IMAGES IN NEONATAL MEDICINE.....

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Spontaneous knot formation impeding the removal of a silicone urethral catheter

A 34 week gestation male infant ventilated for group B streptococcus pneumonia developed generalised oedema on day 3 of life. For fluid balance monitoring, a 5-French silicone urethral catheter was inserted to a depth of 20 cm. Soon after, urine was noted to leak from the penile meatus around the catheter. Re-insertion with a larger diameter catheter was contemplated, but the indwelling catheter could not be withdrawn past the 17 cm mark. An abdominal radiograph showed a knotted catheter tip in the bladder (fig 1). Efforts to disentangle the knot with a guide wire were futile. The paediatric surgical team planned open cystostomy removal, but a final attempt using gentle sustained traction after heavy lubrication of the urethra successfully removed the catheter, revealing a figure of eight knot at its distal end (fig 2). Afterwards, there was an episode of gross haematuria but it was brief and cleared spontaneously.

Knotting of urinary catheters is a rare complication of bladder catheterisation, reported mainly in young male children with feeding tubes used for urinary drainage.¹⁻³ The common risk factor is excessive length of insertion, which, in a relatively small capacity bladder, can produce coiling of a flexible tube and knot formation. We believe that silicone catheters are more flexible than others and may predispose to even greater coiling and knot formation. To avoid such a complication, urinary catheters should not be advanced too deeply, the average newborn urethra being reported to measure no more than 6 cm⁴.

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Figure 1 A knotted urethral catheter is seen in the region of the bladder on a plain abdominal radiograph.

Figure 2 A figure of eight knot formation at the distal end of a silicone urethral catheter.