symptoms of cardiac failure were all very marked, and she was again sent to Queen Charlotte's, where, by the kindness of my colleague Dr. T. G. Stevens I was allowed to continue the management of the case. The question of treatment was not very easy to settle, but I decided upon Cæsarean section under spinal anæsthesia for the following reasons: (1) Cæsarean section was the quickest method of delivery and the one which would throw least strain upon her already enfeebled heart; (2) sterilisation could be carried out and further risks of child-bearing avoided; and (3) as her cardiac condition seemed to be one of general myocardial degeneration a general anæsthetic was to my mind absolutely contra-indicated. This was carried out on March 10th, 1914, Mr. Kenneth Lees very kindly carrying out the anæsthesia for me. A preliminary injection of morphia gr. 1/4, atropine gr. 1/150, and hyoscine gr. 1/150 seemed to have removed all apprehension from the patient's mind, and she stood the operation extremely well. Sterilisation was to have been effected by excising an inch of the tubes and turning in the ends between the layers of the broad ligament, but this caused very profuse hæmorrhage on the right side, so that the tube and ovary were removed. The left side was treated as intended. The patient got up on the fourteenth day, and left hospital on the twentieth with her baby, both in good health.

In this latter case the decision was difficult, the alternative procedure being the induction of labour and the instrumental delivery as soon as practicable. This method would still have left her liable to future pregnancies with their attendant risks, and had sterilisation been carried out at a later date another operation would have been necessary. Personally, I feel strongly that these patients with marked cardiac lesions should not be allowed to incur the risks of repeated pregnancies, as increasing experience has convinced me that though the immediate danger is not excessive their expectation of life is materially shortened by the strain of repeated pregnancies. In the combination of spinal anæsthesia and hysterotomy, vaginal up to the twenty-fourth week, abdominal at a later date, I feel we have a method of treatment for these cases which is both rapid and efficient, and at least worthy of consideration.

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Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON ADRENALIN CHLORIDE IN THE TREATMENT OF SPASMODIC ASTHMA.

BY HAROLD W. L. WALLER, M.B., CH.B. LIVERP.

THE following notes may be useful as supplementing Dr. W. Miller's experiences with adrenalin, as related in THE LANCET of July 18th (p. 158). I have employed hypodermic injections of adrenalin chloride in cases of spasmodic asthma for the last five years, having been led to adopt the treatment by the perusal of an article in an American medical journal. The preparation used has been Parke, Davis, and Co.'s solution of 1 in 1000, with 0.5 per cent. chlorotone, in doses of 5 or 6 minims to begin with, never more, and these doses have never been followed by any untoward consequences; on the contrary, the relief to the patient has invariably been prompt, grateful, and in many instances

lasting. The American writer of the above-mentioned article put forward as an additional recommendation the fact that in using adrenalin in this complaint smaller and smaller doses would be found efficacious, instead of increasingly larger administrations as might be expected. This statement has been fully supported in my experience, and even such a minute dose as 1 minim diluted with water has been successful in promptly cutting short an attack in a chronic case.

During the last five years I have had the opportunity of closely observing the effect of the drug hypodermically administered to a chronic asthmatic, a professional gentleman 40 years of age. Until adrenalin was tried in the spasm nothing gave him relief, even morphia itself proving unsatisfactory. The benefit obtained by him is invariably immediate, although I can confirm Dr. Miller's observations as to the patient's pallor and the smallness, rapidity, and slight irregularity of the pulse for a few minutes immediately after the injection. The patient's own description of his sensations is that he feels "a little cold and inclined to shiver, somewhat shaky in the knees, and a peculiar empty feeling in the chest." These soon pass off, and the dominant sensations then are a delightful sense of relief from the dyspnoea and a desire for sleep. The sleep is always light, refreshing, and dreamless, and I have never known it followed by undesirable or unpleasant consequences. This patient has been free of his ailment for weeks and months at a time. Occasionally during a bout I have had to give him two injections in the 24 hours, but I have always been able to decrease the dose, and have never given him more than 6 minims or less than 2. It is now more than six months since he has had the slightest return of his trouble, or has received or required an injection.

I am aware that the continuous administration of large doses of suprarenal extract is followed in animals by arterio-sclerotic changes; but the amount of the gland extract injected in the above doses being so infinitesimal this objection cannot, I think, be urged against its employment in asthma. I have always injected the preparation subcutaneously, never intravenously, and I have never found that any benefit was to be obtained by even quite large doses given by the mouth.

Bakewell.

A CASE OF SURGICAL EMPHYSEMA COMPLICATING LABOUR.

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THE following case is of some interest owing to its rarity.

The patient, a primipara, aged 22, was admitted in the first stage of labour to this hospital on June 17th, 1914, under the care of Dr. A. F. Stabb. The position of the child was left occipito-anterior and the measurements of the pelvis were normal. Two hours after the commencement of the second stage of labour, during which the pains had been strong and frequent, it was noticed that there was an increasing œdema of the right side of the neck and face; this was so marked around the eye that the patient was unable to see; there was also commencing œdema on the opposite side of the face. The œdema on palpation gave the typical eggshell crackling. Chloroform was at once administered, and the head being on the perineum the patient was delivered by means of pressure on the fundus. Till