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## Epidural catheter connector

To the Editor:

I read with great interest the letter by Drs. McIntyre and Kuwahara.<sup>1</sup> However, I cannot endorse the logic of using a butterfly needle because as the work was carried out in children, it may not be ideal. The value of the butterfly needle as an alternative paediatric epidural catheter connector in children has not been questioned, but there may be some dangers. One wonders how practical it is to have a sharp tip needle inside a catheter. Despite proper fixation, children are often restless and needle-stick injury<sup>2</sup> may be inevitable or there may be damage of the catheter which will invite infection and leakage. The increasing interest in continuous epidural blockade is remarkable. The availability and adaptability of various devices such as *iv* cannulas are considerable, which may substitute not only for paediatric epidural catheter connectors but also in adults. The hub of the *iv* cannula accepts any type of Luer-lock connection.

An appropriate size of an *iv* cannula fixed firmly inside the proximal end of the catheter and withdrawal of the needle will solve connector-catheter related problems.

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### REFERENCES

- 1 McIntyre DR, Kuwahara B. Paediatric epidural catheter connector problems [Letter]. *Can J Anaesth* 1991; 38: 544.
- 2 Jagger J, Hunt EH, Brand-Elnaggar J, Pearson RD. Rates of needle-stick injury caused by various devices in a university hospital. *N Engl J Med* 1988; 319: 284-8.

### REPLY

Dr. Alam raises a theoretical concern about needlestick injury when using a butterfly infusion set as a connector for epidural catheters in children. In reality, needlestick injury does not occur when suitable care and attention are directed to protecting the needle and the butterfly. We have used this type of connection for all of our epidural catheters at the Alberta Children's Hospital over the past 5 years, and not one of our patients has experienced a needlestick injury of the described type.

The needle is protected using a plastic sheath and the butterfly is wrapped in a gauze and plastic dressing, as we described in our initial communication.<sup>1</sup> We place a gauze dressing on the chest, the needle on top of the gauze and a plastic Tegaderm<sup>®</sup> dressing over the top of the needle.

We have had catheter disconnects with subsequent leakage of infusate but as mentioned in the original communication the incidence of this is far less than with the previous Tuohy crimp on style connector. Others have described alternative solutions with the use of tape<sup>2</sup> or glue.<sup>3</sup>

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- 3 Aldrete JA. Securing epidural catheters to Tuohy connectors (Letter). *Anesthesiology* 1995; 82: 320.

## Augustine guide

To the Editor:

In their evaluation of the Augustine guide, Carr *et al.*<sup>1</sup> graded laryngoscopic views according to Samsoon and Young's modification of Cormack and Lehane's scheme,<sup>2,3</sup> stating "During direct laryngoscopy, the vocal cords and laryngeal inlet could not be seen (Cormack and Lehane grade IV)..." In fact, not seeing the vocal cords is grade III, grade IV being reserved for a hidden epiglottis:

Grade 2. If only the posterior extremity of the glottis is visible... Grade 3. If no part of the glottis can be seen, but only the epiglottis... Grade 4. If not even the epiglottis can be exposed... This situation is well recognized where there is obvious pathology, but is exceedingly rare if the anatomy is normal.<sup>2</sup>

Grade II, only posterior commissure visible; grade III, only tip of epiglottis visible; grade IV, no glottis [*sic*] structure visible.<sup>3</sup>

Additional confusion stems from downplaying the difference between the *glottis* (vocal cords and intervening opening) and the *laryngeal inlet* (oblique aditus including the upper border of the epiglottis, aryepiglottic folds containing the corniculate and cuneiform cartilages, and mucosa covering the arytenoid muscle).<sup>4</sup>

Though the incidence in apparently normal patients of grade IV approximates <1/100,000,<sup>2</sup> 17/27 of the current group had grade IV views, eight of them unanticipated. Even if Cormack and Lehane overstated by a factor of 10 the rarity of grade IV, a population of 80,00 would be necessary to turn up eight patients so difficult. If each of the four participants intubated the tracheas of 1,000 patients annually, trials would seem to have had to extend back to the mid-70s! The Augustine Guide was introduced in 1993.

Parenthetically, was intubation attempted with straight blades, and was optimal laryngeal pressure combined with laryngoscopy before resorting to the Augustine Guide?

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## REFERENCES

- 1 Carr R, Reyford H, Belani K, Boufflers E, Krivosic-Horber R, Palahniuk R. Evaluation of the Augustine Guide™ for difficult tracheal intubation. *Can J Anaesth* 1995; 42: 1171–5.
- 2 Cormack RS, Lehane J. Difficult tracheal intubation in obstetrics. *Anaesthesia* 1984; 39: 1105–11.
- 3 Samsoon GLT, Young JRB. Difficult tracheal intubation: a retrospective study. *Anaesthesia* 1987; 42: 487–90.
- 4 Basmajian JV. Grant's Method of Anatomy, 8th ed. Baltimore: Williams and Wilkins, 1971, 631–3.

## REPLY

Dr. Meyer's description of the Cormack and Lehane grading scheme for view obtained on direct laryngoscopy as modified by Samsoon and Young is accurate and correct. Unfortunately, he has quoted our paper out of context. In it, we do not provide a description of the grading scheme since this scheme is both widely used and understood. The portion of our paper that Dr. Meyer quotes is the paragraph describing the sequence of events in eight patients with unexpectedly encountered difficult airways and appears in the methods section, not in the results section. For clarity, the paragraph would have been better written if it read: "... the vocal cords and laryngeal inlet could not be seen (Cormack and Lehane grade III or IV) and blind intubation was not successful." As our description appears in this paragraph, we make no mention of the epiglottis and this obviously leads to the confusion that Dr. Meyer has pointed out. Since these eight patients were unable to be intubated by conventional direct laryngoscopy they were included in our difficult airway population. We didn't believe that it was critical to include in the results section the exact breakdown of laryngoscopy grading among these eight patients (four were grade III, four were grade IV). The grading system as used by our observers was in agreement with that described in the relevant papers and quoted by Dr. Meyer. We did not think that this would cause confusion but thank Dr. Meyer for his clarification.

Dr. Meyer also correctly quotes Cormack and Lehane's paper in estimating the incidence of grade IV laryngoscopy in normal patients as less than 1/100,000. However as is abundantly clear in our paper, our study was a cohort review of a population of patients with difficult (not normal) intubation. In other words, we did not review the charts of all patients who came to the operating rooms at the two separate hospitals but only those with a difficult airway for reasons listed in the paper. This in all likelihood, accounts for the high incidence of grade III and IV laryngoscopy. In addition, a recent article reports 60 grade IV laryngoscopies among 3325 patients (1.8%) with airways thought not to be difficult.<sup>1</sup> This emphasizes that even in a normal airway population, the incidence of grade IV laryngoscopy may be higher than that reported originally by Cormack and Lehane.

To answer Dr. Meyer's final questions, both straight and curved blades (not both in all cases) were used during direct laryngoscopy – indeed direct laryngoscopy was not performed in 17 cases; and in the cases of unexpected failed conventional intubation, laryngeal pressure was combined with laryngoscopy before resorting to the Augustine Guide.

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## REFERENCE

- 1 Rose DK, Cohen MM. The incidence of airway problems depends on the definition used. *Can J Anaesth* 1996; 43: 30–4.