AU$13.00; Insyte intravenous catheter manufactured by Becton Dickinson catheter; GA 24, 22, and 20; cost AU$2.00). This has the advantage of having a soft tip at both ends of the wire and being a snug fit to the smallest catheter. Care must be taken not to advance the wire if any resistance is met.

(4) A small nick is made in the skin at the site of wire to facilitate the insertion of the larger intravenous cannulae.

(5) A 20 GA (external diameter 1.1 mm) cannula is then threaded over the wire into the vein (a 22 GA (external diameter 0.8 mm) can be used to dilate the vein before the larger cannula is inserted). This can be flushed with saline to ensure patency of the vein.

(6) The silastic catheter can then be fed up the vein through the 20 GA cannula with a pair of toothless forceps. Occasionally the silastic line coils up in the hub of the cannula. This can be overcome by cutting the cannula flush to the hub and reinserting the silastic line.

(7) The silastic catheter is placed to the required length and the other cannula is withdrawn.

(8) The silastic catheter should be placed outside the cardiac outline in accordance with new guidelines.[1–3] The position is always confirmed radiologically either by plain radiograph or, if necessary, by injection of radiopaque dye. We have seen neonates with pericardial tamponade associated with malpositioned catheters, which has been well documented in the literature.[1–3]

We have found this method to be extremely reliable in the insertion of percutaneous venous catheters.

The use of the guidewire incurs additional costs (see above). In our experience these are partially offset by an improved success rate using the above method. We do not open the silastic catheter until the 20 GA is in place within the vein. This means that a line is not wasted if the vein cannot be cannulated.

G Bayley
Bristol School of Anaesthesia, Bristol, UK

Correspondence to: Dr Bayley, Department of Anaesthetics, Bristol Royal Infirmary, Marlborough Street, Bristol, UK; kateandguy@hotmail.com

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Umbilical granulomas: a randomised controlled trial

The Archimedes section has previously contained a brief section on the treatment of umbilical granulomas.[1] We have now conducted a randomised controlled trial of the management of umbilical granulomas. The trial compared silver nitrate cauterisation with the use of alcoholic wipes at each nappy change (conservative management). The impetus for this work was a series of three burns to the anterior abdominal wall after silver nitrate cauterisation, seen in a single London hospital over a two year period.

The trial aimed to show equivalence between the two treatment modalities. On the basis of equal efficacy, we intended to change practice to conservative management. More than 40 infants were referred, but a large number of parents chose conservative management rather than randomisation. Difficulty in recruitment meant there were inadequate numbers to show statistical significance within the limited time span available.

The salient results were that two of three granulomas resolved over a three week period without cauterisation. Those infants whose granulomas did not resolve went on to treatment with cauterisation following a protocol that involved drying the area both before and after silver nitrate application, surrounding the umbilicus with white soft paraffin, and leaving the area exposed for 10 minutes after application. This resulted in resolution in all remaining cases without harm due to delay in treatment.

On the basis of this work, we suggest a change in current practice to initial conservative management followed by cauterisation only when conservative treatment fails.

J Daniels
Homerton Hospital, London, UK

F Craig
Great Ormond Street Hospital, London, UK

R Wajed
Northwick Park Hospital, London, UK

M Meates
North Middlesex Hospital, London, UK

Correspondence to: Dr Daniels, Homerton Hospital, London, UK; Justin.Daniels@virgin.net

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Progressive ventricular dilatation (PVD) over the past 22 years

We read with interest the article of Murphy *et al*,[1] and it prompted us to review our own experience with progressive ventricular dilatation (PVD) over the past 22 years at the Maine Medical Center (MMC). Since 1980, we have used a single approach to management of PVD. As noted in previous publications, we have considered the need for intervention to be rapid head growth defined as an increase in occipitofrontal circumference of 2 cm a week or more rather than relying on imaging.[2 3] As this degree of head growth suggests increased intracranial pressure,[4] we have intervened by directly draining ventricular fluid through a 21 gauge angiocath placed through the right coronal suture into the right lateral ventricle. This catheter is connected to a ventriculostomy drainage system, and drainage is continued for seven days if possible. The catheter is then removed and the decrease in head circumference and ventricular size recorded. The infant is watched for return of rapid head growth, and an angiocath is reinserted as needed. This procedure is repeated until the infant reaches about 2 kg in weight, and if rapid head growth continues, a permanent ventriculoperitoneal shunt is placed.[3] We do not use pharmacological treatment or repeat lumbar puncture to treat PVD.

As pointed out by Murphy *et al*, PVD sufficient to require intervention occurs almost exclusively in infants with grade 3 or 4 intraventricular haemorrhage (IVH). As expected, the very low birthweight infants with high grade IVH have a high mortality. Table 1 shows a comparison between the outcomes for grade 3–4 IVH at MMC during the 1980s and over the past five years (1997–2001 inclusive), and the data of Murphy *et al* grouped in the same way. As noted, there is little difference over time or between studies. Overall mortality for grade 3–4 IVH was 33% (26/79) for Murphy *et al*, 33% (31/94) for MMC in the 1980s, and 31% (9/29) for MMC in 1997–2001. Until grade 3–4 IVH can be eliminated, posthaemorraghic hydrocephalus will continue to occur with high morbidity and mortality.

L T Weissman, P J Marro, D L Kessler, D B Sobel, D L Morrow, S Boggs, W C Allan
Department of Pediatrics, Maine Medical Center, Portland, Maine, USA; weissl@mmc.org

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Table 1 Comparison between the outcomes for grade 3–4 intraventricular haemorrhage (IVH) in the three studies

	Murphy *et al*[1]	MMC 1980s[3]	MMC 1997–2001
Grade 3–4 IVH (% of all <1500 g)	79 (7%)	94 (6%)	29 (6%)
Death <14 days	18/79 (23%)	29/94 (30%)**	8/29 (28%)**
PVD requiring treatment	34/61 (56%)	24/65 (37%)	11/21 (52%)
VP shunt/late death (% of PVD treatment)	18/8 (26/34=76%)	12/3 (15/24=63%)	6/1 (7/11=63%)

*Rate for all infants <35 weeks.
**Rate for all deaths <30 days.
MMC, Maine Medical Center; PVD, progressive ventricular dilatation; VP, ventriculoperitoneal.