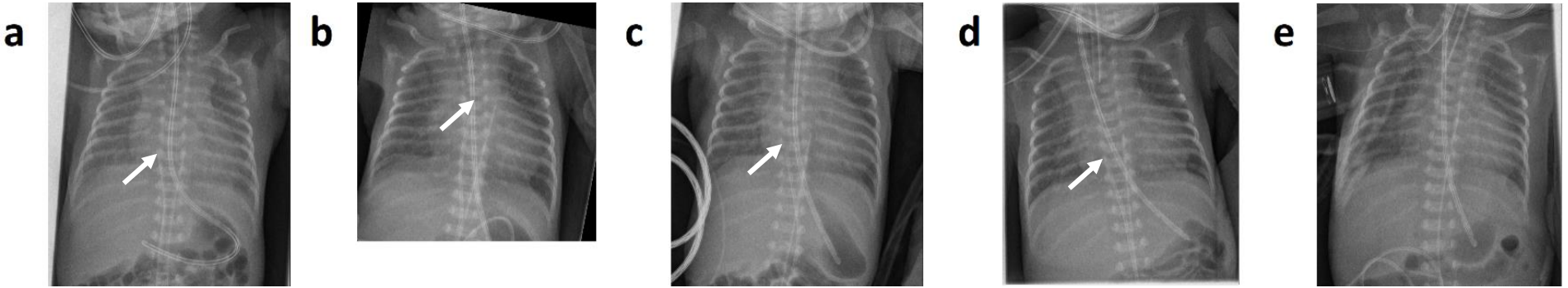
Cardiac tamponade as rare life-threatening complication of a correctly placed umbilical venous catheter

Case presentation

- Male neonate, GA 30 4/7 weeks, weight 930 g.
- Asystolia after rapid clinical deterioration and increasing need of glucose-infusion on DOL 2.
- Cardiopulmonary resuscitation 16 min.
- Echocardiography: cardiac tamponade.
- Puncture: 4 ml milky fluid, glucose 143 mmol/l, 800 ery/µl.
- Final removal of UVC in PICU by thoracic surgeon in sternotomy readiness.

Cardiac tamponade: case-specific and general characteristics



- UVCs increase risk of cardiac tamponade.
- Causative mechanisms:
  - Perforation by physical contact of a displaced catheter tip with atrial wall.
  - Perforation by hyperosmolar PEN or glucose without contact with atrial wall.
  - Transudation of hyperosmolar PEN without physical damage of atrial wall.
- Development might happen unnoticed.

Conclusion

A correctly placed UVC might cause cardiac tamponade.

Physicians need high awareness for complications, when UVCs are in use.

Hypoglycaemia might be early warning.

Authors & Affiliations

Felix Hutmacher[a] , Barbara Brotschi[b, c], Daniel Quandt[c, d], Martin Schweiger[c, e], Philipp Meyer[a], Philipp Baumann[b, c]

[a] Department of Neonatology, Kantonsspital Aarau, Aarau, Switzerland.

[b] Department of Intensive Care and Neonatology, University Children's Hospital Zurich, Zurich, Switzerland.

[c] Children's Research Centre, University Children's Hospital Zurich, Zurich, Switzerland.

[d] Paediatric Cardiology, University Children's Hospital Zurich, Zurich, Switzerland.

[e] Paediatric Cardiovascular Surgery, Paediatric Heart Centre, University Children's Hospital Zurich, Zurich, Switzerland.