that these patients have some kind of genetic defect which affects one of these brain pathways. It would be interesting to know if agents which alter endogenous opiate (naloxone), GABA (baclofen), or serotonin (ketanserin) activity would be clinically effective in reducing their muscle rigidity. For the future anesthetic management of these patients, one might anticipate that drugs which increase brain opiate activity (narcotics or nitrous oxide) would make their rigidity worse, while drugs which have been shown to have central muscle relaxant properties (benzodiazepines, barbiturates, ketanserin, inhalational agents) would attenuate the rigidity.

MATTHEW B. WEINGER, M.D.
Assistant Professor of Anesthesiology
Neuroanesthesia Research Group
University of California, San Diego
School of Medicine, T-001
La Jolla, California 92103

REFERENCES

1. Cook WP, Kaplan RF: Neuromuscular blockade in a patient with stiff-baby syndrome. ANESTHESIOLOGY 65:525–528, 1986
2. Lingam S, Wilson J, Hart EW: Hereditary stiff baby syndrome. Am J Dis Child 135:909–911, 1981
3. Blasco TA, Lee DE, Almaric M, Swerdlow NR, Smith NT, Koob GF: The role of the nucleus raphe pontis and the caudate nucleus in alfentanil rigidity in the rat. Brain Res 386:280–286, 1986
4. Benthuysen JL, Smith NT, Sanford TJ, Head N, Dec-Silver H: Physiology of alfentanil-induced rigidity. ANESTHESIOLOGY 64: 440–446, 1986
5. DeRyck M, Teitlebaum P: Morphine catalepsy as an adaptive reflex state in rats. Behav Neurosci 96:243–261, 1984
6. Thompson RKR, Foltin RW, Boykab RJ, Sweet A, Graves CA, Lowitz CE: Tonic immobility in Japanese quail can reduce the probability of sustained attack by cats. Animal Learn Behav 9: 145–149, 1981
7. Klockgether T, Schwarz M, Turski L, Wolfarth S, Sontag KH: Rigidity and catalepsy after injections of muscimol into the ventromedial thalamic nuclei: An electromyographic study in the rat. Exp Brain Res 58:559–569, 1985
8. Ellenbroek B, Schwarz M, Sontag KH, Jaspers R, Cools A: Muscular rigidity and delineation of a dopamine-specific neostriatal subregion: Tonic EMG activity in rats. Brain Res 345:132–140, 1985
9. Weinger MB, Cline EJ, Smith NT, Koob GF: Ketanserin pretreatment prevents alfentanil-induced muscular rigidity in the rat. (Abstract) ANESTHESIOLOGY 65:A344, 1986
10. Chesire RM, Cheng JT, Teitelbaum P: Reversal of akinesia and release of festination by morphine or GABA applied focally to the nucleus reticularis tegmenti pontis. Behav Neurosci 98: 739–742, 1984
11. Gordon EE, Januszko DM, Kaufman L: A critical survey of stiff-man syndrome. Am J Med 42:582–599, 1967

(Accepted for publication December 16, 1986.)

Anesthesiology
66:581–582, 1987

Yet Another Reason to Use a Fiberoptic Bronchoscope to Properly Site a Double Lumen Tube

To the Editor:—Among the various methods for one-lung ventilation, a recently introduced endotracheal tube with a movable blocker (Univent tube,® Fuji Systems Co. Ltd., Tokyo, Japan) has the advantages of ease of suctioning through its large main lumen, and for one-lung high-frequency ventilation through its small tube.[1] We describe an unusual complication with the use of this tube.

A 77-yr-old male patient (weight 37.5 kg, height 163 cm) with esophageal carcinoma was scheduled for esophagectomy. Following induction of anesthesia and paralysis, the trachea was intubated with an Univent® tube (size 37 F). After intubation, a fiberoptic bronchoscope (FOB; Olympus BF type 4B2, outer diameter 4.8 mm) was introduced into the main tube through a suction adaptor used for ventilation. Under direct vision, the tube was twisted approximately 90° toward the right side to be occluded, and the small tube was advanced. At that time, the silicon cap covering the tip of the small tube was dislodged and remained on the wall near the carina (fig. 1). The patient was placed in a head-down position to prevent the cap from moving distally, and the cap was successfully removed with a biopsy forceps *via* the suction channel of the FOB. The tube was removed, and another Univent tube® was placed without incident. There were no long-term sequelae.

