

CURRENT COMMENT AND CASE REPORTS

CURRENT COMMENT is a new department in ANESTHESIOLOGY. In it will appear invited professional and scientific correspondence, abbreviated reports of interesting cases, material of interest to anesthesiologists reprinted from varied sources, brief descriptions of apparatus and appliances, technical suggestions, and short citations of experiences with drugs and methods in anesthesiology. Contributions are urgently solicited. Editorial discretion is reserved in selecting and preparing those published. The author's name or initials will appear with all items included.

CASE OF EXPLOSION IN THE OPERATING ROOM

In the hope of avoiding the ignition of anesthetic atmospheres containing ether, ethylene and cyclopropane, certain precautions have been in practice at Wisconsin General Hospital for many years. Although omissions of one or more of these precautions have doubtless occurred many times in the long past, an explosion in the operating rooms had not occurred until this winter.

The precautions which we have depended upon have been:

1. The use of the carbon dioxide absorption technic for all inhalation anesthesia when possible. Limitation of oxygen as a diluent in the closed system, at least during induction, to a tension only sufficient to satisfy physiologic demand.
2. In hazardous circumstances, substitution of nitrous oxide, with or without chloroform added, when the absorption technic cannot be used.
3. The keeping of electric equipment in good repair.
4. Cooperation between the rest of the operating room personnel and the anesthesiologist so that the latter is always warned before cautery, electric knife, etc., are placed in service.
5. Precautions against ignition by static electricity:
 - a. Deliberate movements and gradual changes.
 - b. Contact with patient and apparatus by the anesthesiologist before induction; usually accomplished during preliminary survey of pulse and blood pressure and check of apparatus.
 - c. In the assembly and adjustment of parts of apparatus, and their connection with the patient, making sure that the anesthesiologist holds both of two parts in his own hands before making or breaking contact.
 - d. Avoidance by the anesthesiologist and attendants of clothing and conduct known to promote static accumulation.

Occasionally the physical condition of a patient or the demands of a particular operation offer temptation to violate certain of these principles. This case illustrates the possible result of such violations.

CASE REPORT

A tuberculous patient was subjected to thoracoplasty. The temperature in Madison that morning was 19 below zero Fahrenheit. The operating room temperature was 77 Fahrenheit, and the relative humidity of the atmosphere was 33 per cent. The resident anesthesiologist had been asked to wear a face mask, gown and rubber gloves in self-protection against infection. Induction of anesthesia was made with cyclopropane. Pure oxygen, instead of oxygen and air, was employed as a diluent because it was felt that the extent of the pulmonary tuberculosis would not otherwise permit an adequate supply of oxygen. When the need of an artificial pharyngeal airway was evident, the mask, connected to a to-and-fro canister and bag, was slipped over the nose and forehead. The slip joint between mask and canister was loosely connected and the canister and breathing bag fell to the floor as the mask was being

replaced over the airway. As the canister and bag struck the floor, a violent explosion of the remaining cyclopropane and oxygen in the bag took place at floor level. A shredded rubber bag and a frightened operating room personnel were the only unfortunate results, and the anesthetic and operation were completed without further incident.

COMMENT

Possibly our extreme fear of infection of anesthetists while handling tuberculous pa-

tients is not justifiable. Possibly we were over-conscious of the danger of hypoxia in this patient. Certainly we were using apparatus either in defective condition or too hastily and carelessly assembled before induction (loose slip joint). Certainly we believe that had all the precautions enumerated above been followed, this accident would not have occurred.

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RESPIRATORY OBSTRUCTION FROM SUDDEN ONSET OF LARYNGEAL EDEMA

A colored man of 42 was admitted to the Cincinnati General Hospital because of a fluctuant cervical mass. Swelling had developed along the posterior border of the right sterno-mastoid muscle a few days after extraction of an upper molar tooth with an apical abscess. There was no evidence of respiratory obstruction but the patient coughed occasionally, producing small amounts of sputum. The surgeon believed that the abscess did not approach the trachea but agreed that it was advisable to visualize the vocal cords. Indirect laryngoscopy demonstrated slight thickening of the right ary-epiglottic fold from edema, with no apparent interference to respiration. Nasotracheal intubation was considered, as has been recommended recently (1), but it was decided that the obstruction was slight and that equipment should be made ready in the event that the obstruction might become worse during incision and exploration of the mass.

Preoperative medication consisted of hypodermic administration of morphine sulphate, grain 1/6 and hyosine hydrobromide, grain 1/150, forty minutes before induction of anesthesia with nitrous oxide and oxygen. Anesthesia was maintained for thirty-five minutes with cyclopropane by the to-and-fro absorption technic. At all times there was a slight respiratory obstruction which was attributed to laryngospasm. Twenty-five minutes was required for incision and drainage of the abscess cavity which had burrowed anteriorly nearly to the trachea.

At 11:00 p.m. the anesthetist removed the mask. After two deep and unobstructed inspirations there was a complete block of

respiration. Pressure on the chest was ineffective and cyanosis developed rapidly. The laryngoscope showed complete laryngeal obstruction from edema. Only the epiglottis could be identified as a thick, gelatinous mass. Nasotracheal intubation was abandoned in favor of tracheotomy, which was completed six minutes after the obstruction developed. Spontaneous inspiration occurred immediately and normal respiration was soon established.

The patient remained in the operating room for the next forty-five minutes for observation and oxygen therapy. In the ward from midnight to 2:00 a.m. he exhibited excitement and clonic muscular spasms whenever he was disturbed. He gradually became quieter and seemed normal when the anesthetist saw him at 7:30 a.m. Convalescence was uneventful, with no evidence of permanent cerebral damage from hypoxia. Laryngeal edema disappeared in thirty-six hours.

SUMMARY

A case is presented of sudden respiratory obstruction from edema in a patient with a cervical abscess of dental origin. Immediate tracheotomy saved the patient's life. Transient cerebral effects of anoxia disappeared in a few hours.

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REFERENCE

1. Bennett, James H.: Anesthetic Management for Drainage of Abscess of the Submandibular Space (Ludwig's Angina), *Anesthesiology* 4: 25-30 (Jan.) 1943.