CORRESPONDENCE

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Spiral Needle Electrodes for Evoked Potential Monitoring

To the Editor:—The increasing involvement of anesthesiologists in monitoring intraoperative evoked potentials has significantly increased preoperative patient preparation time. Any device or technique simplifying patient preparation would be highly desirable.

We have found that the use of a spiral needle electrode (fig. 1), typically used for fetal scalp monitoring in obstetrics, is an attractive alternative to gold-coated or tin disc electrodes, both of which require prolonged application time for preparation of the skin and drying of the collodion adhesive.

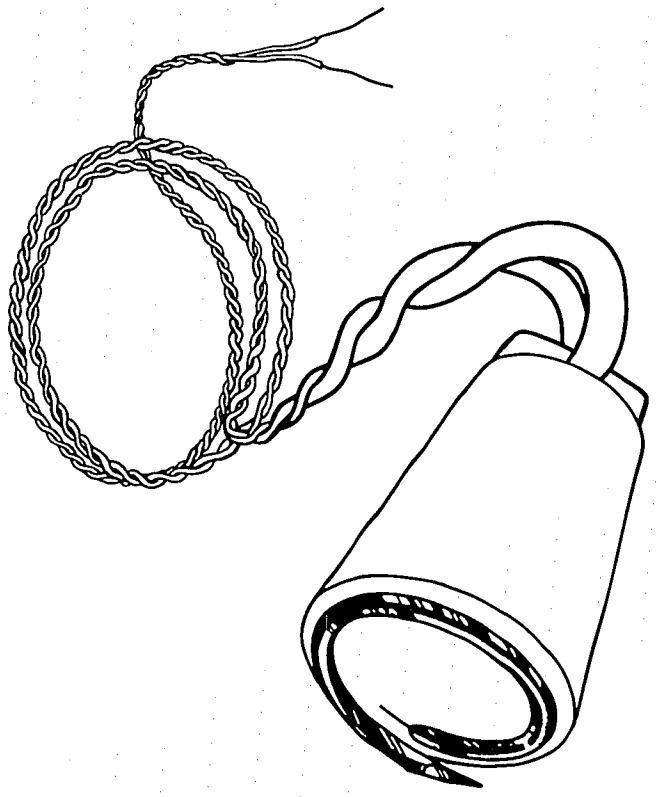

FIG. 1. Drawing of spiral needle electrode used for fetal scalp monitoring. The needle is slightly longer than standard EEG needles and is easily inserted.

The needle itself is longer than standard EEG electrodes, thus increasing surface area contact. The spiral nature of the needle ensures secure adherence without dependence on tape or collodion. The needles themselves are easily applied after mild abrasion of the skin with an alcohol pad. Measured impedances less than 5000 ohms are easily achieved and impedances less than 2000 ohms are not uncommon.

We have found insertion of these spiral electrodes to be expeditious, although unsedated patients experience discomfort during insertion. We routinely administer an opiate as premedication and use a topical anesthetic, such as ethyl chloride, before insertion. We have found the use of these electrodes to be a useful alternative to the other commonly used electrode systems.

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A Modification of an Eschmann Endotracheal Tube Changer for Insufflation

To the Editor:—When changing an endotracheal tube it is important—but sometimes difficult—to maintain good oxygenation in the patient. We modified an Eschmann* endotracheal tube changer to improve oxygenation while an endotracheal tube is being changed. The Eschmann endotracheal tube changer, as manufactured, has an external diameter of about 4 mm and a length of 60 cm. It is hollow with sealed ends. Our modification consists of the following components: 1) an Eschmann endotracheal tube changer, from which 1 cm of both ends has been cut off, making a hollow con-

* Manufactured by Eschmann, Lansing, Sussex, England.

