sequelae of these two episodes were mild motor impairment of the
intrinsic muscles of the hands and feet, as well as significantly distressing
burning pain and deep muscle pain affecting all four extremities in a
diffuse distribution.* Following lumbar spinal fusion to correct the
mechanical derangement causing his back pain, parenteral opioids were
administered via a continuous intravenous infusion for postsurgical
pain control. Not only did the parenteral opioids effectively manage
the postoperative pain, but as a secondary outcome, they also abolished
the deep muscle pain and burning pain associated with the GBS.

In light of this brief case report, Connely et al.’s underlying as-
sumption, that their patient’s response to opioid analgesics was typical
of GBS patients, might be in error. A case control experimental design,
as used by these authors, does not allow generalization from its results.
The outcome of such studies simply points the way for further research.


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A Palatable Gelatin Vehicle for Midazolam and Ketamine

To the Editor—The medical community continues to search for an
ideal sedative medication for patients undergoing office and surgical
procedures and in the intensive care unit. When we choose a route of
administration for sedative medications in patients of low chronologic
or mental age, the amount of associated pain can be especially impor-
tant.

Two agents increasingly used for oral sedation are midazolam and
ketamine.1–4 Unfortunately, neither of these drugs is available in oral
formulation in this country, and the intravenous forms of both of these
medications are quite unpalatable unless mixed with a flavoring. A
recent letter to the editor proposed one formulation.5 We would like
to present some alternatives.

During our 5-yr experience with these medications, we have used
melted Popsicles, orange juice, apple juice, flavoring extracts (cherry
and banana), Hershey’s chocolate syrup, crème de maraschino (cherry
syrup), cola, and flavored gelatin with and without sugar. Although
all these formulations can be used to deliver the drug, they meet with
variable acceptance by the patient. In addition, nausea and vomiting
have been noted in some of these patients if they are not anesthetized
after becoming sedated. Vomiting, when it occurs, occurs most often
in outpatients after the sedation has begun to resolve.

At present we prefer flavored gelatin, sweetened with sugar, as the
vehicle for delivery. It is used for sedation in the pediatric intensive
care unit, the operating rooms, and the clinics. We have chosen the
sugared form because of the problems of administering aspartame
(NutraSweet®) to children with phenylketonuria. Our dose is 0.4–0.8
mg/kg for midazolam and 4–8 mg/kg for ketamine. Onset time is as
rapid as with other flavorings (10–20 min). The duration of sedation
varies from 20 min to 3 h.

The gelatin mixture is made in ice cube trays. It is prepared by
adding 1/4 cup of boiling water to a small package of flavored gelatin
(one that makes 2 cups) and allowing this to cool at least to 40°C. The
liquid gelatin is then added to the drug in a ratio of at least 1.3 ml
gelatin to every 1 ml drug. Cubes are made containing 5, 10, or 15
mg midazolam or 100 or 250 mg ketamine, and the mixture is allowed
to set in a refrigerator. Once set, the gelatin may be administered as
prepared or may be cut into portions if fractional doses are needed
(for example, a 5-mg cube is cut in two to provide 2.5 mg). The pH

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of this preparation is less than 4.0; therefore, both drugs should remain stable.

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The Risk of Tracheal Aspiration of Surgically Produced Foreign Bodies

To the Editor—A 49-yr-old woman who had undergone craniofacial resection of a fibrodyplastic ethmoid tumor 2 weeks earlier and re-operation for acute cerebral edema and decompression was returned to the operating room for bifrontal craniotomy and repair of a cerebrospinal fluid fistula under general anesthesia. The fistula repair included the placement of fat into the defect. The fat tissue was harvested from the patient’s leg and served as a base of support for the fascial graft, which was then placed over the defect in the dura mater.

The course of the general anesthetic was uneventful. At the conclusion of surgery, secretions were suctioned from the posterior pharynx prior to reversal of neuromuscular blockade and tracheal extubation. Two pieces of yellow fat of approximately 2 cm × 2 cm each, were retrieved from the hypopharynx. This represented a portion of the fat that had been used to support the fascial graft in the dural defect. These two pieces of fat had migrated out of the cranium, through the surgical defect in the ethmoid sinuses, and into the posterior pharynx.

If the fat had not been discovered by suctioning at the time of extubation, or if it had migrated to the hypopharynx after extubation, pulmonary aspiration of the fat could have occurred.

In the event of partial airway obstruction, more time could be spent making the diagnosis of fat aspiration. However, the diagnosis would be hampered by difficulty detecting the fat on chest x-ray, because fat is so radiolucent and virtually invisible on x-ray. The radiologic diagnosis would likely be made by inference based on atelectasis with complete obstruction or air trapping, hyperinflation, and possibly mediastinal shift with partial obstruction. Failure to consider fat aspiration in the differential diagnosis of airway obstruction would also complicate and delay the institution of therapy.

This case is reported for the purpose of alerting the anesthesiologist to the danger of aspiration of any surgically produced foreign body (fat, bone, blood clots, or synthetic material). The differential diagnosis of unexplained hypoxemia and/or airway obstruction following craniofacial surgery should include aspiration. Based on our experience, we recommend routine laryngoscopy at the end of these types of procedures to rule out material in the pharynx that might be missed by blind suctioning.

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Hypoxia among the Experts

To the Editor—Twice during the past year while serving as an expert witness for the defense, I have had to rebut the testimony of board-certified anesthesiologists who, while acting as experts for the plaintiff, asserted that an esophageal intubation must have occurred based solely on the "hard evidence" of a blood gas obtained during cardiopulmonary resuscitation (CPR): "It is my opinion that these blood gases, even if

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