Since the floor of the mouth, tongue and larynx are intimately connected any movement of one will result in the displacement of the others. Thus, forcing the tongue to the left will tend to move the larynx to the left. This can be corrected by manoeuvring the larynx to the right. Pushing the floor of the mouth anteriorly with the tip of the blade will move not only the epiglottis but the whole larynx anteriorly. This is corrected by gently pushing the thyroid cartilage posterior and somewhat upward. These correcting manoeuvres first should be carried out by the anaesthetist using his right thumb and index finger and then by the assistant – usually a nurse. Often, it is best to guide the assistant's thumb and index finger until the best possible view of the vocal cords is presented and then ask him/her to "hold it."

Using these steps routinely will allow a gentler, less traumatic intubation with less tilting and with less pressure on the upper teeth. In cases of existing anatomical abnormalities, such as described by Dr. Knill, the steps described become essential.

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REFERENCE

- 1 Knill RL. Difficult laryngoscopy made easy with a "BURP". *Can J Anaesth* 1993; 40: 279–82.

REPLY

Dr. Relle claims that the "BURP" manoeuvre I proposed as an aid to manage difficult laryngoscopy¹ is a technique which is already used by many anaesthetists in practice. He also suggests that "BURP" improves the exposure of the glottis by offsetting the displacements of the larynx produced by the laryngoscope blade, and that it reduces the trauma of routine laryngoscopy.

These suggestions of Dr. Relle seem based upon his clinical experience with laryngeal manipulations, together with an assumption that the manoeuvre he employs is synonymous with "BURP." It must be pointed out, however, that Dr. Relle's manoeuvre differs from "BURP" in several important ways. The purpose of Relle's manoeuvre is to facilitate "all but the easiest cases of intubation," whereas "BURP" is intended as an aid for very difficult cases only.¹ The displacements of the larynx associated with his manoeuvre are rather modest and loosely defined: the larynx is shifted backward "gently," upward "somewhat" and rightward only to the extent of countering an effect of laryngoscopy. The displacements associated with "BURP" are more extensive and specific: the larynx is shifted backward until it abuts against the cervical vertebrae, upward as far as possible in the neck, and rightward by a defined 1–2 cms.¹ Dr. Relle's manoeuvre is effected initially by the laryngoscopist with the laryngoscope in place until the "best possible view of the vocal cords" is obtained. On the other hand, "BURP"

can be applied only by a trained assistant¹ since it is not possible for a laryngoscopist to induce all of its displacements effectively while maintaining an endoscopic view of the upper airway. These differences between the two manoeuvres mean that inferences about one cannot necessarily be extended to the other.

Each of the comments of Dr. Relle, when applied to "BURP," appears misplaced. I am not aware that the particular displacements of the larynx associated with "BURP" have ever been employed in practice; several experienced clinicians tell me they have never heard of its specific manipulations. I doubt that "BURP" acts to benefit laryngoscopy by countering shifts of the larynx produced by the laryngoscope blade; rather, I suspect that any benefit would result from repositioning of the larynx in a more vertical and right-sided laryngoscopic line of vision independent of any effect of the laryngoscope blade.¹ While it is conceivable that both Relle's technique and "BURP" may reduce the risk of trauma by routine laryngoscopy (i.e., laryngoscopy without difficulty), this may not be an important benefit since the incidence of such trauma is probably quite low in any case.

Problems of difficult laryngoscopy that complicate tracheal intubation remain an important source of anaesthetic morbidity and mortality.² The possibility that some of these difficulties may be overcome readily by various external manipulations of the larynx appears to have received little or no investigation. I concur with Dr. Relle that his manoeuvre may ease the management of some cases of difficult laryngoscopy; I suspect that "BURP" will be helpful in a greater number of such cases.¹ However, these impressions are based upon anecdotal experience only and require formal investigation.

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REFERENCES

- 1 Knill RL. Difficult laryngoscopy made easy with a "BURP." *Can J Anaesth* 1993; 40: 279–82.
- 2 Caplan RA, Posner KL, Ward RJ, Cheney FW. Adverse respiratory events in anaesthesia: a closed claims analysis. *Anesthesiology* 1990; 72: 828–33.

Equipotent dose regimens required when comparing epidural opioids

To the Editor:

We read, with great interest, the article by White *et al.*¹ They compared the incidence of side effects during epidural PCA with morphine and fentanyl in the treatment of pain after orthopaedic operations. The morphine loading dose was 25 to 40 times higher than the fentanyl loading dose. No criteria have been defined for the administration of different bolus amounts. The selection of