

## Correspondence

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### Sore Throat Postoperatively from Topical Anesthesia

*To the Editor:*—I suggest that the sore throats observed postoperatively in the study by Doctors Loeser *et al.*<sup>1</sup> may be due entirely or in large part to the use of lidocaine, 5 per cent, as a lubricant for the endotracheal tubes. I believe that sore throats may be caused by the residual effects of local anesthetics on tracheal mucosa. Since I have changed to non-anesthetic lubricants such as Lubri-fax, postoperative sore throats are uncommon regardless of the cuff design or duration of endotracheal intubation. Furthermore, I do not find that the lack of topical anesthesia mandates a need for

larger doses of anesthetic or neuromuscular blocking drugs.

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#### REFERENCE

1. Loeser EA, Orr DL, Bennett GM, et al: Endotracheal tube cuff design and postoperative sore throat. *ANESTHESIOLOGY* 45:684-687, 1976

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### Queries on Cuffs

*To the Editor:*—The article by Loeser *et al.* on endotracheal tube cuff design and postoperative sore throat<sup>1</sup> raises two questions: 1) What is the incidence of sore throat after low-pressure cuffs have been used properly during nitrous oxide anesthesia, *i.e.*, cuff inflation with the inspired gas mixture, or periodically deflating the cuff to a just-seal pressure, or utilizing an effective pressure-relief mechanism as recommended by Stanley<sup>2</sup>; 2) What are the experimental data supporting Dr. Loeser's contention that because low-pressure cuffs have a tendency to fold on themselves and wrinkle in the artificial trachea, they do the same in tracheas of intubated patients, causing points of extremely high pressure and necrosis.

It seems likely that the Hi-Lo<sup>®</sup> and Lanz<sup>®</sup> cuffs will distribute intracuff pressure undiminished as cuff-tracheal pressure. The reason is that both of these cuffs have resting diameters so much larger than the resting diameter of the trachea that there should be no circumferential tension on the cuff wall. In the absence of circumferential tension on the cuff wall, the intracuff pressure is equal to the cuff-tracheal pressure.<sup>3</sup> It is interesting that these two low-pressure cuffs showed the same high incidence of sore throat (58 per cent). These are also the cuffs with the largest contact width.

It is not surprising that the high-pressure cuffs

tested by Dr. Loeser produced fewer symptoms after nitrous oxide administration than did the "low-pressure" cuffs used at high pressures. We determined the relationship between intracuff pressure and cuff-tracheal pressure for low- and high-pressure cuffs.<sup>4</sup> With high-pressure cuffs, a significant amount of intracuff pressure is used in overcoming the resistance to stretch of the cuff wall.

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#### REFERENCES

1. Loeser EA, Orr DL, Bennett GM, et al: Endotracheal tube cuff design and postoperative sore throat. *ANESTHESIOLOGY* 45: 684-687, 1976
2. Stanley TH: Nitrous oxide and pressures and volumes of high- and low-pressure endotracheal-tube cuffs in intubated patients. *ANESTHESIOLOGY* 42:637-640, 1975
3. Carroll G, McGinnis GE, Grenvik A: Performance characteristics of tracheal cuffs. *Int Anesthesiol Clin* 12:111-141, 1974
4. Carroll R, Hedden M, Safar P: Intratracheal cuffs: Performance characteristics. *ANESTHESIOLOGY* 31:275-281, 1969

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