positive cure of a gonococcal condition is extremely hazardous. Moreover, in those cases where the anatomical conditions remain abnormal there must necessarily always be a tendency to an abnormal bacterial flora on the mucosa. Two things, however, admit of a positive statement: (1) That the patient's comfort has been increased by the diminution of the discharge; (2) that the normal acid reaction of the vagina has been restored.

In these infections of a mucous surface which, as I have said, seem to be analogous to certain other "carrier" conditions, it is highly probable that the likeliest means of cure lies, not in attempting to kill off the invaders completely lest some few escaping the killing process might find the place swept and garnished for them, but rather in attempting to restore the mucous surface to a condition in which its normal bacterial flora may multiply, and in course of time take entire possession of the field again.

In connexion with the treatment of vaginal discharge by the method advocated here, all one wishes to lay stress on is the fact of the diminution of the discharge; this most likely, though not absolutely certainly, marks a step in the right direction. Further work must show how this is effected; whether the mere acidity prevents the migration of the leucocytes through the mucosa, or whether the bacterial products that entice them out by their positive chemiotactic influence are not formed in the presence of the glucose medium I have not myself determined at present.

It needs only to be repeated that, in this as in any other form of treatment, one factor that is bound to condition success is a certainty that the medicament actually reaches the site of the infection.

REFERENCE.
1 *Lancet*, December 5th, 1914.

THE INTRAVENOUS INJECTION OF EUSOL IN CHRONIC ARTHRITIS.

BY

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It occurred to me that the chronic infections causing arthritis might be benefited by the intravenous injection of eusol. Fourteen cases have so far been treated; of these six were very much improved, four improved, and four were not affected. In a chronic complaint such as this it is very difficult to weigh the evidence as to the cause of the result obtained. There seems, however, little doubt that the improvement was in some of the cases directly due to the eusol.

An endeavour was made to get recent acute cases running a temperature and displaying evidence of toxic absorption. Some were, however, long-standing cases with an acute relapse. Cases are not sent to this hospital in the very early acute stage, when there is reason to think this treatment might be most beneficial. They were mostly cases that could not be classified as typically rheumatoid, and in which the source of infection was doubtful.

The solution used contains 0.5 per cent. free hypochlorous acid, and was prepared according to the receipt of James Graham, namely, 12.5 grams boric acid, and 12.5 grams chloride of lime are shaken up with 1 litre water, allowed to stand for some hours, filtered, and 8.5 grams of common salt added; dose, 100 c.cm.

CASE I.

R., aged 24, had had some pain and swelling of the right hand and wrist for six months, which spread to almost all the joints five weeks before admission. He was acutely ill in bed and was making no progress. He had irregular pyrexia up to 100°; a sore throat had started about the time of onset of the arthritis and had become much worse just previous to the time of the more acute attack. An attempt to cultivate an organism from the throat was not successful. The first injection of eusol improved his general condition very greatly. His throat was better by the next day and he began to eat for the first time for some months. He was given two more injections and made steady progress. On discharge his joints were all very much better; his right knee, however, contained fluid, but was painless. He could walk well with one stick. The temperature was normal.

CASE II.

P., aged 32, had had pain and swelling of ankles for at least four months, spreading to the knees, hips, back, shoulders, and

hands. When admitted he was confined to bed, unable to stand or walk. The knees and ankles were swollen, and in the metacarpophalangeal joint of the right thumb there was crepitus on movement. He had fairly widespread acne about the face. After the first injection the acne almost disappeared and the pains were slightly relieved. After the second the pains were much relieved, the swelling went down, and the acne entirely cleared up. He had one more injection and was discharged very much improved. He walked with one stick and his temperature was normal.

CASE III.

Clara G. During two years all joints had become gradually affected. Three months ago the right knee and ankle became acutely affected. On admission all joints were typically deformed and tender. There was evidence of thinning and destruction of cartilage, and some bony outgrowths. The right knee was acutely flexed and very tender, the ankle was also very swollen and tender. A skiagram of the right knee showed typical changes of septic arthritis. She had had acne of the face for three months and some pyorrhoea. After two injections she was greatly improved; her pain had gone except on movement, and the acne was very much better. The improvement in general health was also very marked. Under an anaesthetic the knee was straightened and put on extension. Her temperature rose and remained up for several days, but came down after a third injection. She had one further injection a week later. On discharge she was beginning to walk a little, suffered very little pain, and movement was returning in all her joints, even her wrists which had before been apparently fixed. The temperature was normal.