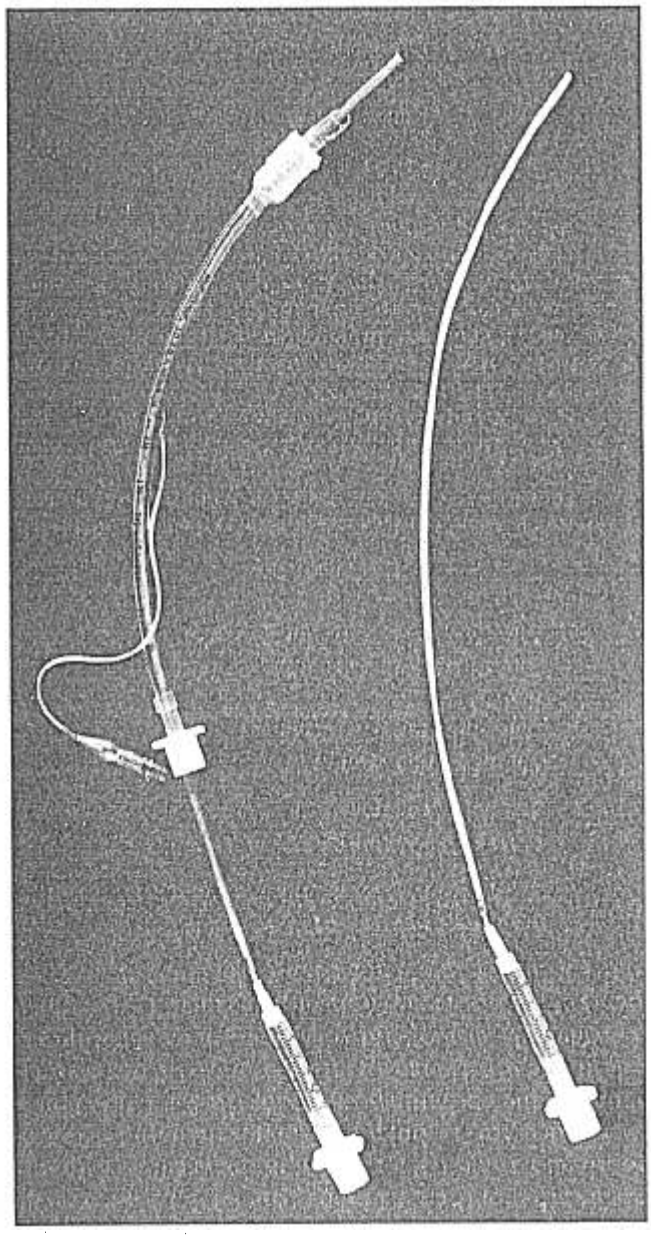

FIG. 1. Assembled components for Eschmann endotracheal tube changer and assembled components passed through an endotracheal tube.

duit (one has to be sure that the edges are smooth); 2) a 2-inch 14-gauge venous cannula; 3) the barrel of a 3-cc syringe; and 4) an endotracheal tube connector with an external diameter of 7 mm.

The device is assembled in the following way. The flange of the venous cannula is connected to the barrel of the syringe. The endotracheal tube connector is inserted into the open end of the syringe. The venous cannula is then inserted into the proximal end of the Eschmann endotracheal tube changer and secured with a small piece of tape. The components assembled are shown in figure 1 passed through an endotracheal tube.

TABLE 1. Flow Characteristics for Assembled Endotracheal Changer (See Text for Details)

Flow (ml/m)	Pressure (mmHg)
2000	20
3100	30
3900	40

We initially constructed this device to assist in extubation of the trachea of a patient who had a tracheal reconstruction for tracheal stenosis. The tube changer was inserted through the endotracheal tube, which was then removed without difficulty. If the patient had encountered respiratory difficulties, we would have had the ability to both insufflate oxygen and also to re-intubate the trachea using the Eschmann tube changer as a guide to pass another endotracheal tube.

The flow characteristics of the assembly are given in table 1. The measurements were made using a Penlon Wright spirometer. The pressure was measured with the anesthesia machine manometer. The spirometer was placed proximal to tube changer assembly and distal to the Y piece of the circuit.

Another potential use for this device is when a difficult tracheal intubation is anticipated. The tube changer, because of its small caliber and stiffness, is easier to pass through the glottis than is the endotracheal tube. Once through the glottis, the tube changer would act as a guide for an endotracheal tube. This device also has the potential to be used for jet ventilation by the method described by Bedger.[1] Obviously, one has to be certain, under these circumstances, that the patient can exhale freely around the tube changer. If that is not the case, a high intrathoracic pressure will develop and this may cause the patient to develop pneumothorax or other forms of barotrauma.

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