The question may arise, Is pericemental abscess a state of pyorrhea? My answer is emphatically in the negative. Pericemental abscess and alveolar pyorrhea are often associated in the same mouth, and they may have similar origin, but they are separate and distinct affections. Pericemental abscess develops from a point of irritation on the external surface of the pericementum, usually some inaccessible depression in which the infection lodges and is confined. It is generally found between the roots of double or multi-rooted teeth, or it may be at the end of a tooth having fused roots. Alveolar pyorrhea is as commonly found in connection with single as with double or multi-rooted teeth; when associated with molars, the infection is between, rarely, if ever, under them.

Pericemental abscess is a characteristic tumor growth, generally between the roots of teeth; alveolar pyorrhea is an inflammation beginning in the pericementum at the free margin of the gums; in its progress it destroys cemental and alveolar tissue, uncovers portions of the roots of teeth, develops pus, and imparts a characteristic odor to the breath. This inflammation leaves in its train, not degenerate, sero-fibrous *growths*, but broken-down tissue remains, calcic sedimentary matter, and other débris which destroys permanently all vital relations between the uncovered portions of the affected roots and the alveolus.

Pericemental abscess, virulently infectious, is incurable, except through loss of the tooth.

Alveolar pyorrhea, often equally infectious, is wholly amenable to rational surgical treatment.

A COMPARISON OF ANESTHETICS. RESULTS FROM CHLORETONE.

BY THEODORE C. BEEBE, JR., M.D., BOSTON.

THE following observations were made through the courtesy of Drs. Munro and Bottomley, and the kindly aid of the surgical house officers and nurses of the Carney Hospital. The writer has endeavored to form, by the aid of statistics, some general ideas as to the relative values of the more common anesthetics used as preliminaries to ether in profound anesthesia. The attempt has also been made to discover in what manner the patients' recovery from ether narcosis may be made more endurable. The anesthetics used were nitrous oxide, ethyl chloride, and anesthol. Enough has been written by recent writers as to the method of administration, and the effects of these drugs, so that it is thought best not to go into these details here. Statistics were obtained from 214 cases; in 65 of which gas and ether were used, 34 ethyl chloride and ether, 110 anesthol and ether, and 5 in which anesthol was used for the full period of narcosis. For the administration of gas the Bennett inhaler was used. Ethyl chloride and anesthol were given in the usual manner described by recent writers. Ether was given by the Blake ether inhaler. Hypodermic injections of morph. sulph. gr. $\frac{1}{8}$ to $\frac{1}{4}$, and atropin

sulph. gr. $\frac{1}{120}$ were used as indicated, with the commonly known good results. It may not seem out of place to mention here that those accustomed to watch the pupils are sometimes misled by partially contracted pupils due to the action of morphine. The action of chloretone on the nausea and vomiting after ether was observed in 164 cases. The cases operated upon have been the usual run of a hospital service.

Nitrous oxide was given to patients ranging from eight to sixty-seven years of age, ethyl chloride from thirteen to sixty-three, and anesthol from six to eighty-seven years. In cases younger than six years, ether alone was used. Out of the total of 214 cases, 102 were men, 103 were women, and 9 were children under fifteen years. The pulse rate and respirations were recorded before the anesthetic was started, and again as soon as deep narcosis was established. An average increase of pulse rate per minute was observed as follows: gas 14, ethyl chloride 20, and anesthol 12. The average increase in the number of respirations per minute ran almost in direct ratio to the pulse: gas 7, ethyl chloride 11, and anesthol 6. The shortest periods in which anesthesia was produced were: gas and ether 1 min. 10 sec., ethyl chloride and ether 2 min. 40 sec., and anesthol and ether 2 min. 10 sec. The average time was: gas 2 min. 30 sec., ethyl chloride 4 min. 30 sec., and anesthol 7 min. 30 sec. This does not represent the time in which the patient was made unconscious, but the time when he was ready for operation. The cases in which anesthol alone was used throughout were: (1) resection of rib, 22 min.; (2) amputation of thigh, 1 hour, 10 min.; (3) ovarian cyst, 45 min.; (4) cystoscopy, 40 min.; (5) cholecystotomy, 1 hour. As all cases were prepared on the table, the period of anesthesia was longer than it would otherwise be. Cyanosis to a greater or less degree was noticed in 12% of the cases, more often with gas than with the other drugs. Most of these cases were alcoholics. The stage of excitement was much less marked with anesthol, next with gas, and most with ethyl chloride, although there was less in all than with ether alone. An increase in the amount of albumin, varying from the slightest possible trace to a large trace, and clearing up within a few days, was found in 16 cases as follows: after gas 9, after anesthol 7, after ethyl chloride 0. An increase of uric acid was found in practically all cases.

Expense.—Nitrous oxide and anesthol are cheaper than ethyl chloride. Gas costs about 4 cents per patient, anesthol $3\frac{1}{2}$ cents, and ethyl chloride 12 to 18 cents, depending upon the quality used. The relatively small number of cases observed with ethyl chloride was on account of the expense.

Odor.—Nitrous oxide is odorless. The slight garlicky odor persisting after ethyl chloride makes that drug less agreeable than anesthol to most patients.

Pulse and respiration.—Anesthol causes least disturbance of pulse and respiration rate, gas next, and ethyl chloride most. Gas is the

quickest to produce its effect, ethyl chloride next, and anesthol last. On the other hand, profound anesthesia may be maintained with safety for a greater time with anesthol than with either of the other two drugs. It seems to be especially indicated in cases with either cardiac or pulmonary difficulty. During administration there is the least struggling with anesthol, next with gas, and most with ethyl chloride.

