

## SEVERE METHEMOGLOBINEMIA FOLLOWING DENTAL EXTRACTIONS UNDER LIDOCAINE ANESTHESIA

C. D., a 19 year old white male, in previous good health, was admitted to this hospital on December 2, 1953, with severe methemoglobinemia. The events leading to this admission are reconstructed as follows.

On the day prior to admission, the patient was given  $1\frac{1}{2}$  grains pentobarbital sodium at 2:30 p.m., as preanesthetic medication. Thirty minutes later, the dental nerves were blocked, using 15 ml. of 2 per cent lidocaine solution. The lidocaine employed was from standard dental capsules containing 1.8 cc. of 2 per cent lidocaine with epinephrine in a 1:50,000 concentration. A full mouth extraction (28 teeth) was done and no abnormal reaction was noted. The patient was given  $\frac{1}{2}$  grain of codeine sulfate by mouth and placed in the dispensary recovery room. At 8:00 a.m. the following day, he was examined by the dental surgeon and no complications were noted. He was discharged from the dispensary, further treatment to be carried on as an out-patient. About 12:00 noon, the patient suddenly became dizzy and lost consciousness. He was brought to this hospital a few minutes later. Upon examination, the temperature was 101 F., pulse 110 per minute, respiration 24 per minute and blood pressure 120 mm. of mercury systolic and 60 mm. of mercury diastolic. The patient was unconscious. The skin was cool and moist. All examiners were impressed by the deep cyanotic color of the patient in spite of apparently adequate respiratory exchange and circulation. One hundred per cent

oxygen by B.L.B. Mask was started at once. Little or no change was noted in the color of the patient; however, he soon became lucid enough to respond to questions. Venous blood taken at this time for laboratory examination was noted to be chocolate in color. It could not be oxygenated by exposure to high concentrations of oxygen. The venous blood contained 8 vol. per cent of oxygen. A diagnosis of methemoglobinemia was made.

A 1 per cent solution of methylene blue was prepared and, at 5:00 p.m., 7 cc. (1 mg./Kg.) was given intravenously. Within forty-five minutes, there was marked improvement in the skin color and  $1\frac{1}{2}$  hours later the patient appeared normal. The patient was followed closely for the next three weeks, with renal, liver, and blood studies. All were within normal limits. The patient emphatically denied any medication other than that mentioned above.

## COMMENTS

Few reactions of any type have been reported from the administration of lidocaine. Lidocaine is a derivative of acetanilid, a drug known to produce methemoglobinemia. Whether the methemoglobinemia produced in this case was due to the lidocaine or to some other unrecognized substance is unknown; however, the relation seems plausible.

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## A GAS-TIGHT METHOD OF ACCOMMODATING A GASTRIC DRAINAGE TUBE IN THE CIRCLE CIRCUIT

The anesthesiologist sometimes has to grapple with a nasogastric tube emerging from under the mask and faces the problem of maintaining drainage without creating a troublesome gas leak. Emma has described a device which facilitates this task in the to-and-fro circuit (1). A

simple method suitable for circle absorbers has been used for two years at The Presbyterian Hospital and is illustrated in figure 1.

The tube emerging from the patient is accommodated in a notch cut in the chimney-piece. The chimney is then

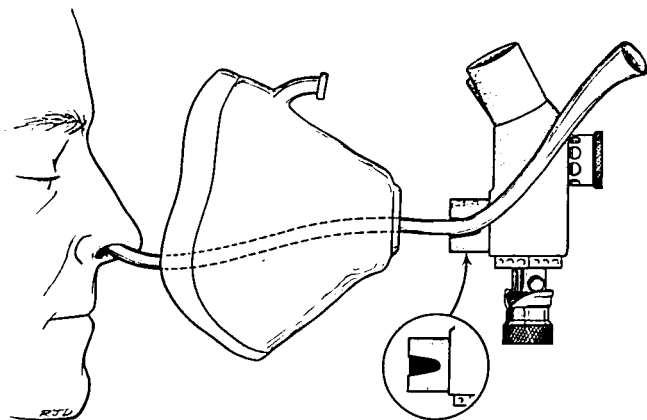


FIG. 1. Method of accommodating an intestinal drainage tube during circle absorber anesthesia.

pushed into the mask until it makes a snug fit. The tube remains patent and drainage is unimpeded.

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#### REFERENCE

1. Emma, E., and Hershey, S. G.: Adapter for Use with Gastro-Intestinal Drainage Tubes During Inhalation Anesthesia, *Anesthesiology* 10: 643-645 (Sept.) 1949.

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### THE SPREAD OF DRUGS USED FOR SPINAL ANESTHESIA

No completely satisfactory clinical method has been described to determine the spread of agents in the subarachnoid space during spinal anesthesia. This report discusses the use of a small amount of radioactive iodine ( $I^{131}$ ) added to the injected spinal anesthetic solution, to aid in this determination.

#### RESULTS

When isobaric solutions such as 1.0 to 2.0 cc. of 0.5 per cent nupercaine or 1.0 per cent Pontocaine® were injected with

the patient in the lateral position, the highest concentration of the drug was found near the site of injection, between 15 cm. cephalad and 5 cm. caudad. There was practically no change in this determination after several minutes (fig. 1). Furthermore the drug does not disperse by any means (such as rapid injection, barbotage) except by changing the body position.

When hyperbaric solutions such as glucose-nupercaine (specific gravity 1.039 at 15 C.) were injected with patient in lateral position, and turned to supine position