
A series of cases of bronchopneumonia has been observed in patients on the obstetrical service at Cleveland City Hospital. These bronchopneumonias, observed within a few days following delivery, were variable in extent, transient in nature, and were not associated with clinical evidence of serious illness. They were discovered in almost all cases by means of a roentgenogram of the chest made to investigate the significance of slight fever or rales in the chest developing after delivery. The anesthesia in these cases consisted of ether administered usually by the open method and preceded by varying quantities of barbiturate and other premedication. The mechanism by which the pneumonias were produced was probably the aspiration of mucus or vomitus during or following anesthesia. Other factors which may be considered are suppression of cough reflex and retention of secretions due to the irritation of ether. Further study of these cases was undertaken because of the frequency with which they were observed, and because some of them were incorrectly diagnosed. Two chief questions arise concerning the origin and nature of these bronchopneumonias, namely, what is the nature of the pathologic change in the lungs, and what is the explanation for the benign clinical course observed in these patients? It is generally recognized that, in addition to the classical forms of massive atelectasis, smaller areas of lobular or patchy atelectasis may occur as the result of occlusion of finer bronchiolar radicles. It is probable that the shadows seen in the roentgenogram are in part due to such patches. Another factor contributing to the pulmonary changes is the reaction of the lung tissues to the irritant gastric contents, namely, hyperemia, hemorrhage, edema, and exudation. Finally, areas of bacterial pneumonia may occasionally supervene in areas in which virulent organisms have been implanted. The failure of the cough reflex to expel the foreign material from the bronchial tree is probably in part due to the massiveness of the aspiration, and in part to the fluidity of the aspirated material.

The benign course of these bronchopneumonias has been noteworthy. One factor responsible is their incidence in a group of young healthy women without evidence of cardiac or pulmonary disease. A more important factor is the probable presence in these patients, because of their age, of an adequate gastric acidity, inhibiting the growth of pathogenic bacteria. . . A number of factors may play a part in the frequency of aspiration pneumonia in obstetrical cases. First is the frequent necessity for administering an anesthetic when the patient’s stomach is laden with food. Second is the possible effect of premedication by barbiturate or by morphine in depressing protective reflexes or inducing vomiting. Third, the depth of anesthesia demand in good obstetrics is dangerously near the level at which vomiting may readily occur, even when expertly administered. Daily observation suggests that the time of gastric evacuation is prolonged in labor, and Meurin states a delayed emptying time of the stomach during labor is a factor which should be kept in mind.’ Finally, vomiting is occasionally seen in the latter part of the first stage of labor, and during the portion of the second stage of labor preceding anesthesia. This may occur independently of medication, and is probably of reflex origin. . . . The well known measures of postural drainage of the bronchial tree and its aspiration by catheter suction or bronchoscopically are the recognized methods of
treating vomiting and aspiration during anesthesia. The administration of an emetic in early labor to the woman who has recently eaten solid food has been practiced in this community. Gastric evacuation by induced emesis, when carefully executed, might prevent the postanesthesia vomiting and aspiration of particulate matter. The bronchopneumonias did not prove a cause of serious illness and no fatalities resulted. Chemotherapy by sulfonamide drugs was apparently not effective. Roentgenologically, the problem was one of differential diagnosis, requiring differentiation from pulmonary tuberculosis, sarcoidosis, other pneumonias, pulmonary edema, and atelectasis. 7 references.

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"In the actual technique of combining pentothal-cyclopropane, we have various procedures. Sometimes, we use pentothal for induction only. The effect of the pentothal lasts ten to fifteen minutes. As cyclopropane is synergistic with pentothal, the quantity of cyclopropane needed will be reduced in proportion to the effect and duration of the dose of pentothal given at the beginning. In cardiac cases, oxygen is given before the pentothal. A second method is to begin and continue with pentothal during the greater part of the operation, but to finish off with cyclopropane-oxygen. In this way, the quantity of cyclopropane used is very small. Still another manner of combining pentothal-cyclopropane is to begin and maintain anaesthesia with cyclopropane holding the pentothal as a mobile reserve. Thus, we may inject the barbiturate if the period of excitement is too long; to secure good relaxation for the closure of the peritoneum; or during the anaesthesia if the patient shows signs of cardiac arrhythmia, such as bradycardia or tachycardia. Here, pentothal does not suppress the arrhythmia due to the cyclopropane, but permits the anaesthetist to diminish considerably the concentration of cyclopropane in the bag and in the blood. Another method of combining pentothal-cyclopropane also proves useful at times. Induction is made with pentothal up to full surgical anaesthesia; then oxygen-cyclopropane is used to hold the subject at the desired level of anesthesia. If, during the operation the patient becomes too light, we may deepen the anaesthesia either by injecting a small quantity of pentothal or by increasing the cyclopropane. . . . "We may use pentothal with nitrous oxide alone or with ethylene-oxygen alone, in the proportion of 50 to 70% of the anaesthetic gas. In this combination, the intravenous anaesthetic agent is used to reinforce the nitrous oxide or ethylene-oxygen in much the same way that the gas may be supplemented by the addition of ether. . . . Pentothal-cyclopropane has certain disadvantages; it favours bleeding, increases operative shock in long operations, and requires careful postoperative supervision of respiration."

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"Experimental and clinical work have shown that living tissue is viable when completely asphyxiated (with tourniquet) for many hours if the temperature is kept between 33° and 40° F. Where the tissue is to be removed later (by amputation) this time may be extended to many weeks if necessary. This method of cooling tissue by an ice pack, with or without a tourniquet,