seen. The pleural surface of the lungs showed numerous dark convex areas resembling the condition resulting from infarction. On section these were found to be due to recent haemorrhages, the majority immediately beneath the pleura, the rest widely scattered throughout the substance of the organ. Portions excised felt partly consolidated, but floated in water. The heart weighed 10 oz. The muscle was pale, the valves normal. There was no marked alteration in the size of the liver; it weighed 36 oz. On section the liver substance was firm, with a distinct nutmeg appearance. The gall bladder was normal. The spleen weighed 4½ oz.; its substance was dark purple, moderately firm. The pancreas and suprarenals appeared normal. The kidneys weighed 6 oz. each and were somewhat large and pale. The capsules stripped readily and left a smooth surface. The stomach, duodenum, and intestines were normal, and nothing abnormal was detected in the brain.

Histological Examination.

We have to express our thanks to Dr. J. A. Murray, of the Imperial Cancer Research Laboratory, who kindly undertook the preparation of these sections, for which we had no facilities, and gave us his opinion upon them.

Liver.—Sections show striking changes. The parenchyma cells are shrunken and separated from one another, appearing to have undergone degeneration. There is some overgrowth of the interstitial connective tissue and proliferation in the portal areas. Tissue for the staining and demonstration of fat was not preserved.

Lung.—The lung shows recent haemorrhages into the alveoli, probably due to infarction. The walls of the alveoli appear normal.

Kidney.—The cells of the tubules show vacuolation, probably due to fatty changes. There is little alteration of the interstitial tissue.

REFERENCE.

¹ *Quar. Journ. Med.*, June, 1917.

A CASE OF SUCCESSFUL CAESAREAN SECTION FOR ECLAMPSIA.

BY

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In connexion with the article by Dr. Strachan on toxæmias in pregnancy, which appeared in the *BRITISH MEDICAL JOURNAL* of August 3rd, and the letter of Dr. McCann on the same subject on August 10th, it may be of interest to report a case of Caesarean section for eclampsia done a few days before the article appeared. I think most medical men will agree that in this case the result has fully justified this method of treatment.

A. R., aged 31, had enjoyed good health till her marriage. She had first a three months miscarriage and in 1914 had an eight months child, now living. In 1916, when pregnant for the third time, she had severe albuminuria with anasarca. She refused a bed in Guy's Hospital, but was delivered of an eight months child (which lived four months) at home and afterwards went into the Clapham Maternity Hospital for the kidney trouble. The disease cleared up. In 1917 she had another miscarriage (cause unknown) at three months. On June 3rd, 1918, she was admitted to Camberwell Infirmary, seven months pregnant, with acute bronchitis and severe albuminuria and haematuria. Under treatment the bronchitis cleared up and the blood disappeared from the urine. When she insisted on discharging herself—against strong advice—on July 4th, there was only a trace of albumin in the urine.

We saw no more of her until July 27th, when she was brought to the infirmary by ambulance in an acutely delirious condition with the history that she had had during the previous twenty-four hours twenty fits of eclampsia, as well as severe vomiting. Within four hours of admission she had four more typical eclamptic fits. The urine proved to be loaded with albumin; there was anasarca of the legs, and the patient's condition appeared to be urgent in the extreme. The temperature was 97°. Labour was not due for another month; the cervix felt hard, and the os only admitted two finger-tips. There seemed to be no labour pains. A careful examination failed to reveal any fetal heart sounds, and I concluded that the child was dead.

I decided that her history and condition justified immediate Caesarean section, and at 10.30 p.m. I performed the operation in the usual way, which I have found advantageous for controlling the haemorrhage—by drawing the uterus outside

the abdominal cavity before emptying it. On opening the uterus the child was found to be dead, with the head lying deeply in the pelvis, necessitating some little force in extraction. The placenta and membranes were removed, and the uterus was sewn up with one layer of deeply placed silkworm-gut sutures and an outer layer of superficial catgut sutures to cover the scar. As the patient was clearly unfit for further pregnancies, I excised 1 in. of the inner part of each Fallopian tube and bound the proximal stumps in the uterine substance, covering the place over with peritoneal flaps. The abdominal wall was closed in layers in the usual way. The patient lost a very moderate amount of blood, and the whole operation took just over half an hour.

The result has been very satisfactory. The patient, who was comatose before the operation, was bright and intelligent the next morning. She knew nothing of what had happened, but was delighted to hear what had been done. The temperature reached 100.4° that day, owing, I think, to a certain degree of bronchitis, but never reached 100° afterwards. Since the operation there have been no more fits, no vomiting, and no headache. The bronchitis has cleared up, and the urine, which has increased in quantity, now has only a trace of albumin. The wound has healed, and the stitches have been removed. The oedema of the legs has quite gone.

