However their proposal for the use of petroleum jelly is not to be condoned. Thus, “The cuff generously is lubricated with liquid sterile petroleum jelly—5 ml liquid sterile petroleum jelly is poured down the selected nostril.”

More than 30 years ago it was correctly noted that lubricating the endotracheal tube with an oil-soluble substance might lead to a lipoid pneumonia quite difficult to treat. We have since used water-soluble lubricants. Quintin et al. have in fact done us a disservice by suggesting a return to the era when we were causing harm by using petroleum jelly.

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Butorphanol and Biliary Spasm

To the Editor.—Product information on butorphanol states, “Clinical studies have not been performed to establish the safety of butorphanol administration to patients undergoing biliary tract surgery.”

I write to report a case of right hypochondriacal pain following the administration of butorphanol that was relieved by naloxone.

A 32-year-old woman was scheduled for breast biopsy under general anesthesia as an outpatient. Her history revealed multiple previous operations including discectomy, hysterectomy, cholecystectomy, colon surgery, hiatal hernia repair, and multiple urethral dilations. She was taking coumadin for deep venous thrombosis of the calf and amitriptyline for mood elevation. She gave a history of respiratory depression with morphine and rash with codeine, ampicillin, penicillin, and compazine. She was mildly obese, but physical examination was essentially unremarkable.

After discussion with the operating surgeon, it was agreed to proceed with the intended surgery. Anesthesia was induced with methohexital after curare and preoxygenation and followed with succinylcholine and endotracheal intubation. Maintenance with atracurium, oxygen, nitrous oxide, and isoflurane was uneventful. Ten minutes after arrival in the recovery room, she complained of pain at the operative site and was given butorphanol, iv, in 0.5 mg increments over the next 15 min to a total of 2.0 mg with good effect. Fifteen minutes later, the patient was crying out, writhing, and complaining of right hypochondriacal pain “just like when I was given morphine.” Naloxone, 0.12 mg, was given with immediate relief of these symptoms. Ten minutes later a further 0.12 mg of naloxone was required for a recurrence of the same symptoms with the same immediate relief.

Further recovery was uneventful, and she was discharged 2.5 h after the end of the surgical procedure. It would seem probable that, in this patient, butorphanol caused biliary spasm.

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Air Embolism via a Pulmonary Artery Catheter Introducer

To the Editor.—We would like to draw attention to a problem recently encountered with the use of an Arrow® catheter adapter with hemostasis valve and side port, recorder number SV-07000.

A 50-year-old man presented with an unstable cervical fracture after being run over by his own car while working on the engine. He was known to have cardiomyopathy with a significantly reduced ejection fraction,
and it was therefore decided to insert a Swan-Ganz® catheter before induction of anesthesia for reduction and fixation of his fracture. The right internal jugular vein was easily cannulated with the use of an Arrow® introducer set. A catheter sheath adapter was connected to the end of the introducer, and a 7 gauge Fr. Swan-Ganz® catheter was inserted through it.

Despite the assistance of an image intensifier, it was found impossible to obtain a satisfactory placement of the Swans-Ganz catheter. The catheter therefore was removed, leaving the introducer and the catheter adapter, the side port of which was connected to an intravenous infusion.

Induction and maintenance of anesthesia proceeded uneventfully. At the end of the procedure, the patient’s neuromuscular blockade was reversed and spontaneous respiration commenced while the patient was still prone. On turning the patient supine onto his bed, respiratory and cardiac arrest ensued. The patient was successfully resuscitated, with a good outcome as regards cerebral function.

A computerized tomography scan showed no abnormalities, but on the patient’s return to the intensive care unit a clearly audible sucking noise was present at the site of the catheter/sheath adapter, and air could be easily aspirated out of the side port, even though the adapter was tightly screwed onto the Swan-Ganz catheter introducer.

The catheter/sheath adapter contains a plug of soft rubber with a cruciate incision that acts as a one-way valve, sealing the catheter port when a Swan-Ganz catheter is not in situ. We have subsequently tried to produce incompetence in this one-way valve in several samples in vitro. Despite connecting the valve in all configurations to a pressure of 300 mmHg, no incompetence has been witnessed, even after insertion of a Swan-Ganz catheter anterograde and retrograde numerous times through the valve.

We believe the most likely cause of the incompetence witnessed in the valve is a fault in manufacture, although it is possible that a clot of blood was lodged in the valve, which kept it in the open position. The timing of the presumed air embolus is likely to result from the patient being turned from the prone position, thus raising the level of the valve above the heart.

We believe it important that all physicians using these catheter sheath adapters are aware of this potentially fatal hazard. An obturator is available for placement through the valve when a Swan-Ganz catheter is not in situ, but we believe the safest course of action when using a Swan-Ganz catheter introducer without a catheter is to remove the catheter/sheath adapter altogether.

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In reply.—Reports on failures of various manufacturers’ hemostasis valves have been published in various medical journals over the years.¹ For this very reason, Arrow International set forth several years ago to design the safest, most efficient hemostasis valve system available from any manufacturer.

Most other manufacturers’ valves originally were designed for arterial use only and consequently rely on pressure in order to provide a satisfactory seal. The Arrow® design is a mechanically closing device utilizing rubber "springs" that compress during catheter insertion and expand to close during catheter withdrawal. The hemostasis valve of the Arrow® catheter tested thoroughly and in all situations relating to their actual use were found to perform satisfactorily relative to the maximum positive and negative pressures required of this device in vivo.²

Even though Arrow International is convinced that our hemostasis valve design is the best on the market, we also believe that in no situation involving the introduction of large bore sheaths, that patient safety should be compromised. Accordingly, as the authors of the