Letters to Editor

Table 1: Biochemical values of CSF, interstitial fluid, plasma and leak fluid

| Fluids    | Glucose mmol/l | Chloride mmol/l | Protein g/l | pH |
|-----------|----------------|-----------------|-------------|----|
| CSF       | 2.75-4.145     | 122-132         | 0.15-0.45   | 7.34-7.43 |
| Interstitial fluid | 3.85-6.05 | 95-105 | 65-80 | 7.64 |
| Plasma    | 4.4-6.6        | 90-110          | 60-80       | 7.35-7.44 |
| Leak fluid | 4.8          | 110             | 60          |              |

CSF = Cerebrospinal fluid.

Another test that aided our diagnosis was inserting a needle away from the epidural site and analyzing the fluid collected from there, as performed by Ennis and Brock-Utne. This fluid had the same biochemical values as the leak fluid, hence ruling out CSF.

The low pressure and distensibility of epidural space makes it a probable site for the transudate accumulation and in our case, hypoalbuminemia probably aggravated the edema formation. CSF-cutaneous fistulae usually occur within 48 h, while this leak was first seen on the 5th post-operative day. A CSF leak of this magnitude would also cause severe headache, but our patient had no headache even in the sitting position.

A simple bedside test to differentiate edema fluid from CSF is to determine the pH of the fluid. A more alkaline pH is in favor of edema fluid. The diagnosis of CSF can be made by testing the fluid for CSF specific acetyl cholinesterase by protein electrophoresis. β2 transferrin immunofixation assay confirms CSF and can be performed on fluid samples as low as 0.1 ml.

A neurosurgery opinion with a computed tomography scan can be done to investigate the possible cause of an increase in CSF pressure. If sufficient fluid cannot be obtained, then a radioisotope myelography can diagnose a CSF fistula.

However, if even 0.5 ml of the leak fluid can be collected, then a simple chemical analysis for chloride, glucose and proteins can determine the fluid origin and avoid expensive tests.

In conclusion, our case shows that every epidural site leak need not be CSF and simple inexpensive tests are adequate for differentiating between CSF and interstitial fluid.

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The A.P. Advance video laryngoscope as a rescue airway device in an unpredicted difficult airway

Sir,

Direct laryngoscopy using Macintosh (MAC) blades remains the standard technique for securing airways during anesthetic practice. However, performing a direct laryngoscopy may be difficult or impossible in a percentage of cases that depends on the definition given, ranging from 0.3% to 13%. Difficulty in airway management often leads to serious harm. The Venner AP Advance video laryngoscope (APA) (Venner
Medical Ltd., Singapore) [Figure 1] is a video laryngoscope functionally similar to standard MAC laryngoscopes. It is a hand held portable device provided with a rechargeable, high resolution 86 mm (3.5”) LCD color display that can be attached to the top of the handle of the laryngoscope. The blades are mounted onto the camera module and three types of single use cover-blades are available: MAC 3, MAC 4 for routine laryngoscopy and a difficult airway blade (DAB) for difficult laryngoscopy. The DAB blade is more acutely curved in shape than the MAC blades, obeying the “look around the corner” philosophy and is designed with a guiding channel in its distal one third, to facilitate passage of the tracheal tube into the glottis. We describe the case of a 44-year-old man (body mass index: 25 kg/m²) scheduled for uvulopalatopharyngoplasty. He had no significant medical history and the preoperative airway evaluation did not foresee difficulties in airway management, the preoperative El-Ganzouri Risk Index score being 3 (Thyromental distance: 62 mm, Mallampati score 2, negative upper lip bite test). After preoxygenation, the induction of anesthesia was performed with propofol 160 mg intravenous (IV), fentanyl 100 mcg and atracurium 40 mg IV. Direct laryngoscopy using a MAC blade showed a Cormack-Lehane Grade 3e view despite external laryngeal manipulation and correct sniffing position. After confirmation of easy ventilation by face mask, we decided to perform a second laryngoscopy using the APA mounted with the DAB. Once the epiglottis was visualized (Cormack-Lehane: 2) on the video viewer of the laryngoscope, the APA was advanced further to obtain an optimal view of the larynx. Next, a sized seven cuffed reinforced tracheal tube was directed into the glottic aperture via the DAB guide channel. The endotracheal intubation was then confirmed by capnography and auscultation of the chest. The surgery proceeded uneventfully and the patient underwent a protected extubation using an airway exchange catheter (Cook Critical Care, Bloomington, IN). Several types of video laryngoscopes have been reported to have been used for airway rescue after a direct laryngoscopy failure, but to our knowledge, this is the first report about the APA. In our opinion, the APA has several advantages. First, it can be used as a standard MAC laryngoscope, making video laryngoscopy more familiar and encouraging its diffusion among experienced anesthetists. The DAB offers the opportunity, with the same device, to use a blade for the management of difficult airway in case of failure of the MAC blades. In our experience, the DAB immediately offered a good view of the glottis, and safely allowed the insertion of the tracheal tube sliding in the channel guide. To conclude, in our opinion, the Venner APA video laryngoscope has a potential role in managing difficult airway however further studies and clinical experience are necessary to establish its role in difficult airway management.

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