and passes it to the meter and at the same time to a small speaker which serves as an alarm. The larger the static voltage, the more voltage is induced in the antenna and in the amplifier tubes and consequently in the meter.

The speaker tone is such that it draws the anesthesiologist’s attention without distracting the surgeon. The higher the static charge the louder the sound until the meter reaches its maximum reading.

The range of the instrument is set so that a static charge of about half the magnitude (2000 volts) necessary to cause a spark strong enough to ignite an explosive mixture of gases will cause a full scale meter reading when it approaches the danger zone around the anesthesia equipment.

In the normal installation of the staticator, which consists of simply plugging into a regular electrical outlet, the staticator is grounded through a resistor to the grounded wire of the 110 volt power line. Thus, by attaching the staticator to the gas machine, any static charge built up on the gas machine is instantly drained off to ground.

We have used the staticator the last six months during various surgical procedures and under variable conditions of humidity and temperature. Figure 1 illustrates the danger points for the anesthesiologist and particularly when he should be on the alert. From the graph, it may be observed that there are a number of instances when the anesthesiologist was in a dangerous zone of high electrical potential; it is interesting to observe that “E” and “J” are often present, as they show the danger points when the anesthetist is touching the patient and when the mask is removed.

In conclusion, we may state that the staticator as devised will fill a useful place in the anesthetist’s armamentarium in that it will warn him of the possible dangers in the vicinity of the anesthetic apparatus and dissipate and prevent any concentration of static charges in the anesthetic field.

REFERENCES


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CONVULSIONS FOLLOWING PONTOCAINE SPINAL ANESTHESIA:
REPORT OF CASE

Convulsions during anesthesia have been reported many times in the literature (1). These reports deal frequently with the so-called “ether convulsions” although convulsions occurring during all types of anesthesia have been reported. The typical case of “ether convulsions” is that of a young individual with an acute illness, fever, and frequently intra-abdominal disease. Recent reports have indicated that pentothal sodium is the drug of choice for the control of convulsions. Convulsions following intravascular injection of one of the drugs of the cocaine-series is well known. In the case reported here, convulsions followed intraspinal administration of pontocaine hydrochloride for surgical closure of a perforated peptic ulcer.

The patient, a 10-year-old veteran, was admitted to Mitchel Field, AAF Regional Station Hospital, July 25, 1946. He had been discharged on July 22, 1946, from the Army on a certificate of disability owing to a prepyloric peptic ulcer. Ulcer symptoms began in November 1945. Four hours before admission nausea, repeated
emesis and severe pain in the right upper quadrant of the abdomen and lower chest occurred. The pain extended through to the posterior midportion of the thoracic region. Subjectively, the pain was described as severe, and it increased on breathing, talking, and coughing. The patient had two watery bowel movements which were not bloody or tarry. Earlier in the evening, he had been drinking beer and eating hamburgers.

The temperature was 100.4°F, pulse 96, and blood pressure 106 mm. systolic and 72 mm. diastolic. The right upper quadrant of the abdomen was rigid (“board belly”) and the entire abdomen was moderately to severely rigid. Peristalsis was absent. A roentgenogram revealed fluid levels in the loops of the small bowel consistent with paralytic ileus. Leukocytes numbered 15,000 with 90 per cent polymorphonuclear cells. Urinalysis gave negative results. The patient did not appear grossly dehydrated.

Treatment consisted of the administration of 1000 cc. of 5 per cent of glucose in saline solution, which was continued during the operation. Nembutal, 1.5 grains, morphine 1/4 grain, and atropine, 1/150 grain were given preoperatively.

At operation, 0.25 cc. of 1 per cent neo
synergpin with 1 cc. of 1 per cent procaine was given subcutaneously as a vasopressor agent preceding the spinal anesthesia by five minutes. A spinal sensory anesthesia was given to the fourth anterior rib interspace, using 17 mg. of pontocaine and 1.7 cc. of 10 per cent glucose with the needle inserted in the third lumbar vertebral interspace. Approximately fifteen minutes after the spinal anesthetic drug was introduced, a faint tremor of the jaw and facial muscles began. This was misinterpreted as chillines owing to apprehension and, therefore, 5 cc. of pentothal was added to the infusion. The tremor disappeared only to reappear a few minutes later. It was of a progressively severe nature, involving the neck, arm, shoulder, and the upper intercostal and diaphragmatic muscles. The tremor was combined with intense muscular rigidity. Pentothal was administered in increasing doses to a total dosage of 2 Gm. with apparently decreasing effectiveness in controlling the tremors. Cyanosis developed and oxygen was administered. The airway was investigated during periods when the tremors were controlled and found to be clear. The convulsive tremors ceased approximately two and one half hours after onset while the abdomen was being closed. Convalescence was uneventful.

**Discussion of Possible Causes**

Five possible factors were strongly considered as the etiology of these convulsions.

1. *Sensitivity to Pontocaine.*—This was considered as the most likely cause. Skin sensitivity tests after operation, however, were negative. The patient had had an appendectomy in April 1946 under spinal anesthesia without complications.

2. *Alkalosis.*—The patient had had repeated emesis prior to operation. Clinically, however, he was not dehydrated and urinalysis showed a specific gravity of 1.024 and a pH of 7.0. Prior to and during the surgical procedure an intravenous infusion of 5 per cent glucose in saline solution was given slowly.

3. *Tetanus Resulting from Deficiency of Calcium.*—We have no evidence either for or against this factor as a cause. Blood taken for determination of serum calcium was hemolyzed.

4. *Idiopathic “Ether” Convulsions.*—In this syndrome, certain factors are usually present, namely, a youthful patient, fever and acute disease. These criteria were satisfied in this case, but we have no definite evidence otherwise for or against this diagnosis. Rosenow’s neurotropic streptococcus may be the cause of this type.

5. *Overdosage of Atropine.*—The patient had two doses of atropine; the first dose of 1/100 grain was given before admission and the second dose of 1/150 grain was administered approximately five hours later.

**Summary**

A case of convulsions following spinal anesthesia apparently owing to pontocaine sensitivity and treated with pentothal sodium is reported.
REFERENCES

Note: Curare was not available in the Army Medical Supply in 1946.

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THE UNIVERSAL MASK ADAPTER

After using the various masks and inhaler castings of the three popular anesthetic gas machines, the anesthesiologist may develop a preference for a particular type of mask. However, the mask of his choice might not be that of the manufacturing company whose machine is available for the anesthetic agent that he is about to administer. The mask to be used with that particular machine might not fit the contour of the patient’s face. Some masks may fit a large number of patients satisfactorily, however, it is difficult to develop a mask to fit every face. Some anesthesiologists may prefer an interchange of masks when anesthetic machines of the different manufacturers are available in the Department of Anesthesia.

The Universal Mask Adapter now makes it possible for the anesthesiologist to use the mask of his or her choice by adapting it to the mask assembly of any one of the three popular anesthetic machines. This eliminates the necessity for using the mask provided with the particular anesthetic machine being used at the time. The interchange of masks can be made very quickly with this Universal Mask Adapter (fig. 1).

The Universal Mask Adapter permits the use of eight different combinations of the three anesthetic inhaler castings and of five types of masks. This adapter will accommodate the inhaler castings of the Heidbrink, McKesson and Foregger anesthetic gas machines. The Heidbrink inhaler cast-