To sum up the relative values: There does not seem to be any class of cases in which ethyl chloride has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Again its record for safety has not proved equal to gas and anesthol. As between the last two mentioned, each has its special recommendations. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, however, or where there is some heart or lung complication, anesthol has proved a very efficient adjunct. The writer will not consider the uses of the three drugs in minor surgery.

The prevention or lessening of nausea and vomiting after ether is a matter in which there has been very little advance in recent years. The writer has endeavored to approach this subject in two ways: first, by limiting the amount of ether used, second, by the action of chloretone. The cone has been kept away from the patient as much as possible, and the total amount of ether made as low as possible. Chloretone in amounts from 5 to 30 gr., given in 5gr. capsules, has been used in 164 cases. The best results have been obtained in adults with 10 gr. doses given twenty to thirty minutes before starting the anesthetic. If given inside of twenty minutes the patient is liable to vomit soon after the anesthetic is started, thereby losing all the benefit of the drug. Out of the total 214 cases, 119, or 55½%, were conscious of no nausea after ether. Of these 119, 97, or 81½%, had had chloretone, while 22, or 18½%, had had none. Sixty-seven out of 164 were nauseated in spite of the chloretone, while 28 out of the 50 who had had no chloretone were also nauseated. One hundred and twenty-eight out of 214 cases, or 60%, were conscious of no vomiting. Of these 128 cases, 105, or 82%, had had chloretone, while 23, or 18%, had had none. Fifty-nine out of 164 who had had chloretone vomited, while 27 out of the 50 who had had none vomited. It is only just, however, to say that 18% of those who had had chloretone vomited once or twice before the return of consciousness. Of the abdominal cases, 72 had chloretone; 35 were conscious of no nausea, and 37 were conscious of no vomiting, practically 50%. Out of 9 inguinal hernias 7 had no nausea or vomiting. Of 13 gastro-enterostomies 7 had no nausea, and 8 no vomiting. Of the 214 cases 9, or 4½%, complained of headache after the ether recovery, divided between general and frontal. Seven of these had had chloretone. Five cases had some cough after the operation.

While chloretone has not always proved a reliable specific in preventing nausea and vomiting, it has been a great aid. The patients make a quicker recovery than when nothing is given. Vomiting, when present, is likely to take place before the return of consciousness, so that the patient has no distinct recollection of the occurrence. In more than half of the cases there was no conscious nausea or vomiting, a great benefit not only to the patient, but to the nurses and friends. The writer believes it to be well worth a good trial.

EXAMINATION OF PLEURAL FLUIDS WITH REFERENCE TO THEIR ETIOLOGY AND DIAGNOSTIC VALUE.

BY PERCY MUSGRAVE, M.D., BOSTON.

(Continued from No. 13, p. 352.)

CASE 35.—J. P. K., fifty-three, m., Irish, janitor railroad station. May 14, 1903. F. H. negative. P. H. unimportant. Habits good. Pres. ill.—For four months intermittent pain in left side of chest; slight cough and expectoration. For three weeks dyspnea, and for two weeks orthopnea. Loss of weight. Chilly at times. Phys. exam.—W. D. and fairly N. Fair color. Heart displaced to right. Lungs: left pleural effusion; bronchitis on right. Temperature fluctuated between 99.5 and 102½, gradually becoming lower; pulse slightly irregular; arterial thickening. Considerable edema feet and legs. Blood: whites—16,000. May 15, *chest tapped, fluid*: amount 960 cc., slightly hemorrhagic, alkaline, alb. 3.5%, sp. gr. 1.018; sed.: lymphocytes 97.2%, polynuclears .8%, endothelium 1.6%, large mononuclears .4%. Cultures: no growth. Pig inoculated; autopsied June 19, 1903; negative. Diagnosis from fluid: primary tuberculous pleurisy. Blood: whites—10,400. Sputum: no tubercle bacilli found; four examinations. Steady improvement; May 22, discharged much relieved. Clinical diagnosis: pleurisy with hemorrhagic exudation. Bronchitis. Tuberculosis (?). Displaced heart with adhesions.

CASE 36.—J. J. S., thirty, m., American, laborer, Oct. 19, 1903. F. H. good. P. H. unimportant. Habits: tobacco to excess. Pres. ill.—For four weeks pain on deep inspiration, increasing steadily; slight cough; small amount of sputum; no chills. Phys. exam.—W. D. and N. Color good. Heart negative. Lungs: right pleural effusion, slight bronchitis left lung; examination otherwise negative. Temperature 101 at entrance, falling to normal in four days. Pulse averaged 70 to 85; respirations 20. Blood: whites—7,900. Oct. 23, *chest tapped, fluid*: amount 19 oz., straw colored, small coagulum, sp. gr. 1.022; sed.: lymphocytes 87%, polynuclears 10%, endothelium 1%, large mononuclears 2%; marked number of red corpuscles. Cultures: no growth. Inoscopy: negative. Pig inoculated; autopsied Dec. 6; negative. Diagnosis from fluid: primary tuberculous pleurisy. No sputum. Steady improvement. Oct. 30, discharged much relieved. Clinical diagnosis: pleurisy with effusion.

CASE 37.—H. H. P., twenty-nine, m., American, conductor. Nov. 26, 1903. F. H. negative. P. H. unimportant. Habits good. Pres. ill.—Twelve days malaise, headache, anorexia, for four days pain in epigastrium shifting to back, relieved by left lateral decubitus. Phys. exam.—W. D. and fairly well nourished. Good color. Heart negative. Lungs: left pleural effusion; examination otherwise unimportant. Blood: whites