

geal spasm, and as a means for the removal of secretions from the trachea and bronchi. . . . Cough during open chest surgery is ineffective in clearing secretions. It may cause damage to the lung and give rise to circulatory disturbances. However, an active cough reflex during extrapleural surgery may be of great value in clearing the trachea and bronchi, especially in such procedures as the drainage of lung abscesses, drainage of empyemas complicated with a bronchopleural fistula, and in certain thoracoplasties. . . . Vagal reflexes may occur, regardless of the anesthetic agent, when traction is applied to the hilar region of the lung or during dissection about the major bronchus. Usually an increased depth of anesthesia, release of traction, or cessation of surgery will result in the disappearance of the reflexes. . . .

"An open pneumothorax is present as soon as the pleural cavity is entered. The lung on the affected side collapses; the mediastinum shifts and compresses the other one. Full expansion of the sound lung during spontaneous respiration is reduced. Maximal inspiration of the chest wall and diaphragm set in, and there is a compensatory increase in mechanical respiratory effort. Since the thorax does not expand equally in all directions, but only in certain limited directions, the expanding lung makes internal adjustments and may produce a torsion and twisting of the bronchi during increased breathing. Spontaneous respirations, if allowed to persist, would result in an increased oxygen demand, exhaustion of the respiratory muscles, and a diminished elimination of carbon dioxide. . . . Positive pressure anesthesia is a method whereby manual pressure is applied to the breathing bag, increasing intrabronchial pressure, during the inspiratory and expiratory phase of respiration. Positive pressure anesthesia interferes with the bellows ac-

tion and the mixing of the physiologic gases. The elimination of carbon dioxide from the alveolar spaces is entirely dependent upon the mixing action of the lungs. Increases of carbon dioxide without notable clinical signs may occur. Ventilation is hampered, the respiratory efforts become straining in character during the expiratory phase. This method always affords the risks of impacting secretion in the smaller bronchi with subsequent atelectasis. The term 'controlled respirations' signifies that the active respiratory efforts of the patient have been abolished and that pulmonary ventilation is under the control of the anesthetist. . . . Criticism of this technique has been that the cessation of respiration would remove the greatest safeguard against overdosage and that the anesthetist would be at a loss as to the depth of anesthesia. This would apply to those not familiar with the method. . . . The advantages of this method are that the dangers of an open pneumothorax are abolished. Efficient tidal exchange can be accomplished. Adequate oxygenation with removal of carbon dioxide is insured. The diaphragm is motionless and the thoracic musculature is at rest. . . . The clearance of secretions of the tracheobronchial tree, the early return of an active cough reflex, cortical sedation without central depression, and oxygen therapy are the essential points in the postoperative treatment." 6 references.

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MARTIN, S. J.: *Anesthesia for Thoracic Surgery in the Army*. New York State J. Med. **43**: 2178-2182 (November 15) 1943.

"Chest injuries have occurred in all American wars, contributing materially to the high rate of morbidity and mortality of the wounded. In one of the most extensive analyses, it has been re-



anesthesia in these forward units because of its relatively wide range of safety and its other advantages. [In the] Army Medical Service . . . major thoracic surgery can be accomplished. Anesthetic supplies include, in addition to those noted above for smaller medical units, nitrous oxide, oxygen, sodium pentothal, chloroform, needles for subdural anesthesia, pharyngeal airways, and apparatus for closed-system inhalation anesthesia. Modified suction apparatus has been improvised. Laryngoscopes and endotracheal tubes have been used and are either of recent issue or have been donated. For extrapleural procedures of short duration unaccompanied by shock or respiratory dysfunction, local infiltration with procaine, nitrous oxide, ethyl chloride, ether, or sodium pentothal may be employed to obtain anesthesia.

"Open-drop ether has been and will be the method of choice in field units. If cardiorespiratory complications, such as shock and bronchitis, are present in extrapleural cases, the anesthetic management, other than alleviation of such disturbances, will depend chiefly upon the severity of the patient's complications and his state of consciousness. Little or no premedication may be adequate; regional anesthesia with procaine solution after premedication may suffice; open-drop ether in incipient cases of shock has been employed with success. Nitrous oxide-oxygen or ethyl chloride should not be used because of their respective hypoxic and myocardial effects. Sodium pentothal given intravenously may be used in these cases but only if oxygen can also be administered by the closed system with controlled respirations to facilitate ventilation. Such oxygen administration may be given for the alleviation of complications per se, but it is not practical with mass casualties. Spinal anesthesia should not be em-

ployed for any thoracic procedure. Cases requiring intrapleural surgery, whether short or prolonged, with or without shock or other severe complications, the use of an endotracheal tube with an inflatable cuff with the Water carbon-dioxide absorption system of inhalation anesthesia is ideal if not imperative. . . . Often endotracheal technique is not possible in field medical units in which case the use of a pharyngeal airway will have to suffice. . . . It must be emphasized that field anesthesia like field surgery, may not be ideal but it is often a matter of necessity.

"[In the] . . . medical service of the theater of operations . . . thoracic surgery . . . is more elective but not entirely definitive. . . . The selection of agent and technic will be essentially the same as that noted in the Army Medical Service, except for the addition of block technics for extrapleural procedures and more frequent use of nitrous-oxide oxygen-ether sequence with the closed-system endotracheal technic. . . . [In the] . . . medical service of the zone of interior . . . equipment and the supply of agents are adequate in all organized units, and modern and complete anesthetic management will be possible." 36 references.

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CLENDON, DOUGLAS, AND KRAUS  
STEPHEN: *Chloralhydrate as a Pre-  
medication for Anaesthesia*. Brit.  
*Anaesth.* 18: 112-118 (Jan.) 1943.

"Chloralhydrate premedication has the advantage of allaying anxiety without depressing respiration or delaying the return of the cough reflex; furthermore, it is reliable in its clinical effects. It reduces the amount of ether required, is cheap and easily obtainable. As disadvantages must be mentioned its nasty taste (which can be mitigated by dilution and flavouring with synthetic lemon) and the occu-