Congenital Right Posterolateral Diaphragmatic Hernia

S.N. Oak
R.H. Ramadwar
M.S. Choudhary
S.J. Karmarkar
S.S. Deshmukh

The characteristic manifestations of a posterolateral congenital diaphragmatic hernia are well recognized. In 1848, Bochdalek published his description of congenital posterolateral diaphragmatic hernia; and this type of hernia still bears his name though strictly speaking this is a misnomer(1). A high proportion (88%) of these defects are left-sided(2). A hernia on the right side differs from that on the left in its contents and also in clinical features. The present case report briefly describes the management of a right posterolateral hernia.

Case Report

A term newborn boy developed respiratory distress within six hours after birth. He was tachypneic with a respiratory rate of 80/min and appeared dusky. The breath sounds on the right side were diminished and dullness was present over the lower two-thirds of right chest. The abdomen was scaphoid. Arterial blood gas estimation revealed marked hypoxia with acidosis. Chest X-ray showed the presence of bowel gas pattern in the right hemithorax and displacement of mediastinum to left *(Fig. 1)*. There was no evidence of pneumothorax. The left dome of diaphragm was normal-and the fundus gas shadow was seen in the abdomen. The rest of the abdomen

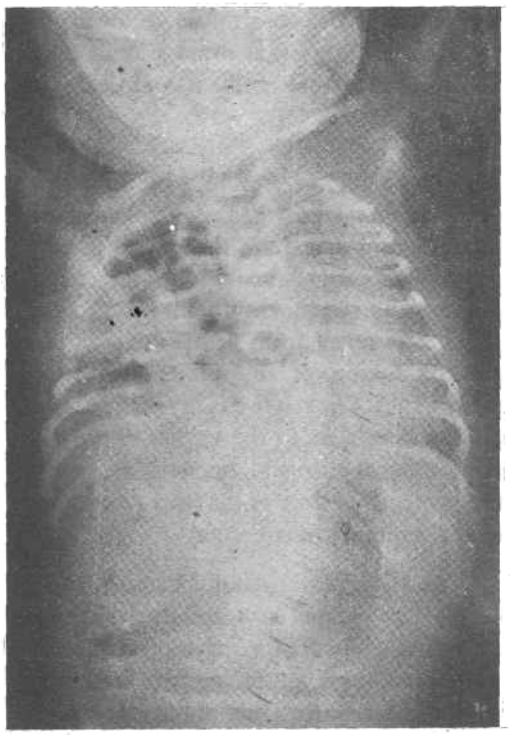

Fig. 1. Pre-operative chest and abdomen X-ray; showing hemiated loops of bowel in right hemithorax; shift of mediastinum and fundic gas shadow in abdomen.

From the Department of Pediatric Surgery, L. T.M.G. Hospital and L.T.M.M. College, Sion, Bombay 400 022.

Reprint requests: Dr. San jay N. Oak, Neelam Nagar, A/11, Flat No. 404, Mulund (E), Bombay 400 081.

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revealed scarce bowel gas shadows. A diagnosis of a right diaphragmatic hernia was made and the child was operated upon as an emergency.

A trans-abdominal approach was taken and the abdomen was opened through a right sub-costa) incision. The right lobe of the liver, jejunum, ileum and colon upto its left half had herniated into the right hemithorax. There were flimsy adhesions between the contents and the rim of the defect. The herniated bowel loops were distended and no sac was evident. The defect in the diaphgram measured 2 cm in diameter. The herniated viscera was reduced into the abdomen after adhesiolysis and the defect was closed with non-absorbable interrupted sutures. Intercostal drain was inserted and the peritoneal cavity was closed.

Discussion

The diaphgram develops by the fusion of the septum transversum, the pleuroperitoneal membranes and the dorsal mesentery of the esophagus with a later contribution from the thoracic wall. Posterolateral defects result from defective formation and/or fusion of the pleuroperitoneal membranes. The relative rarity of right sided lesions is related to the "earlier closure of right pleuroperitoneal opening(3) and to the protective effect of the liver developing in the septum transversum.

