

TABLE 1. Absolute Diaphragm Displacements and Ratios Between Corrected Displacements and Shortenings in Four Diaphragm Regions and Two Body Postures

		Supine		Prone	
CoV	Displ	(nd)	0.72 ± 0.12	(d)	0.83 ± 0.19
	Dc/Sh		1.02		1.02
CoM	Displ	(im)	1.19 ± 0.30	(im)	1.21 ± 0.15
	Dc/Sh		1.50		1.30
CoD	Displ	(d)	0.91 ± 0.29	(nd)	1.19 ± 0.29
	Dc/Sh		1.30		1.15
Cr	Displ	(d)	1.06 ± 0.31	(nd)	1.31 ± 0.23
	Dc/Sh		1.54		1.4

Displ = absolute displacement expressed as mean ± SD (centimeters); Dc/Sh = corrected displacement/shortening ratio. CoV = costal-ventral; CoM = costal-middle; CoD = costal-dorsal; Cr = crural. Abbreviations in parentheses denote vertical location of the diaphragm region in respective body position: d = dependent; nd = nondependent; im = midheight between dependent and nondependent.

relationship of skeletal muscles. The geometric considerations inferred from diaphragm shape (intrinsic anatomic and/or change of regional curvature during breathing) must also be considered. In addition, heterogeneity in fiber type distribution and differential neural innervation,<sup>8</sup> as well as differences in regional compliances and mechanical coupling between regions,<sup>9</sup> may play an important functional role. Ultimately, analysis of three-dimensional diaphragm configuration and membrane stress distribution will be required to elucidate fully the exact mechanics of displacement.

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## Should a Laryngeal Mask Be Routinely Used in Patients Undergoing Thyroid Surgery?

To the Editor:—Recently, Tanigawa *et al.*<sup>1</sup> described using a combination of a fiberoptic bronchoscope, nerve stimulator, and laryngeal mask for recurrent laryngeal nerve identification and protection in patients undergoing thyroid surgery.

Although we have not doubt about the usefulness of being able to assess cord function preoperatively, we do not agree that the technique described should be advocated for widespread use. First, manipulation of the trachea will mean that there is a real risk of the larynx being displaced off the laryngeal mask. This has occurred in our practice on one occasion where the view of the cords was lost, fortunately without loss of airway control. Although it could be argued that the surgeon, directed by a view through the fiberoptic bronchoscope, could reposition the larynx over the mask, this may have to be done under difficult circumstances and may be complicated by a simultaneous risk of dis-

turbing a large pharyngeal mucous plug, which would impair the view and which might compromise the airway on its own account.

Second, we have noticed laryngeal spasm, even though the concentrations of the volatile agent delivered would seem to be more than adequate (enflurane 2% end-tidal). It occurred at some stage or the other in all patients and was often little more than a minor inconvenience. In all patients it appeared to be related to surgical stimulation and stopped within seconds of ceasing surgical manipulation of the larynx. Although we agree that it is eminently feasible to intubate the trachea with a 6-mm endotracheal tube *via* the laryngeal mask, this may be difficult to perform when the clinical situation is deteriorating and when access to the patients may be restricted because of the nature of the surgery.

Observation of vocal cord function during thyroid surgery is, ob-

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viously, desirable. However, the method that has been advocated has serious drawbacks. Constant observation for sudden loss of airway control is mandatory, and rapid correction of problems as they occur may be difficult.

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*In Reply:*—To apply our technique successfully to patients undergoing neck surgery, we emphasize two points—first, avoidance of laryngeal spasm, which is the most common problem with this technique, and second, maintaining a tight seal between the larynx and the laryngeal mask airway, which might be difficult in some situations. To prevent laryngeal spasm during surgery, we strongly recommend topical use of local anesthetics (4% lidocaine injection through the bronchoscope). We also advocate bronchoscopic examination *via* the laryngeal mask airway whenever any subtle changes in the feel of the rebreathing bag occurs. This enables us to reassess the position of the laryngeal mask and also to clear pharyngeal mucus before it can lead to serious difficulty. For intubation with a 6-mm endotracheal tube *via* the laryngeal mask airway, the bronchoscopic-guided method may be useful in helping to prevent deterioration of a difficult clinical situation. Fortunately, with these precautions, we have not had any serious complications associated with this technique, which has become routine for neck surgery in our institution.

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## Intrathecal Morphine as a Cause for Herpes Simplex Should Be Scratched Out

*To the Editor:*—I read with interest the letter concerning intrathecal morphine (ITM) and oral herpes simplex.<sup>1</sup> I would like to report that although we have used 0.2 mg ITM in thousands of cases with cesarean sections,<sup>2</sup> herpes simplex eruption has not occurred. The reported case is definitely an isolated one that could have been a mere coincidence or a result of reactivation of a dormant lesion by the severe scratching related to the very high dose of ITM (1.5 mg). The *untreated* severe pruritus is definitely more important than the drug itself. Therefore, the recurrence of herpes simplex and the danger of neonatal exposure to the virus<sup>3</sup> should not discourage us from using ITM, an excellent addition for control of pain during and after cesarean section.<sup>4</sup>

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