

greater than through the open arm of the T-tube.

With this simple monitor constant control

is maintained and secretions or other causes interfering with the airway potency can be detected early.

Modified Endotracheal Tube Cuff

Dr. Ernest A. Stern of Flushing, New York, believes there is need for greater protection against accidental collapse of the endotracheal cuff in many types of surgical procedures. This is true particularly in neurosurgery, surgery of the spine or back, or other surgical procedures requiring the patient to be in the prone position. It applies, also, to surgery of the kidney, lungs, heart, or spleen, with the patient on his side.

Collapse of the cuff in heart, or chest surgery may so endanger the oxygen supply as to threaten the patient's life. Delivery of oxygen or any anesthetic gas under pressure in the form of controlled, or assisted respiration may be impossible. Rupture of the cuff can lighten the anesthesia to a point where the patient could aspirate gastric or oral contents, or wake up during the operation. When explosive gases are used, it could precipitate an explosion.

He has designed an endotracheal safety cuff, with a dual inflation feature which (figs. 1, 2,

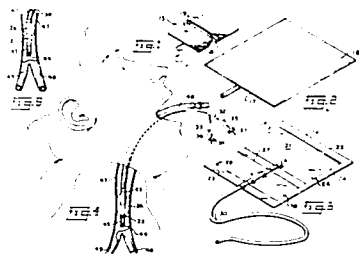


FIG. 1. The flat shaped stem endotracheal safety cuff prior to the removal of protective cover sheet, with adhesive surface for mounting to endotracheal catheter partly visible. FIG. 2. Adhesive surface fully visible. FIG. 3. Both cuff chambers and openings for inflation are revealed in this drawing. FIG. 4. Cuff in position with large chamber inflated—as in normal use. Note pilot balloons on two-channeled inflation catheter. FIG. 5. Cuff in position with large chamber collapsed and small emergency chamber inflated—as in emergency use.

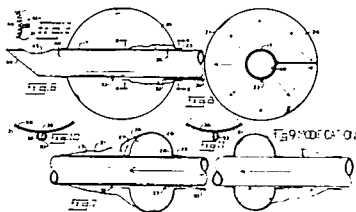


FIG. 6. Enlarged drawing of cuff detail from Figure 4. FIG. 7. Enlarged drawing of cuff detail from Figure 5. FIG. 8. Cross section of Figure 6 along line 8-8. Note overlap of cuff seams. FIG. 9. Modification: more distal position of emergency cuff. FIG. 10. Detail showing two-channeled inflation catheter with part of endotracheal catheter visible. FIG. 11. Detail showing only one half of the two channeled inflation catheter for inflation of the inside emergency cuff only.

3 and 4) provides a simple, practical and very economical solution to this problem. It comprises an endotracheal catheter with both an outer and an inner cuff (fig. 3). The latter normally remains in reserve in a deflated condition, while the outer cuff functions (fig. 6). It is thus protected and ready to take over instantly if the outer cuff should collapse from herniation or accidental puncturing by the surgeon's knife, needle, or any other sharp edge (figs. 5, 7 and 9).

A glance at the drawings will reveal the advantages of the flat design of the endotracheal safety cuff over the conventional tubular design (figs. 1, 2 and 3). Notice how the two cuff compartments are separately inflatable by means of a dual inflation catheter and can be applied to the endotracheal catheter without requiring a cuff spreader. Each cuff has its own pilot balloon (fig. 4). The two paper leaves that protect the adhesive surface of the cuff (fig. 1) are removed from the latter which is then rotated around the catheter, thereby adhering to it. The drawings and their captions clearly explain the principle of the safety cuff.