The right posterolateral diaphragmatic hernia can present as respiratory distress, intestinal obstruction, asymptomatic intrathoracic mass, or progressive liver herniation after birth. Only about one-fourth of the patients with a right-sided defect have . respiratory distress in the newborn period(7). Older infants and children may have chest pain or recurrent respiratory tract infections(5,8,10). Herniated intestines can lead to intermittent obstruction and, rarely, strangulation(8,9). Delayed hcrniation of liver is also noted(ll,12). Liver hcrniation may not take place until late adult life(13). Acute, life-threatening respiratory distress commonly seen in neonates with left posterolateral hernia, rarely occurs with right sided hernias(12).

Both thoracic and abdominal surgical approaches have been advocated for the repair of right posterolateral hernias (5,14,15). The advantages of a transthoracic approach are an easier resection of the hernial sac when present, and lack of postoperative intestinal adhesions. A trnas-abdominal approach allows correction of co-existing intra-abdominal anomalies such as malrotation and creation of a ventral hernia whenever required.

Prognosis of the lesion depends upon, the amount of viscera herniated, location of liver, pneumothorax, hypoplasia of the lung and time of diagnosis after birth. Prenatal herniation of liver into hernial contents, leads to severe pulmonary hypoplasia from prolonged compression(16).

REFERENCES

1. White JJ, Suzuki H. Hernia through the Foramen of Bochdalek: A misnomer. J Pediatr Surg 1972, 7: 60-61.
2. Irving IM, Booker PD. Congenital diaphragmatic hernia and eventration of the diaphgram. *In:* Neonatal Surgery, 3rd edn. Eds. Lister J, Irving IM. London, Butterworths and Co, 1990, pp 199-220.
3. Moore KL. The Developing Human, 3rd edn. Philadelphia, WB Saundcrs Co, 1982, pp 170-178.
4. Harrington SW. Various types of diaphragmatic hernia treated surgically: Report of 430 cases. Surg Gynec, Obstet 1948, 86: 735-755.

5. Bingham JAW. Herniation through congenital diaphragmatic defects. Br J Surg 1959, 97: 1-15.

6. Geister F, Gotlieb A. Agenesis of right diaphgram repaired with Marlex. J Pediatr Surg 1977, 12: 587-588.

7. Campbell N, Lilly JR. The clinical specturm of right diaphragmatic Bochdalek's hernia. Arch Surg 1982, 117: 341-344.

8. Synder WH, Greaney EM. Congenital diaphgramatic hernia: Seventy Seven consecutive cases. Surgery 1965, 57: 576-588.

9. Donovan EJ. Congenital diaphragmatic hernia. Ann Surg 1938, 108: 374-388.

10. Canino CW, Eichman J, Rominger CJ, Ryan JJ. Congenital right diaphragmatic hernia. Radiology 1964, 82: 249-252.

11. Kirchner SG, Burko H, O'Neill JA, Stahlman M. Delayed radiographic presentation of congenital right diaphragmatic hernia. Radiology 1975, 15: 155-156.

12. Blank E, Campbell JR. Congenital posterolateral defect in the right side of diaphram. Pediatrics 1979, 57: 807-810.

13. Dutlinger RP, Fluke SB. Non-traumatic diaphragmatic hernia with complete evisceration of liver. Am J Surg 1952, 84: 368-372.

14. Harberg FJ, Meagher D, Wetchler S, Harris F. Congenital anomalies of diaphgram. Personel experience with thirty-five consecutive cases. Am J Surg 1976, 132: 747-748.

15. Riker WL. Congenital diphragmatic hernia. Arch Surg 1954, 69: 291-294.

16. Touloukian RJ, Markowitz RT. A preoperative X-ray scoring system for risk assessment of newborns with congenital diaphragmatic hernia. J Pediatr Surg 1984, 9: 252-257.

17. Johnson DG, Deaner RM, Koop CE. Diaphragmatic hernia in infancy: Factors affecting the mortality rate. Surgery 1967, 62: 1082-1091.

Giant Rugal Hyperplasia of the Stomach: Menetrier's Disease

F. Feldman
J. Sharma
S. Dave

Menetrier's disease is an uncommon clinical entity, marked by protein losing enteropathy and hypertrophic gastropathy that has predilection for the proximal portion of stomach(l). The entity in the pediatric age group is known as "Pediatric Hypertrophic Gastropathy" which signifies

From the Department of Pediatrics, Maimonides Medical Center, Brooklyn, New York 11219.

Reprint requests: Dr. Jayendra R. Shanna, Assistant Professor of Pediatrics, B-7, Assistant Professor Quarters, Government Medical College, Surat 395 001.

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