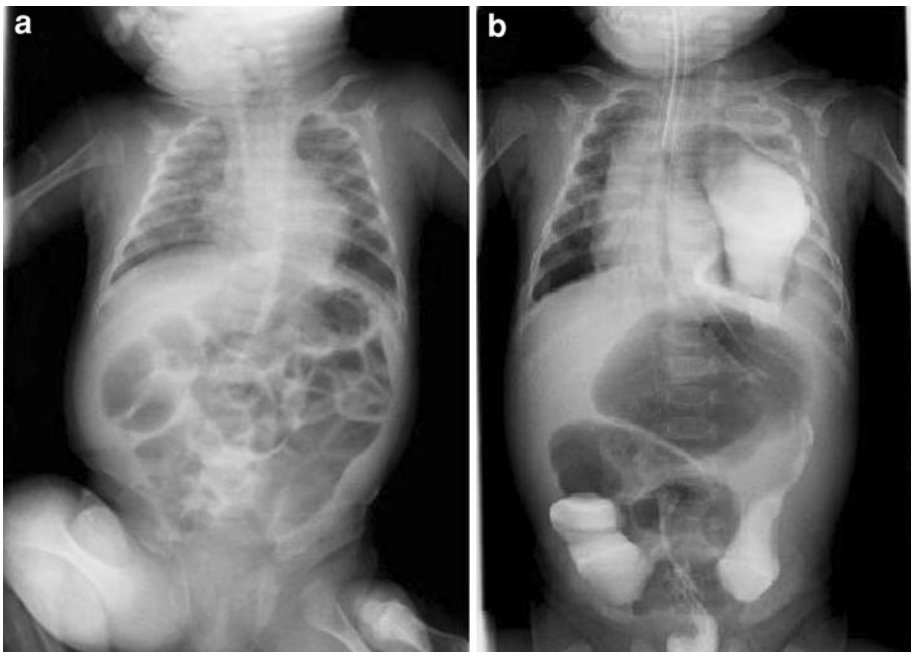

Fig. 1 Chest radiograph after definitive repair of the inguinal hernia (**a**): no abnormalities are seen in either lung field. Chest radiograph obtained after onset of diaphragmatic hernia (**b**): the left lung field is filled with a shadow, seemingly that of the colon

hernia during the perioperative period, and especially after extubation.

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Conflict of interest None.

References

1. Coté JC. Pediatric anesthesia. In: Miller RD, editor. Miller's anesthesia. 6th ed. New York: Churchill Livingstone; 2005. p. 2367–407.
2. Chang SW, Lee HC, Yeung CY, Chan WT, Hsu CH, Kao HA, Hung HY, Chang JH, Sheu JC, Wang NL. A twenty-year review of early and late-presenting congenital Bochdalek diaphragmatic hernia: are they different clinical spectra? Pediatr Neonatol. 2010;51:26–30.
3. Banac S, Ahel V, Rozmanić V, Gazdik M, Saina G, Mavrinac B. Congenital diaphragmatic hernia in older children. Acta Med Croatica. 2004;58:225–8.
4. Bagłaj M. Late-presenting congenital diaphragmatic hernia in children: a clinical spectrum. Pediatr Surg Int. 2004;20:658–69.
5. Funáková M, Cingel V, Trnka J, Babala J, Babulic M, Hornová J, Horn F. Later age diaphragmatic hernia. Rozhl Chir. 2008;87:554–8.