A Not so Apparent Cause of Intraluminal Tracheal Tube Obstruction

To the Editor:—Tracheal tubes have been reported to be obstructed with blood, secretions, and a variety of foreign bodies including ascaris worms.\(^1\) Eccentric cuff inflation also has been known to result in airway obstruction by causing the bevel of the endotracheal tube to impinge on the tracheal wall.\(^2\)

External herniation of the cuff over the lower end of the endotracheal tube also has been reported as a cause of airway obstruction.\(^3\)

I wish to report intraluminal tracheal obstruction due to internal cuff herniation at the cuff site. A 30-year-old patient was intubated with a cuffed 9-mm Formex\(^\circ\) endotracheal tube. The amount of air put inside the cuff was just enough to prevent leakage around the tube. When the patient resumed spontaneous respiration, it was noticed that the movement of the anesthetic reservoir bag was shallow, despite apparently good respiratory movements by the patient. A general check for kinking of any part of the anesthetic circuit was negative. The cuff of the endotracheal tube was deflated prior to extubation. It was then noticed that the movement of the reservoir bag improved considerably. The cuff was re-inflated and the reservoir bag movement became reduced again. The tube then was removed and replaced by another tube which gave no problem. Careful inspection of the first tube showed only a slight reduction of the lumen at the cuff site when the cuff was inflated, but this became more noticeable when the tube was placed inside a snug fitting plastic tube (simulating the trachea).

Subsequently, similar episodes occurred with a few other patients and it was then discovered that the same type of tube (recently acquired by us) was involved. These are the W.S.P.\(*\) FORMEX streamlined endotracheal tubes. This problem was, however, not encountered with all the Formex tubes.

The point worth noting here is that the usual pre-intubation inflation of the cuff to test for cuff integrity may miss this type of internal cuff herniation which becomes more apparent and significant when inflated inside the trachea.

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REFERENCES

*(Accepted for publication November 30, 1982.)*

Intraoperative Somatosensory-evoked Potentials

To the Editor:—Dr. Grundy’s single case report of somatosensory-evoked potential loss during spinal AVM excision\(^1\) is misleading.

The yield of useful clinical correlations between any evoked potential changes recorded intraoperatively and a predictable neurologic change postoperatively is low.\(^2\) Both false-positive and false-negative results occur. Interpretation of signal changes is complicated further by significant non-stationarity.\(^3\)

Equally important as any implied association between the neuroelectric events and subsequent neurologic function is the appreciation of the specificity of these sensory-evoked potentials.\(^4,5\) At best, somatosensory-evoked potentials, recorded as described, bear an incompletely defined relationship to the structural integrity and function of the spinal dorsal columns and dorsal spinocerebral tracts. The ventrolateral tracts have little influence on the evoked potential waveform.\(^6\) Only the non-specific later components (for which there are no putative neural generators) may be affected. This would limit interpretation of somatosensory-evoked potential change to dorsal column function only.\(^7\) To date, there is no effective way of recording motor function from the ventrolateral tracts.

Our experience at the Barrow Neurological Institute (BNI) is based on intraoperative somatosensory-evoked potential monitoring of 140 patients to date. In this initial group, technically satisfactory results were recorded in 88% (123/140). Variability, unrelated to surgical manipulation was present in 14% (20/140). False-negative results, i.e., loss of the signal without any neurologic change occurred in 6% (8/140). This is a function of both technical factors, such as loss of electrodes, equipment failure, and multiple intraoperative