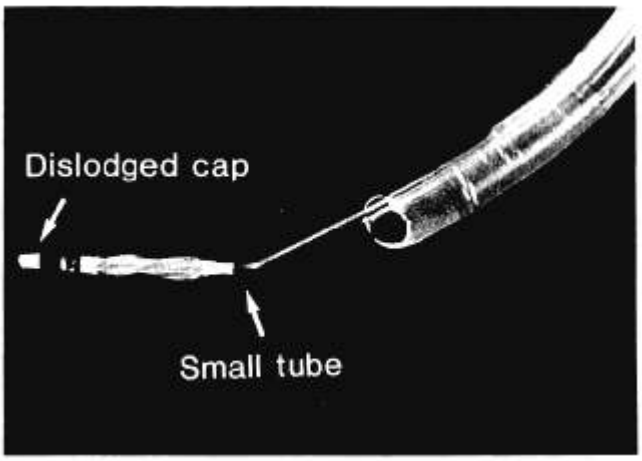

FIG. 1. The tip of the small tube of the Univent® tube and the dislodged cap.

We routinely use a FOB for introduction of the small tube into the right or left main bronchus, although the blind insertion of the small tube into either bronchus is reported to be possible.[1] In this case, without the use of an FOB, the foreign body might have produced postoperative pulmonary disease of unknown origin, because the cap is very small and may not be detected in a roentgenogram.

The present case emphasized that a FOB is an important adjunct for detecting trouble associated with one lung ventilation.

TOSHIYUKI ARAI, M.D.
YOSHIO HATANO, M.D., PH.D.
Department of Anesthesiology
Kyoto University Hospital
Kyoto 606, Japan

REFERENCE

1. Kamaya H, Krishna PK: New endotrachael tube (Univent® tube) for selective blockade of one lung. ANESTHESIOLOGY 63:342–343, 1985

(Accepted for publication December 17, 1986.)

Anesthesiology
66:582, 1987

Diazepam and the Hypercarbic Response to Carbon Dioxide

To the Editor:—A recent paper[1] and subsequent correspondence[2,3] has considered the extent to which diazepam may depress the ventilatory response to carbon dioxide.

The negative findings of Bailey *et al.*[1] have been criticized on the grounds that the dose of diazepam (0.1 mg/kg) was insufficient to demonstrate respiratory depression in fit, young volunteers.[2] In attempting to defend this, Bailey *et al.*[3] argue that similar negative effects also occur at higher doses,[4] but they ignored the unequal bioavailability of different injectable preparations of the drug. Power *et al.*[4] used an emulsion of diazapam in soyabean oil (Diazemuls) in a dose of 0.15 mg/kg, but there is no information on the nature of the preparations used in other studies.[1,5]

It is known that, in the emulsion form, the bioavailability of diazepam is reduced by up to 30% compared with the propylene glycol preparation (Valium®),[6] and it is, therefore, questionable whether the work of Power *et al.*[4] lends support to the view that higher doses failed to depress the hypercarbic ventilatory response.

There are now four injectable preparations of diazepam available around the world, and it has been shown that they all have different bioavailabilities.[6,7] Consequently, comparison of the pharmacodynamic effects of intravenous diazepam is meaningless without specific information on the nature of the preparations used.

J. P. HOWARD FEE, M.D.
Department of Anaesthetics
The Queen's University of Belfast
Whitla Medical Building
97 Lisburn Road
Belfast BT9 7BL N. Ireland

REFERENCES

1. Bailey PL, Andriano KP, Goldman M, Stanley TH, Pace NL: Variability of the respiratory response to diazepam. ANESTHESIOLOGY 64:460–465, 1986
2. Gross JB: Diazepam depresses the ventilatory response to carbon dioxide. ANESTHESIOLOGY 65:348, 1986
3. Bailey PL, Andriano KP, Goldman M, Stanley TH, Pace NL: Reply. ANESTHESIOLOGY 65:348–349, 1986
4. Power SJ, Morgan M, Chakrabarti MK: Carbon dioxide response curves following midazolam and diazepam. Br J Anaesth 55: 837–841, 1983
5. Spaulding BC, Choi SD, Gross JB, Apfelbaum JL, Broderson H: The effect of physostigmine on diazepam-induced ventilatory depression: A double-blind study. ANESTHESIOLOGY 61:551–554, 1984
6. Fee JPH, Collier PS, Dundee JW: Bioavailability of three formulations of intravenous diazepam. Acta Anaesthesiol Scand 30:337–340, 1986
7. Gjessing J, Tomlin PJ: An unusual solvent. Br Anaesth 49:954, 1977

(Accepted for publication December 22, 1986.)

Anesthesiology
66:582–583, 1987

In Reply:—We would like to thank Dr. Fee for bringing to our attention that the bioavailability of different preparations of diazepam may vary. Although, to our knowledge, only one injectable form of diazepam (Valium®, Hoffman-LaRoche) is available in the United States, several other preparations exist worldwide. If the data from Fee *et al.*[1] are correct, then the dose of 0.15 mg/kg that Power *et al.*[2] used is equivalent to 0.105 mg/kg of the