CASE IV.

J. C., aged 29; duration twenty months, gradual onset, second acute attack seven months before. On admission he walked with great difficulty with a stick. Fingers, wrists, feet, and knees were very tender, swollen, and with very limited movement. His mouth had twice been carefully overhauled, and was apparently healthy. He had an irregular temperature up to 100°. After the first injection he was considerably and immediately relieved, and the next day was walking about without a stick, and was better than he had been for over a year. A second injection was given, the joints steadily improved, and the disease appeared for the time quiescent. He could only stay three weeks, and was advised to return in two months. On readmission, his improvement had been fairly maintained, except for three days, during which he had acute pain. His wrists were both swollen and tender, and the left was almost fixed. He was given four injections of eusol, and made steady progress. On discharge he could run, although clumsily; he had no pain, and had better movement at all joints, though these continued to be swollen. The temperature was normal.

The above cases all did very well; their improvement was immediate and definite, and apparently due to the treatment employed. The following two cases were quite uninfluenced by the injections:

CASE V.

Dorothy L., aged 19; duration eight months, gradual onset. Acute attack in bed until admission. All joints were very tender; there was great muscular wasting. She was very anaemic, and had slight irregular pyrexia. An organism was cultivated from the gums, and a vaccine prepared, but she did not appear to respond to it, and was decidedly not improving. After five doses she was given an injection of eusol (80 c.cm.). The temperature rose to 102°; ten days later she had a second injection, and the temperature rose to 103°. She afterwards appeared to make some progress, and complained less of pain; her general condition seemed better, but the temperature continued to be elevated. It was thought she might now be in a better condition to respond to vaccine treatment, and further doses were given, but without definite result. A third injection three weeks later met with no better result. On discharge her joints were a little less tender, but she was not able to walk any better, and the disease did not appear to have been checked at all.

CASE VI.

R. E., aged 35; duration five years. He had had more frequent attacks during the last two years, and had been ill the last nine months. On admission he looked pale, thin, and ill; the fingers and wrists were mostly affected; the joints were hot and turned slightly red when very painful. He had had artificial teeth for the last six years. The temperature rose to 99.4° at night. He was given four injections of eusol, but without any relief, and was then put on a stock streptococcal vaccine. He was finally discharged only very slightly improved.

These two cases were more typical of rheumatoid arthritis than any of the others. This is of interest, as other observers have found that cases of septicaemia due to streptococci have not responded to eusol so well as those due to other organisms.

The remaining cases do not afford any conclusive evidence; two more were very much improved on discharge, four were improved quite definitely, and, in addition to the last two given in detail, two more were not benefited. Those who have done well have shown this not only by an improvement in the joint conditions and in general

health, but in a steady temperature, which has in some been very well marked.

As to the mode of action of eusol, it is obvious that the bactericidal effect must be very small. It has been shown that hypochlorous acid 1 in 2,000 serum is an effectual antiseptic, but to get that concentration about 300 c.cm. would have to be administered. In the acute cases published, in which recovery was undoubtedly due to its action, the amount was only 100 c.cm., and in one case 40 c.cm. Cordova has shown that eusol would neutralize ten lethal doses of diphtheria toxin when given in two doses, the first immediately after, and the second twenty-four hours after the injection. He also obtained similar results with tetanus toxin and with *Staphylococcus albus*. He concluded that it acted by delaying the development of bacteria and destroying their toxins, thus enabling the natural resistance of the body to assert itself, and suggested that this destruction of toxins may be in the nature of a protean coagulation. It is a moot point whether in cases of arthritis we are dealing with a toxæmia or a direct invasion of the joint by organisms, but many of the other symptoms, the general malaise, and wasting must be due to toxin action. If these can be stopped, the patient must be greatly helped, and perhaps may either find sufficient power of resistance in his own body, or may be in a fitter condition to derive benefit from vaccine treatment. The most suitable cases for this treatment will be cases with signs of chronic poisoning, as shown by the temperature, skin reaction, and general condition. Some definite improvement should be obtained the day after a dose has been given; if this cannot be definitely elicited the treatment should not be continued.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DEFORMITY OF STERNUM AND MALPOSITION OF VISCERA.

THE following is a brief description of a case of congenital absence or imperfect ossification of the body of the sternum with malposition of abdominal viscera. It occurred in a youth aged 18, who came before a National Service Medical Board for grading.

