29. Pte. B., aged 19. Admitted very cyanosed and distressed, and vomiting. Oxygen given under pressure while venesection was done. Bled 15 oz. Says, "Felt chest easier, headache gone, and breathed better. Slept well after it." Colour slowly improved, and remained well.

30. Pte. Q., aged 45. Admitted very cyanosed and dyspnoeic. Alcoholic type. Bled 25 oz. Says, "Relieved me more than anything else, and I slept for hours." Colour improved and remained good.

These are notes on those of the patients who were venesected and lived. They were taken two days after bleeding. All cases were evacuated to the base on the seventh or eighth day after admission with the exception of A., F., and L., who were still in hospital with acute bronchitis.

The effect of venesection on all the cases was the same. The great thing the patients needed was freedom from the heart's embarrassment and rest. Whether the improved condition was due to the rest or the venesection I do not know, but I firmly believe that it was the depletion of blood which caused the sleep, and hence the benefit, and I began to rely upon venesection as a routine line of treatment for the cyanotic group of cases.

DEATH AFTER NITROUS OXIDE-OXYGEN AND LOCAL ANAESTHESIA.

BY

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IN a somewhat large experience of nitrous oxide and oxygen anaesthesia, with and without the addition of ether, I have never seen any other case like that which I here relate. The patient very nearly died during the operation, and succumbed two hours and a half later without recovering consciousness.

I was asked to give an anaesthetic on January 29th, 1915, to a patient of Mr. Gilbert Barling, F.R.C.S. The operation was to be gastro-enterostomy for ulcer of the stomach, which was probably simple. The patient, aged 65, was a thin and anaemic-looking man of earthy complexion, of whom his medical attendant, Dr. Paulin of Malpas, said that he was very nervous. Seven weeks before Mr. Barling saw him he had fainted while conducting a religious service. He had been in bed for six weeks under careful treatment, and had had a very profuse haemorrhage from the bowel twelve days before operation; no rectal haemorrhage nor vomiting of blood had occurred since then. During the haemorrhage morphine, gr. $\frac{1}{2}$, had been injected several times, and he bore it well. He said that he had no cough, and nothing abnormal was found in his lungs. The pulse was soft, the apex beat was a trifle out—about $\frac{1}{2}$ inch outside the usual position—while his heart sounds were rather "flappy," but clear and regular. Nothing abnormal was found in his urine.

Mr. Barling thought the patient was a good subject for nitrous oxide and oxygen anaesthesia, and I fully agreed with him. One and three-quarter hours before operation morphine gr. $\frac{1}{2}$ and scopolamine gr. $\frac{1}{32}$ was injected, and just before operation, as the patient was not drowsy and answered questions promptly and clearly, gr. $\frac{1}{2}$ of morphine was injected intramuscularly before he was carried downstairs to the theatre. On the table gas alone was quietly and easily administered for about ten breaths, then 5 pints of oxygen a minute were added to it, and rebreathing of the gases was allowed. As soon as the patient was unconscious the layers of the abdominal wall were infiltrated with weak novocain solution, and when the abdomen was opened the peritoneum was infiltrated with quinine and urea solution by Crile's method.

The patient's pulse from the very first became very, very weak, but the breathing was good and regular, and when the operation was begun, in spite of much more oxygen, the pulse could hardly be felt at the wrist. Throughout the operation there was no haemorrhage from the wound, and no artery forceps were applied. As operation very rapidly proceeded his pulse vanished, respiration gradually became deeply gasping, although practically no gas was administered and seven or eight pints of oxygen a minute were turned on, which is more than twice as much as is usually given. Air also was allowed at times, and for the latter part of the operation only pure oxygen was given. When the pulse became bad the patient's colour was greyish and pallid, but never blue. Muscular relaxation was absolute throughout the operation. At first the patient's pupils were well but not minutely contracted and fixed; the eye reflexes, brisk at first, were very dull for about twenty minutes, but later on they returned with the administration of pure oxygen. For the last twenty minutes of operation the patient appeared to be dying, the pulse being impalpable and respiration being very prolonged, slow, and gasping, although pure oxygen was administered; therefore, before the abdomen was closed, a vein in the arm was opened and saline solution, to which was added a few drops of pituitary extract and some brandy, was injected. The pulse soon became palpable,

gradually improving in quality, and the eye reflexes became quite active and respiration less gasping; $\frac{1}{2}$ pints of saline were infused; a rectal injection of glucose and sodium bicarbonate in tap water also was given on the table.

When the patient was back in bed the pulse gradually improved further, and became really very good in volume, regular, and steady (120); he groaned during respiration, which was quiet, and we thought that he would recover, but consciousness never returned.

About one hour later collapse occurred. More fluid with brandy was given intravenously, but the pulse became flickering, respiration very gasping, and after about three-quarters of an hour his jaw dropped and he soon died.

Unfortunately no post-mortem examination was allowed.

The anaesthesia lasted thirty-five minutes, during the last fifteen of which hardly any gas was given but a good deal of air, and a large quantity of oxygen with rebreathing. There was no respiratory obstruction at any time.

Why did this man die? As a comparison I may say that five days previously I had administered gas and oxygen by the same method to an old lady of 72, who appeared to be in worse condition than he, for a severe gall stone operation; the difference in the treatment was that she had before operation a trifle less morphine, which made her drowsy beforehand. The anaesthesia and muscular relaxation were perfect, much less oxygen was necessary than in the case I have related, her colour was pink throughout, and respiration and circulation were very good; there was no evidence of shock, although the administration lasted one and a half hours.

Points that occur to me for consideration are:

1. That the circulation failed long before respiration.
2. The failure could not have been due to traumatic shock, because it began before incision.
3. The morphine could not be incriminated, because the patient had had as big or bigger doses before, and was not drowsy before operation.
4. There was no asphyxia from obstruction to respiration, and twice as much oxygen as is usually necessary was inhaled, while very little gas was given.
5. I do not think that death was due to too much gas, because circulatory failure occurred very early, beginning with the administration of the gas.
6. The patient was psychically a very curiously nervous man, and I am inclined to think that psychic shock, together with anaemia, causing heart weakness, were largely responsible for the fatality. This explanation, I admit, is hardly satisfactory.
7. Why did consciousness never return?
8. Would the early addition of a small quantity of ether to the gases have been of value?

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SYPHILIS: TWO EARLY CASES OF REINFECTION AFTER TREATMENT WITH SALVARSAN AND MERCURIAL INUNCTIONS.

IN July, 1915, Dr. — asked me to see one of his patients whom we had treated for syphilis (acquired twelve months earlier) in February and March of the same year, by giving three injections of salvarsan and using mercurial inunctions for a period of two months. He had a chancre on the glans and enlarged inguinal glands, and admitted the possibility of reinfection. At that time he did not wish to have further salvarsan treatment, and in six weeks developed all the usual secondary signs and symptoms, which immediately cleared up when kharsivan was given.

A prostitute, aged 21, was discharged from this institution in November, 1915, after having been treated for syphilis with kharsivan and mercurial inunctions for a period of a month. She returned on March 28th, 1916, and when I saw her in April had a chancre on the right labium and enlarged inguinal glands. She admitted still earning her living by prostitution.

These two cases I think serve to demonstrate the possibility of effecting a cure by the use of the above method, if the kharsivan or salvarsan is given at suitable intervals, as it seems hardly possible for a person to be reinfected unless the first infection had been eradicated.

Gateshead.

LIONEL L. WESTROPE.