

Chylothorax complicating repair of a left diaphragmatic hernia in a neonate

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We describe here a case of chylothorax complicating repair of a left posterolateral diaphragmatic hernia. Successful treatment consisted of continuous drainage of the pleural cavity, combined with parenteral hyperalimentation.

Case report

A 2500 g term female baby developed severe respiratory distress shortly after birth. A chest radiograph established the diagnosis of a left diaphragmatic hernia (fig 1). She

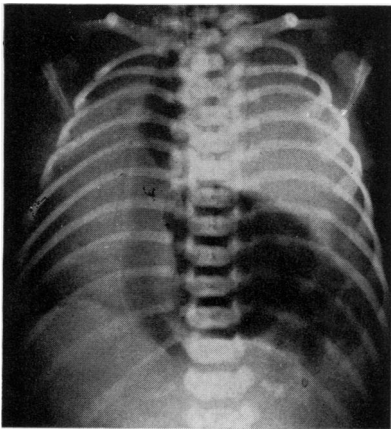


Fig 1 Chest radiograph showing a left diaphragmatic hernia with marked mediastinal shift to right.

was operated on at 6 hours of age through a mid-line abdominal approach when a left posterolateral diaphragmatic defect, measuring 6 by 8 cm was found. After reduction of the viscera, a small contracted lung was seen, covered by a thin membranous sac. The sac was excised, a left intercostal drain inserted, and the defect closed with interrupted silk sutures. No anomalies of the gastrointestinal tract were noted, and the abdomen was closed without any difficulty.

The child was placed on a volume-controlled respirator

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and there was satisfactory expansion of the left lung. The chest drain was removed on the fourth day. On the seventh day the child's condition deteriorated—with Fio_2 30%, Po_2 dropped to 50 mmHg, and Pco_2 increased to 65 mmHg. The chest radiograph demonstrated a left pleural effusion and infiltration, and there was an air bronchogram in the right lung. Left thoracentesis yielded initially 50 ml of clear xanthomatous fluid, and *Pseudomonas aeruginosa* was found both in the fluid and in the endotracheal suction cultures. Tobramycin and carbenicillin were given for two weeks. Within a few days the child's condition improved, the pleural effusion disappeared, and oral feeding was started.

On the twelfth day, a left pleural effusion was noted (fig 2). A left pleural intercostal drain yielded a creamy

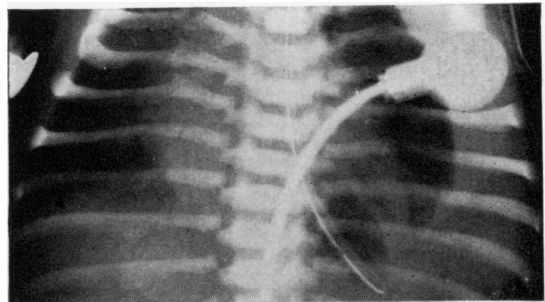


Fig 2 Radiograph taken 12 days after operation shows pleural fluid in left hemithorax.

white fluid, containing, on chemical analysis 0.8 g per cent (8.0 g/l) albumin, 0.5 g per cent (5.0 g/l) globulin, 360 mg per cent (9.25 mmol/l) cholesterol, and 570 mg per cent (5.25 mmol/l) triglycerides. Plasma albumin was 2.8 g per cent (28 g/l) and globulin 1.6 g per cent (16 g/l). The lymphocyte count of the fluid was 2675 per mm^3 ($2.7 \times 10^6/\text{l}$). No microorganisms were found on microscopic and cultural examination. The diagnosis of chylothorax was thus established. Feedings was changed to Pregestamyl (fat as medium-chain triglycerides), but as there was no reduction in the drainage of chyle oral feeding was stopped, and intravenous hyperalimentation started on the thirteenth day (160 ml/kg body weight in 24 h).

The chyle volume fell from 180 ml on the twelfth day to 52 ml on the sixteenth day and then stopped. As expected the serum protein level gradually increased, and returned to its previous level nine days after starting hyperalimentation. The left chest tube was removed on the eighteenth day, and formula feedings begun without reaccumulation of pleural fluid. The child's weight on the twenty-first day was 2900 g.

Discussion

Postoperative chylothorax is a rare complication of thoracic and cardiovascular surgery, especially that involving the great vessels.¹ Only one case of chylothorax complicating repair of diaphragmatic hernia (Bochdalek type) has been reported.² The treatment of chylothorax is controversial.³ Continuous drainage with suction of the pleural cavity has been advocated by Decancq.⁴ The use of dietary manipulation such as treatment with medium-chain tryglycerides was proposed by Hashin and Roy,^{5 6} since the volume and fat content of chyle is considerably altered by the diet. Surgical treatment is reserved for those cases where conservative treatment for one to two weeks

has failed. Surgical treatment has often been unrewarding, since the leakage site is elusive, and when found, it is usually multiple.⁶

Our case was treated by parenteral hyperalimentation, combined with cessation of oral feedings and continuous pleural drainage. This treatment decreased the enteric lymph production, maintained a positive nitrogen balance, and prevented the need for surgical intervention.

References

- ¹ Kaul TK, Bain WH, Turner MA. Chylothorax: report of a case complicating ductus ligation through a median sternotomy, and review. *Thorax* 1976;**31**:610-6.
- ² Weiner ES, Owens L, Salzberg AM. Chylothorax after Bochdalek herniorrhaphy in a neonate. *J Thorac Cardiovasc Surg* 1973;**65**:200-5.
- ³ Bessone LN, Ferguson TB, Burford TH. Chylothorax—collective review. *Ann Thorac Surg* 1971;**12**:527-50.
- ⁴ Decancq GH Jr. The treatment of chylothorax in children. *Surg Gynecol Obstet* 1965;**121**:509-12.
- ⁵ Hashin SA, Roholt HB, Babayan VK *et al.* Treatment of chyluria and chylothorax with medium-chain tryglycerides. *N Engl J Med* 1964;**270**:756-64.
- ⁶ Roy PH, Carr DT, Payne WS. The problem of chylothorax. *Mayo Clin Proc* 1976;**42**:457-67.