

The author is indebted to Professor Benjamin E. Etsten for his enthusiastic support and guidance.

References

1. Shimosato, S., Shanks, C., and Etsten, B. E.: The effects of methoxyflurane and sympathetic-nerve stimulation on myocardial mechanics, *ANESTHESIOLOGY* 29: 538, 1968.
2. Sugai, N., Shimosato, S., and Etsten, B. E.: Effect of halothane on force-velocity relations and dynamic stiffness of isolated heart muscle, *ANESTHESIOLOGY* 29: 267, 1968.
3. Goldberg, A. H., and Ullrich, W. C.: Effects of halothane on isometric contractions of isolated heart muscle, *ANESTHESIOLOGY* 28: 838, 1967.
4. Cault, J. H., Ross, J., Jr., and Braunwald, E.: Contractile state of the left ventricle in man: Instantaneous tension-velocity-length relations in patients with and without disease of the left ventricular myocardium, *Circ. Res.* 22: 451, 1968.
5. Levine, H. J., and Britman, N. A.: Force-velocity relations in the intact dog heart, *J. Clin. Invest.* 43: 1383, 1964.
6. Ross, J., Jr., Covell, J. W., Sonnenblick, E. H., and Braunwald, E.: Contractile state of the heart characterized by force-velocity relations in variably afterloaded and isovolumic beats, *Circ. Res.* 18: 149, 1968.
7. Hill, A. V.: The heat of shortening and the dynamic constants of muscle, *Proc. Roy. Soc. Med., ser. B.* 126: 136, 1938.
8. Badeer, H. S.: Contractile tension in the myocardium, *Amer. Heart J.* 66: 432, 1963.
9. Shimosato, S., Sugai, N., and Etsten, B. E.: The effect of methoxyflurane on the isometric state of myocardial muscle, *ANESTHESIOLOGY* 30: 506, 1969.
10. Siegel, J. H., and Sonnenblick, E. H.: Isometric time-tension relationships, an index of myocardial contractility, *Circ. Res.* 12: 597, 1963.
11. Gander, M., Veragut, U. P., Lüthy, E., and Heggin, R.: Hemodynamic effects of halothane in the closed-chest dog, *Helv. Med. Acta* 4: 351, 1966.

Pediatric Anesthesia

DIAPHRAGMATIC HERNIA The diagnosis of congenital diaphragmatic hernia should be considered in any newborn with signs of respiratory distress. The affected hemithorax usually has decreased respiratory excursions and the abdomen, being devoid of its normal contents, is scaphoid. The affected side of the chest may be dull to percussion, or it may be resonant if obstructed, air-dilated viscera are in the pleural space. The mediastinum usually is shifted away from the hernia. Cardiac sounds usually are heard best to the right of the sternum because most diaphragmatic hernias occur on the left side. In older patients, gastrointestinal, rather than respiratory, symptoms may predominate. A nasogastric tube must be passed promptly to remove gas and secretions from the stomach. This should be performed prior to roentgenographic study, transportation of the infant, or institution of assisted ventilation by face mask. The marked acidosis resulting from hypoxemia must be treated at once and ventilatory support with oxygen through an endotracheal tube is urgently required if there is evidence of respiratory insufficiency. Overinflation of the lungs must be avoided assiduously to prevent production of a pneumothorax. The infant should be placed in a head-up position on the affected side to aid the return of the mediastinum to the midline and compress the herniated viscera rather than the functioning lung. (Whittaker, L. D., Jr., and others: *Hernias of the Foramen of Bochdalek in Children*, *Proc. Mayo Clin.* 43: 580 (Aug.) 1968.)