A Cassette Recorder for the Intraoperative Electrocardiogram

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Although various systems for recording ECG in the operating room have been described, their routine use may not be practical. The system is often bulky, expensive, and complicated. We have designed a new system which offers several advantages, namely, ease of tape manipulation and electronic control, as well as portability and low cost.

The system is composed of the following components:

2. Sony TC125 stereo cassette recording deck.
3. DataScope † ECG monitor.
4. A monaural audio amplifier and speaker with volume control.

The hookup of the components is schematically illustrated in figure 1. We chose cassette

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† DataScope Corporation, 1831 Grand Concourse, Bronx, New York.

Fig. 1. Schematic diagram of recorder components.
recording because of its simplicity, especially
when compared with reel-to-reel tape record-
ing. The Sony cassette deck is panel-mount-
able, provides an automatic recording level,
and allows recording on two channels, one
EEG and one voice. Unfortunately, this cas-
ette recorder does not presently provide an
automatic shutoff at the end of a tape, which
would be an advantage. The Datascpe unit
was included principally to monitor the ECG
signal being recorded should adjustment of
the FM adaptor be needed, though this is rare
in our experience. The components were sub-
sequently mounted on a mobile cart, shown in
figure 2. This packaging, although somewhat
bulkier than necessary, offered a good com-
promise between a larger relay rack and the
less desirable “suitcase” type of mounting
which is not as rugged.

In the course of several months of routine,
 continual monitoring in the operating room,
we have collected a wide variety of ECG pat-
terns. To use these as a teaching aid, a second
Sony tape deck was connected to the system
in place of the display cardioscope, and se-
lected portions of the previously obtained
EEG tapes were rerecorded onto a single cas-
ette. An accompanying commentary was
added to the voice channel on the same cas-
ette. It is possible, therefore, for a trainee to
play back this teaching cassette, watch for
patterns in the familiar medium of the operat-
ing room (ORM-1), and simultaneously hear
a commentary describing the pathophysiology
and treatment of these arrhythmias. In addi-
tion, the routine taping of EEG during op-
eration allows one to see an “instant replay”
of events which happened too rapidly for care-
ful interpretation at the time of occurrence.

This system offers simplicity of use and is
capable of recording EEG or arterial pressure
as well as ECG through the ORM monitor. It
may also provide a logical first step interface
to a computer for computer-aided instruction
in electrocardiography.

REFERENCE
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