He appeared healthy except for diffuse pulsation over the precordial area. The heart sounds seemed quite normal, but on palpating the precordia the examining fingers dipped down between the sternal ends of the ribs on to the pulsating pulmonary artery or right auricle. No ensiform cartilage could be felt, but the manubrium sterni seemed quite normal in its articulations with the clavicle and first rib. Percussion revealed abnormal dullness on the left side extending downwards almost to the level of the umbilicus. On the right side normal liver dullness was completely absent. He was sent to the Lord Derby War Hospital for x-ray examination, and the report stated "Absence of sternum with malposition of viscera to the left side." Since then Dr. Fox of Warrington has kindly taken an x-ray plate of the condition, and this shows increased heart shadow to the left with greatly increased definition of the bodies of dorsal vertebræ owing to absence of the intervening sternum.

Warrington,

J. S. MANSON, M.D.

TREATMENT OF FRACTURED FEMUR.

ONE of the chief difficulties in the treatment of a fractured thigh is to avoid posterior displacement or sagging at the seat of fracture.

To overcome this displacement I make a simple addition to a Thomas's knee splint, as shown in the accompanying illustration. This support is made of iron sheeting about one-sixteenth of an inch thick and one and a half inches wide. The upper end hooks over the ring of the splint, and the lower end over the two side bars.

The iron sheeting is strong enough to support the thigh without bending, and can be arched forwards to conform with the natural bowing of the femur. It is made of sufficient length to support the condyles of the femur

without interfering with the movements of the knee-joint, and will admit of early movement of the knee-joint, especially when extension is taken by traction through the condyles of the femur.

This support can also be used with a Hodgen splint by making an extra transverse curve at the upper end instead of the hook.

The total length of the appliance is from nine to thirteen inches, as required. The distance from A to B will be

determined according to the size of the man's thigh; the depth of the curve below the line adjoining A and B will be two and a half to three inches.

J. H. C. FEGAN,
Captain R.A.M.C. (T.C.).

Reports of Societies.

CORRECTION OF BONY DEFORMITIES.

AT a meeting of the West London Medico-Chirurgical Society held at the West London Hospital on June 7th, Dr. A. J. RICE-OKLEY, the President, in the chair, Captain D. McCRAE AITKEN gave an address on the correction of gross bony deformities of the lower limbs resulting from war injuries. The results obtained at the Military Orthopaedic Hospital, Shepherd's Bush, which he demonstrated by lantern slides and casts, were excellent, and bore testimony to the efficiency of the methods adopted. Captain Aitken dwelt on the necessity of allowing time for the hardening of callus before letting the patient walk without supporting appliances. Neglect of this rule resulted in gross deformities in limbs properly set at the time of injury. Delirium from intercurrent pneumonia or head injuries was no reason for neglecting the fracture, a statement which applied equally to all other intercurrent ailments. A suitable splint would permit of moving the patient bodily without disturbing the fracture. Early surgical interference was to be avoided until all inflammatory signs had disappeared, and to aid the process and improve the condition of the limb massage was meanwhile applied. Although so far sepsis had occasionally been lighted up by surgical interference there had not been any cause for serious anxiety. Fractures of the femur were put up in the abducted position with the knee extended, and traction made on the leg after reduction under an anaesthetic by strapping attached to the end of the splint. Captain Aitken held that the general alignment of the limb was the point to be considered, but that very good practical results could be obtained where, without surgical interference, the alignment of the bone could not be made perfect. He described the reversed bone-wedge method of dealing with injuries in the neighbourhood of joints whereby shortening of the limb was obviated.

Mr. TYRRELL GRAY, while accepting most of the views expressed by Captain Aitken, could not agree that the danger of lighting up septic foci was slight, and thought this militated against the reversed wedge method. In similar cases he would prefer a simple osteotomy above the injury. Major JOCELYN SWAN supported Mr. Tyrrell Gray's views about sepsis, and further criticized the method of putting up cases of fractured femur with the knee extended. He put up such cases with the knee slightly flexed, and applied extension to the knee by Beesley's callipers, to which a weight was attached. Dr. JAMES MENNELL pointed out that massage could neither light up nor disperse minute pockets of pus or latent septic foci. Any tenderness over the seat of fracture contraindicated walking exercise. The President and Mr. ASLETT BALDWIN and Mr. A. ROCYN-JONES also took part in the discussion.