The patient is now getting up, and is apparently in normal health (August 30th, 1918).

This brief outline of a case done so recently with such immediately successful results is sufficient, I think, to commend the performance of this straightforward and by no means difficult operation in suitable cases. Had I had reason to believe the child was alive at the time of the patient's admission, the argument in favour of Caesarean section would have been still stronger.

THE TREATMENT OF IRRITANT GAS POISONING.

By J. M. LAZENBY, CAPTAIN R.A.M.C.

In the following notes the treatment suggested applies to all cases of irritant gas poisoning when the symptoms are those of acute catarrh of the mucous membranes of the eyes and of the respiratory tract. With various modifications it has been employed on this ship for the past three months, and gives very satisfactory results. My experience is that success depends entirely on the care with which the method is carried out and the frequency of the treatment.

INSTRUCTIONS TO ORDERLIES.

1. Before embarkation begins furnish a dressing table with a throat spray, eye bath, Carrel syringe, vaseline, plain gauze cut to size, cotton-wool, jaconet, bandages, and one pint of a warm solution of sodium bicarbonate—10 grains to the ounce. Cover with a clean towel.

2. After embarkation is complete, select all the severe eye cases whose eyelids are closed through photophobia or dried secretion, and place over the eyes a compress of gauze wet with the solution. When the milder cases have been dealt with the severe ones will be ready for treatment, the compresses having unsealed the eyelids and relieved the acute photophobia.

3. Bathe the margin of the lids till all the crusts can be wiped away with a wet cotton-wool mop.

4. Fill the syringe with solution, and, taking a piece of cotton-wool in the left hand, draw down with it the lower lid. Instil a few drops into the eye from the syringe, and close the lids. Repeat this till all secretion has been washed away—about four times. Dry the skin with cotton-wool.

5. In mild cases leave the eyes uncovered except by the eye shade. In severe cases put on another compress, cover with jaconet, and bandage lightly on.

6. In all cases it is better to smear a little vaseline on the skin to prevent irritation from the discharge.

For the throat (respiratory) cases proceed as follows:

1. Fill the spray half full with the solution.

2. The patient sits up and gargles his throat and mouth with the solution. He then opens his mouth wide and breathes in and out. The spray nozzle is held an inch from the mouth and the jet directed to the back of the throat. The patient must sit up and respire during spraying.

3. Cease when the patient wants to spit out, and repeat four times.

4. When patients are numerous, all cases who can see to use the apparatus should be instructed to carry out the treatment for themselves, using an eye bath for the eyes instead of the syringe.

5. Since success depends largely on frequency of treatment, patients must be dealt with every three hours. The last application should be made before lights go out at night, and in all severe eye cases the compress must be placed in position and secured with a bandage.

In a ward containing gas cases and other affections of the respiratory organs the former are kept on one side. When the percentage of gas patients is large the orderlies always suffer from irritation of the throat and cough. The other patients also cough more than they should for the same reason. It is therefore advisable, when possible, to isolate patients suffering from gas poisoning.

As regards results: Photophobia is either completely relieved or markedly diminished, so much so that patients coming on board unable to open their eyes are sometimes found, without their shades, looking at pictures and reading. The catarrh of the eyes still persists, but the pain is much relieved.

In throat cases the immediate result is the expectoration of a large quantity of purulent mucus. The dry cough becomes loose and the pain in the chest lessened. The soreness of the throat usually persists. The chief benefit obtained is relief from the distressing night cough. These patients generally have a good night's sleep, and the whole ward is, in consequence, quieter.

Chronic cases of two or three weeks are not materially relieved by the treatment. Our most successful cases are from three to six days old. The treatment is cheap and simple, and is suitable for all cases in transit from the clearing stations to their destination in England. Since we have them for so short a time on board ship, I cannot say whether it is curative, but from the relief obtained I believe that if these cases were treated continuously from the beginning the period of convalescence would be materially shortened.

THE ADMINISTRATION OF ANAESTHETICS TO SOLDIERS.

BY

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SINCE the beginning of the war I have had considerable experience in the administration of anaesthetics to soldiers in this country—in the first instance, to soldiers in a war hospital suffering from wounds and invalided home from the fronts, and latterly to young soldiers in full training admitted to a camp military hospital to undergo some operation. The two classes really differ considerably as regards type. The large majority of the former have been confined to bed for at least a few days, and are "invalids," and differ very little, as regards my subject, from the usual type of hospital patient in civil life. At the camp military hospital, on the other hand, we are constantly meeting with the young, athletic, well developed man of 18 to 21 years of age engaged in a period of intensive physical training. Frequently the operation is a trivial one, and admission to hospital the day previous to the operation is considered sufficient for the purposes of pre-operative preparation. The nervous system of the young soldier is by no means stable. He is frequently far more "nervous" than a woman. His reflexes are exquisitely sensitive. He is in hard muscular condition. He is nearly always a heavy cigarette smoker. We have thus many factors which go to make up a type difficult to anaesthetize safely and satisfactorily.

