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IMAGES IN NEONATAL MEDICINE.....

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Ultrasound guided percutaneous relief of tension pneumomediastinum in a 1-day-old newborn

A 35-week gestational age baby with antenatal diagnosis of probable infantile polycystic kidney disease born via normal vaginal delivery required immediate intubation and ventilation in the delivery room. On admission, the baby's blood pressure was normal (mean of 42 mm Hg) and pulse oximetry read 96% on 100% FiO₂. An x ray showed moderate pneumomediastinum. Within 2 h the baby's blood pressure mean dropped to the low 30s, the pulse oximetry reading dropped to the high 70s, the heart rate increased to 180 and the baby's perfusion was diminished. A repeat x ray (fig 1) showed a large pneumomediastinum with displacement of the heart to the right. Needle aspiration was unsuccessful. A 12 F chest tube was inserted through a subxiphoid incision into the anterior mediastinum under ultrasound guidance. The baby's blood pressure mean increased to the low 60s, the pulse oximetry reading returned to greater than 90%, the heart rate returned to normal and the baby's perfusion improved. A chest x ray (fig 2) showed the pneumomediastinum to be remarkably relieved.

In hospitalised patients, the main cause of pneumomediastinum is mechanical ventilation with high peak airway pressure and positive end expiratory pressure.¹ Although most cases of pneumomediastinum can be managed conservatively,² if there is continuous leakage of air in the mediastinal soft tissue, tension pneumomediastinum may occur and result in compromised venous return, which may evolve into a life-threatening condition.^{1 3 4} Cases of tension pneumomediastinum relieved by using CT or fluoroscopic guidance have been reported.^{1 5} In our case, we used ultrasound guidance during the procedure. This technique provides a rapid and simple method of management in critically ill patients.

Figure 1 Large pneumomediastinum with displacement of the cardiac silhouette to the right. Diffuse patchy densities of both upper lobes due to passive atelectasis.

Figure 2 Insertion of mediastinal tube with marked decrease in pneumomediastinum. Improvement of aeration of upper lobes. An endotracheal tube and an umbilical artery catheter are in good position. The umbilical vein catheter is high and was adjusted.

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