

CORRESPONDENCE

2. Croce E, Azzola M, Russo R, Golia M, Angelini S, Olmi S: Laparoscopic liver tumour resection with the argon beam. *Endosc Surg Allied Technol* 1994; 2:186-8

3. Mastragelopoulos N, Sarkar MR, Kaissling G, Bahr R, Daub D: Argon gas embolism in laparoscopic cholecystectomy with the Argon Beam One coagulator. *Chirurg* 1992; 63:1053-4

4. Palmer M, Miller CW, Van Way CW, Orton EC: Venous gas embolism associated with argon-enhanced coagulation of the liver. *J Invest Surg* 1993; 6:391-9

(Accepted for publication May 2, 1996.)

Anesthesiology
1996; 85:444

© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

A Useful Maneuver when Intravenous Access is Difficult

To the Editor:—It is not uncommon for intravenous access to be difficult because a patient has severe vasoconstriction or a poor superficial venous system. Sometimes, application of a warm compress over the patient's hand will dilate the veins sufficiently. The following is another technique that may assist in cannulating peripheral veins, without resorting to a central venous route. If a patient arrives in the operating room with a 25G needle in place, use it. If not, try inserting a 22G or a 25G needle anywhere you can find a vein. After ensuring the intravenous line is functioning, apply a venous tourniquet to the

upper arm and infuse 50-100 ml of intravenous solution with a 10 ml syringe. One will be pleasantly surprised to find the patient's veins unexpectedly accessible.

Koretada Kondo, M.D.
Department of Anesthesiology
St. Vincent's Medical Center
Bridgeport, Connecticut 06606

(Accepted for publication May 6, 1996.)

Anesthesiology
1996; 85:444-5

© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

Infectious Complications after Epidural Anesthesia

To the Editor:—A recent case report by Pinczower and Gyorke¹ addressed a clinically important but rarely reported subject—an infectious complication of epidural anesthesia and analgesia. Because of clustering and pure chance, prospective studies on epidural anesthesia were not large enough to detect rare events such as epidural abscess or vertebral osteomyelitis.² A recent, large, retrospective study that analyzed 288,000 epidural catheterizations suffers from potential misclassification bias and other restrictions linked to retrospective analysis by a questionnaire.³ In addition, symptoms of infectious complications related to an epidural catheter may present so late that they are not traced back to the previous epidural catheter. Recognizing catheter-related infections such as epidural abscess⁴ or vertebral osteomyelitis¹ is important, because they can result in permanent neurologic damage. The need for an increased level of awareness of catheter-related osteomyelitis is stressed by two previous case reports of this complication and by a time delay of 8 and 15 weeks between onset of symptoms and definite diagnosis in these patients.^{5,6} The question of whether the epidural catheter only serves as a nidus for hematogenous spread or as a primary entrance port of

infection can rarely be answered in the individual case and has no influence on course and treatment of this complication. However, it is interesting that the patient reported by Pinczower and Gyorke and one of the previously reported patients⁶ were both diagnosed with vertebral osteomyelitis secondary to *Pseudomonas aeruginosa*, whereas the most common organism in epidural catheter-related infections is *Staphylococcus aureus*.⁷ An important aspect is that all three patients with catheter-related osteomyelitis were immunocompromised. Pinczower and Gyorke's patient received systemic methylprednisolone therapy and, of the previously reported patients, one received triamcinolone and betamethasone epidurally, in addition to suffering from diabetes mellitus,⁵ and the other patient was immunocompromised by a history of pancreatitis and high alcohol intake.⁶

It is necessary to increase the index of awareness among physicians for infectious complications of epidural anesthesia and analgesia, and special care should be exercised with epidural catheters in immunocompromised patients.

CORRESPONDENCE

Christoph H. Kindler, M.D.
Staff Anesthesiologist
Manfred D. Seeberger, M.D.
Staff Anesthesiologist
Department of Anesthesia
University of Basel, Kantonsspital,
CH-4031 Basel, Switzerland

References

1. Pinczower GR, Gyorke A: Vertebral osteomyelitis as a cause of back pain after epidural anesthesia. *ANESTHESIOLOGY* 1996; 84:215-7
2. Dahlgren N, Törnebrandt K: Neurological complications after anaesthesia. A follow-up of 18,000 spinal and epidural anaesthetics performed over three years. *Acta Anaesthesiol Scand* 1995; 39:872-80

3. Palot M, Visseaux H, Botmans C, Pire JC: Epidémiologie des complications de l'analgésie péridurale obstétricale. *Cah Anesthesiol* 1994; 42:229-33
4. Borum SE, McLeskey CH, Williamson JB, Harris FS, Knight AB: Epidural abscess after obstetric epidural analgesia. *ANESTHESIOLOGY* 1995; 82:523-6
5. Wenningsted-Torgard K, Heyn J, Willumsen L: Spondylitis following epidural morphine. A case report. *Acta Anaesthesiol Scand* 1982; 26:649-51
6. Lynch J, Zech D: Spondylitis without epidural abscess formation following short-term use of an epidural catheter. *Acta Anaesthesiol Scand* 1990; 34:167-70
7. Pegues DA, Carr DB, Hopkins CC: Infectious complications with temporary epidural catheters. *Clin Infect Dis* 1994; 19:970-2

(Accepted for publication May 8, 1996.)

Anesthesiology
1996; 85:445
© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

Color of Compressed Gas Cylinders

To the Editor:—Reading the potentially disastrous case of an intraabdominal fire by Greilich *et al.*¹ prompted me to immediately call a major medical gas supplier here in Australia to check whether such a dangerous gas cylinder was available. As in the United States, routinely available Carbogen (5% CO₂ in 95% O₂) has a different pin index to 100% CO₂. Other mixtures of CO₂ and O₂ can be supplied on request, but would normally be fitted with a bull-nosed industrial-type valve, unless a medical-type pin-indexed valve was requested. Also as in the United States, if such a medical valve was requested, mixtures with 7% CO₂ or greater would be fitted with pin positions identical those of a 100% CO₂ cylinder. However, the guidelines also specify that the color of the body of the cylinder should be that of the predominant gas (*i.e.*, >50% concentration), and the shoulder of the cylinder should be colored that of the "minor" gas. With these guidelines, 14% CO₂ in 86% oxygen would look more like an oxygen cylinder but would only fit a CO₂ pin-indexed yoke. Although still potentially dangerous, this almost certainly would have been safer than the safety features described in the report (*i.e.*, a small green collar plus a label). One also wonders why such a

mixture with a medical pin index existed in the hospital in the first place.

Mark Priestley, M.B.B.S., F.A.N.Z.C.A.
Staff Specialist
Department of Anaesthesia
Westmead Hospital
Hawkesbury Road
Westmead 2145 NSW
Sydney, Australia

Reference

1. Greilich PE, Greilich NB, Froelich EG: Intraabdominal fire during laparoscopic cholecystectomy. *ANESTHESIOLOGY* 1995; 83:871-4

(Accepted for publication May 14, 1996.)

Anesthesiology
1996; 85:445-6
© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

In Reply:—We are delighted to respond to the letter from our Australian colleague, Priestley, regarding safety features in the packaging of the medical gases. Following the Australian guidelines, our

hazardous mixture of the 86% O₂/14% CO₂ would have been packaged in a green cylinder with gray striping on the collar rather than the reverse.¹ Theoretically, our error could have been averted by