A 25-week-old 540-g male neonate, born to a febrile 25-year-old woman with chorioamnionitis, presented to us with respiratory distress. He initially received nasal continuous positive airway pressure, after which there was rapid onset of marked gaseous abdominal distension (abdominal girth, 21.2 cm) and a progressive increase of oxygen dependence. Tracheal intubation and umbilical vessels catheterization were then performed. The umbilical vein catheter (UVC) was secured at 7 cm at the periumbilical skin after radiographic documentation of its tip being in the right atrium (Figure, A). Ventilatory balance was achieved; moreover, a rapid decrease of abdominal girth (19.9 cm) occurred. At ~48 hours, however, a sudden cardiopulmonary deterioration occurred, with severe oxygen desaturation, marked hypotension, and bradycardia. Transillumination suggested a left pneumothorax, but only incomplete improvement occurred after chest tube placement. A heart ultrasonogram, performed immediately because of weakly audible heart sounds, detected a significant pericardial effusion.

The patient recovered rapidly after having pericardiocentesis, which yielded 7 mL of dense, milky liquid that proved to be alimentation fluid. A radiographic film of the chest showed a displaced UVC with its tip toward the right superior third of the mediastinal shadow (Figure, B). The insertion point of the UVC at the umbilical stump was checked, showing the catheter still securely fixed at 7 cm. We speculated that the UVC migration may have been a consequence of the abdominal girth decrease that occurred after the initial line placement. The catheter was therefore pulled by 1.5 cm and then appeared again to be in an acceptable position at the radiographic control. The relationship between abdominal girth and UVC tip position was evident again a few days later, when a new abdominal distention episode was associated with migration of the catheter tip to below the diaphragmatic profile.

Significant variations of the abdominal girth should be considered as a possible cause of UVC migration, warranting close monitoring of the line position to avoid life-threatening complications.

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