It must at once be laid down in the most emphatic manner that for such cases induction of anaesthesia with chloroform is strongly contraindicated. Should the attempt be made to anaesthetize with chloroform, it will be found that the large majority of these men develop excitement and struggling and spasm of the limbs and respiratory muscles. If at the moment of onset of such a state of spasm a strong chloroform vapour has been inhaled, it may be retained in the pulmonary alveoli for a considerable time, the percentage of chloroform in the circulating blood may be raised to a toxic degree, and fatal symptoms may appear while the corneae are still sensitive. The heart, indeed, gives way before breathing can be re-established.

It is exceedingly doubtful, too, whether a mixture of chloroform and ether is safer than pure chloroform during the induction period. The difference in degree of volatility of the two substances forms the difficulty. If any anaesthetic effect whatever is to be obtained from the ether element in the mixture, measures must be adopted to exclude the air to some extent, and exclusion of air is not

permissible if the chloroform element be present in any degree. Again, if the mixture be administered by anything resembling the constant drop method, or if the successive "doses" poured on the mask be too frequently repeated, we must remember that the proportion of chloroform in the vapour inhaled by the patient is rising to an unknown extent. My experience, indeed, goes to show that the result obtained by induction with a chloroform and ether mixture is the same as that obtained with pure chloroform.

Induction with pure ether, again, is attended in these cases with considerable difficulty. A large proportion of them have a certain degree of pharyngitis from excessive cigarette smoking, and coughing and choking are common phenomena.

Nitrous oxide gas produces too light and evanescent an anaesthesia in these robust subjects to form a satisfactory prelude to ether, and any attempt to prolong it by administering more gas results in undesirable cyanosis.

I have come to the conclusion, therefore, that an ethyl chloride-ether sequence is the best method we can adopt for induction, and have devised a method of using this sequence which I should like to bring to the notice of others.

I do not think that the majority of administrators use ethyl chloride in the most satisfactory manner. Although we quite realize that it is not quantity of anaesthetic used, but strength of vapour inhaled, that is the determining factor in producing anaesthesia, I find that in books on the subject, such as Hewitt's and Buxton's, this principle is fully realized when discussing chloroform or ether, but it is thrown aside when treating upon ethyl chloride. We are told, for example, to give so many cubic centimetres to a child and so many to an adult. This method would be all right so far if we could be sure that the quantity of ethyl chloride prescribed could always be vaporized in a desired and known quantity of air. We cannot be sure of this. Again, it is impressed upon us in administering chloroform and ether that the patient should be *gradually* put under with a steadily increasing strength of vapour. With the recognized methods of giving ethyl chloride, on the other hand, there is nothing to prevent the patient getting the full strength of the vapour with his first inhalation, a really dreadful experience for the patient, and associated with considerable danger. For the past five or six years I have constantly used an inhaler for ethyl chloride devised by Mr. C. J. Loosley, anaesthetist, Hospital for Children, Great Ormond Street, and have given many hundreds of administrations, including about 300 to soldiers (early in the war) undergoing dental extractions. To have a stopcock fitted to the foot of the bag and this connected by rubber tubing with an ether bottle and bellows was an easy matter, and this forms the simple apparatus which I now use in giving the ethyl chloride-ether vapour sequence.

To indicate briefly how the apparatus is used, and quoting freely from Mr. Loosley's description of his inhaler, about 3 c.cm. of ethyl chloride are sprayed into the bag through the valve *v*. This valve opens when the nozzle of the ethyl chloride tube is pressed against it, and closes automatically immediately the nozzle is withdrawn, a tube below carrying the discharge well away from the face-piece. The face-piece is applied to the patient's face and the lever of the two-way cock *L* kept in the down position so that the first few breaths of the patient are turned into the bag till it is about half full. The lever *L* is now pulled upwards towards the face-piece and the patient breathes a dilute mixture of ethyl chloride vapour and air. Dilute ethyl chloride vapour is quite pleasant to breathe. A vapour sufficiently strong to produce anaesthesia is pungent and produces a sense of suffocation. The vapour is now strengthened by spraying a little more ethyl chloride through the valve, and still a little more until anaesthesia is produced. The patient is now, as a rule,