tional human evidence that, in normal patients deeply
anesthetized with halothane, succinyllcholine routinely
increases jaw muscle tone.4

With this information in mind, I believe that the clinici-

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(Accepted for publication December 12, 1987)

In Reply.—Dr. Gronert proposes that patients who
experience trismus after succinylcholine need not have
anesthesia stopped and surgery rescheduled. Instead,
anesthesia may be continued with non-triggering agents
and sufficient monitoring to ensure that, should mali-
gnant hyperthermia develop, it would be detected and
treated early. Indeed, others also espouse this recom-
mendation. I do not. My reasons are as follows:

End expired CO2 monitoring, the most sensitive
means of detecting malignant hyperthermia, is not
available in all operating rooms, and, if it is, the monitor
requires time for calibration (during which time the pa-
tient would be anesthetized). Insertion of arterial (and
venous?) catheters is time consuming and detracts from
close patient observation.

However, my major objection is that malignant hy-
perthermia may not occur immediately after trismus,
but may occur sometime during the operative pro-
cedure. Now the surgeon would have to be told to abort
the operative procedure, perhaps at an inconvenient
time, or rush through the surgery. Dantrolene would
then have to be secured and administered. By these
actions, we have unnecessarily increased the risks for
the patient.

Finally, patients who have experienced trismus with-
out any other sign of malignant hyperthermia may
experience significant muscle destruction, myoglobin-
emia, and myoglobinuria. If myoglobinuria is not rec-
ognized and treated, then it is possible that
myoglobinuric renal failure may ensue. There is no in-
formation to indicate if continuing the anesthetic with
a non-triggering technique would worsen such muscle
destruction; I think it might.

Certainly, for an elective procedure, I believe that the
additional problems that might be engendered by con-
tinuing the anesthetic are simply not justified. There-
fore, I advise practitioners that, following trismus in
a patient having an elective procedure, surgery should be

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rescheduled, and the patient evaluated by muscle biopsy. If the surgery is life-saving or emergent, then I recommend intravenous czantrolene along with switching to non-triggering anesthetics and appropriate invasive monitoring.

The problem of the coincidence of trismus with malignant hyperthermia is discussed further in my editorial, and I certainly agree with Dr. Gronert's recommendation that, after trismus, patients should undergo muscle biopsy.

Although many agree that succinylcholine is a drug whose complications are so numerous that it should be used on indication only, nevertheless, succinylcholine is still used extensively in anesthesia practice. It will take many years for the new non-depolarizing relaxants to supplant succinylcholine. Therefore, I think we are going to be faced with trismus after succinylcholine for many years to come.

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REFERENCE
(Accepted for publication December 12, 1987.)

Another Use for Swivel Adaptors

To the Editor.—Heart and breath sounds are monitored with a stethoscope either placed externally on the precordium or internally in the mid-esophagus through the oro/nasopharynx. The heart beat and the breath sounds heard with the internally placed esophageal stethoscope are loud and clear because it is placed closer and separated by less dense tissue from the heart and the lung than with the precordial stethoscope. Placing the esophageal stethoscope in the oropharynx is possible only when anesthesia is administered via an endotracheal tube to the patient. When a face mask is used, any probe in the oropharynx coming out between the mask and the patient's face will prevent a tight fit of the mask on the patient's face, and will interfere with adequate ventilation because of leaks.

We have designed a modification of the standard mask adaptor (fig. 1) that permits insertion of an esophageal stethoscope or any other probe (temperature, fiberoptic bronchoscope, suction catheter, or N-G tube) into the oropharynx when a face mask is being used without loss of the airtight fit of the anesthetic system. The modification consists of a swivel adaptor (Portex®)

**Fig. 1. Left.** The fully assembled system with the esophageal stethoscope passing through the swivel adaptor in an anesthetized patient. Right. The exploded view. *Portex*® swivel adaptor Fiberoptic H 625109. **Modified Jackson Rees' circuit (Vital Signs®) H 5102.