Neonatal non-laparoscopic non-robotic pneumovesical distension presenting as acute abdomen

Ramnik V Patel,1,2 Dhaval Govani,3 Rasila Patel,4 Pradip J Kansagra5

1Department of Paediatric Urology, University College London Hospitals NHS Foundation Trust, London, UK
2Department of Paediatric Urology, Great Ormond Street Children’s Hospital NHS Trust, London, UK
3University of Birmingham Medical School, Birmingham, UK
4Department of Alternative Medicine, PGICHR, Rajkot, India
5Department of Paediatric Urology, PGICHR and Om Urology Hospital, Rajkot, Gujarat, India

Correspondence to Ramnik V Patel, ramnik@doctors.org.uk

DESCRIPTION
A term baby girl diagnosed prenataIy with complex congenital heart disease was being investigated in the cardiac intensive care unit (ICU). The baby was stable on nasal oxygen and having full nasogastric feeds. Her urinary catheter was blocked despite the administration of 60 mL saline for irrigation and 60 mL of air via a bladder syringe by an evening duty nurse with urology experience. A Foley balloon inflated with saline failed to deflate, so the nurse injected 60 mL of air with a syringe through the balloon catheter channel in order to rupture the balloon. This was not documented in the notes. That night the baby’s oxygen saturation decreased, she developed abdominal distension and an increase in lactate levels was noted. Chest and abdominal radiographs showed a large gas shadow in the central abdomen without any air under the domes of the diaphragm or any evidence of necrotising enterocolitis (figure 1A, B). The patient was referred to the surgical team for possible contained bowel perforation. The abdomen was distended but soft and bowel sounds were normal. At exploration, there was no free gas or fluid, but the bladder was seen to be inflated with air. Needle aspiration confirmed this and was used to decompress the distended bladder. Cystouretroscopy showed several small remnants of a Foley catheter balloon which were removed. The post-operative period was uneventful (figure 1C, D).

Pneumodistension of the bladder is used in laparoscopic and robotic bladder surgery, but otherwise very small amounts of air are present in the bladder, even in pathological states.1 Foley catheter lumen blockade and simultaneous blockade of the non-return valve channel is rare and requires

Figure 1 (A) Chest radiograph showing central abdominal gas; (B) abdominal radiograph showing central abdominal well-defined cystic pneumodistension; (C, D) post-operative chest and abdominal radiographs.
The most common neonatal and paediatric urology emergency in ICUs is posterior urethral injury caused by inflation of the balloon during insertion of a Foley catheter, typically in a male baby, leading to partial urethral rupture and catastrophic sequelae. We wish to emphasise the importance of protocols, and the education and training of ICU staff in the insertion, maintenance and removal of Foley catheters even if they have previous exposure to urology nursing. If the nurse in this case had realised the normal size of a neonatal bladder, he/she would never have injected as much air/fluid as was seen in this patient. Staff education, training and the implementation of a practical protocol are important for preventing such avoidable mistakes in ICUs. This case serves as a very strong reminder of this rare complication and hopefully our experience will help prevent this error occurring again.

Acknowledgements We are grateful to Dr Shudhir Bhimani, MD, Consultant Paediatric Cardiologist, Dr S Vaghela, MS, MCh, FRCS, Consultant Paediatric Cardiothoracic Surgeon, Dr GM Faldu, MD, Consultant Paediatric Anaesthetist, and Dr Nayan Kalawadia, MD and Dr Anil Patel, MD, DCH, Consultant Neonatal Intensivists for their expert help and assistance in this case.

Contributors All the authors made substantial contributions to the conception and design of this paper, the literature search, the acquisition, analysis and interpretation of data, and drafting the article or revising it critically for important intellectual content, and gave final approval of the version to be published.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES