appropriate bronchus of each child during fiberscopic vision (Olympus LF-P, 2.2-mm OD, or LF-DP, 3.1-mm OD, passed through the inner tube; Olympus Optical Co., Ltd., Tokyo, Japan). Sufficient ventilation through the inner tube was obtained during the blocker positioning using a rubber-sealed Y connector (Bodai Swivel Y; Sotek Medical Inc., Hingham). Inflation of the balloon established adequate selective lung ventilation as well as excellent surgical access in all cases.

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A Versatile Alternative to Standard Laryngoscopy

To the Editor:—Conventional laryngoscopy may be difficult for the operator with weakness in the upper extremity used for manipulating the laryngoscope. I recently developed left-sided suprascapular nerve palsy, resulting in atrophy of the infraspinatus muscle. Having no power to perform laryngoscopy with my left arm, I began using an alternative method for tracheal intubation.

Standing along the patient's right side, I hold the laryngoscope in the right hand, with the blade end of the handle between my thumb and index finger and the blade pointing toward the patient. After induction of anesthesia, the blade is gently inserted into the patient's mouth, the laryngoscope tip is directed to the base of the tongue, and force is applied to the jaw with a pulling motion that aligns the oropharyngeal and laryngeal axes vertically. Thus, the oropharyngeal axis is pulled to a position anterior to the glottis, and the glottis is viewed by looking directly downward. Because the tube is inserted along a vertical line, I call this technique vertical intubation (fig. 1). This method may also provide a mechanical advantage over standard laryngoscopy because one uses very large muscle groups to lift of the jaw.

A similar method, named "inverse intubation" by Guertner,[1] has been described for emergency intubations in the field with the rescuer standing or kneeling over or next to the patient. Hilker *et al.*[2] reported several cases with limited access to the patient or difficult patient positioning in which the technique provided some advantage over standard laryngoscopy.

Vertical intubation offers excellent exposure of the airway in many patients and may be a useful backup to standard laryngoscopy.

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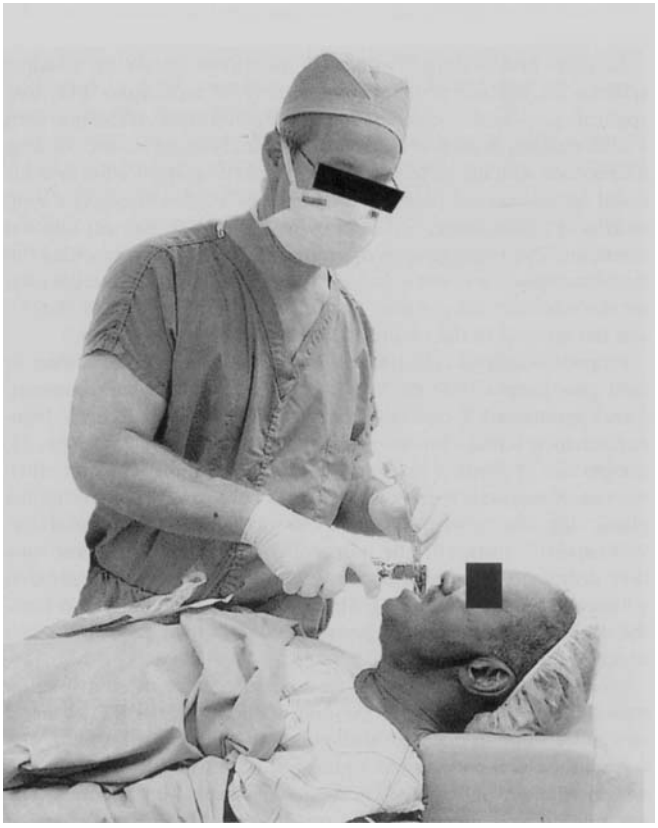

Fig. 1. Note the direction of insertion of the tracheal tube. Photo courtesy of Dr. Miguel Teresi, Chief of General Surgery, Chicago VA Hospital, Westside Division, Chicago, Illinois.

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Loss of Propofol during *In Vitro* Experiments

To the Editor:—Lipophilic drugs, such as propofol, are easily lost when a solution is in contact with reservoirs, tubings, or valves made of materials that are not inert. However, the extent and the rapidity with which almost complete loss can occur (within a few hours) is not always appreciated. Conflicting reports in the scientific literature regarding effective concentration values for the inhibition by propofol of various *in vitro* experimental systems prompted us to look at this issue more closely.

In vitro pharmacologic effects of anesthetic agents on biologic systems are studied with use of a variety of techniques and drug application systems. A combination of the patch clamp technique with a rapid drug-application system allows the study of the kinetics of drug interactions with the molecular target.[1] Rapid drug-application systems based on hydrostatic pressure used in such studies necessitate long lengths of tubing (here, ~ 120 cm) and large (200–500 ml) solution reservoirs. The concentration of propofol in the solution reaching the membrane patch is found to be highly dependent on the materials used for the reservoir, the duration of storage within the reservoir (fig. 1), and the material of the tubing of the drug application system.

Propofol solutions (10–100 μM) added to a reservoir consisting of hard glass bottles (500 ml, 90% capacity, stored in a dark compartment) maintained a constant concentration (as measured by high-performance liquid chromatography)[2] for more than 24 h (fig. 1), irrespective of whether the solution was stirred (polytetrafluoroethylene-coated magnetic stirrer). In a reservoir consisting of a conventional plastic drip bag (ethylvinylacetate, 250 ml, light protection as above, 90% capacity, unstirred), the propofol concentration in the test solution decreased to approximately 20% of the initial concentration within 4 h (fig. 1 and table 1). After 24-h storage in plastic drip bags, the decrease was even more pronounced (less than 5% of the initial concentration, see fig. 1).

Propofol concentrations were also measured after the test solution passed through the tubing of the drug-application system (120 cm, 2 mm and 0.3 mm in diameter at the outflow, flow rate 1 ml/min). The test solution was collected in a glass test tube from the outlet of the system where membrane patches would normally be positioned. The test solution containing propofol was collected before and after the drug-application system was equipped with inert materials. A loss of 95% of the initial concentration (table 1) resulted within the duration of a typical patch clamp experiment (≤ 4 h) when a plastic drip bag

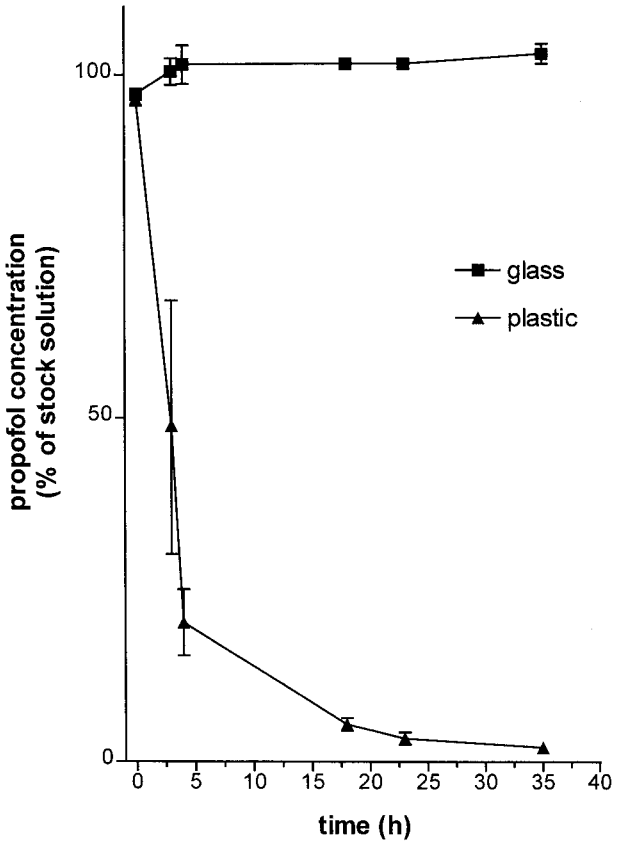

Fig. 1. Time course of concentration decrease within solution reservoirs. Test solutions containing propofol (100 μM) were stored in a glass bottle (■) or in a plastic drip bag (▲). Shown as mean ± SEM of 2–4 determinations.

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