Again she improved in health; but left the hospital still anæmic, still jaundiced, and with a large spleen, on August 26th.

That the last two cases were of the same nature there can scarcely be a doubt; and that they presented many characters in common with the first two is also obvious. The identity between the last two is implied by the association in both of chronic enlargement of the spleen, chronic yellowness of conjunctivæ and skin, simulating hepatic jaundice, and deterioration in the quality of the blood. It is true that in one of the patients there was a loud cardiac murmur, venous *bruits*, and marked bloodlessness, with such changes in the blood as are found in advanced pernicious anæmia; and that in the other the heart's sounds were healthy, no venous hums were observed, the anæmia was scarcely noticeable, and the microscopic changes in the blood were only slight. But I confess I have a suspicion that the cardiac murmur was hæmic, and, at any rate, all the other differences just enumerated are only such as might be explained by the different stages of anæmia the cases had severally attained.

The resemblances between the last two cases and the quoted cases of pernicious anæmia were mainly the presence, in both series, of jaundice without discoverable disease of the liver, alteration in the quality of the blood with loss, or tendency to loss, of red corpuscles, and the kind of weakness which attends progressive anæmia. Indeed, it might, I think, be argued that they were all four cases of pernicious anæmia, or, at any rate, of the same form of disease; inasmuch as, in addition to the resemblances above enumerated, enlargement of the spleen was present in all. It will be recollected that in my first case, although enlargement of the spleen was not observed clinically, the organ weighed a pound at the necropsy; and that, in the second case, some enlargement both of the liver and of the spleen was detected during life. But, on the other hand, the long duration of the last two cases, and the fact that the patients were both girls, of an age at which ordinary chlorosis is common, pernicious anæmia rare if not unheard of, render this view of their nature improbable. I believe, although I do not pretend to adduce adequate proof of the correctness of my belief, that the first two and last two cases really belonged to different categories.

It may be asked, To what was the large spleen in these cases due? In the last two cases there was no reason to believe it was of malarial, of syphilitic, or of ricketty origin; there was nothing that could have induced lardaceous degeneration; there were no tumours of lymphatic glands or disease of other organs to suggest the presence of lymphadenoma; neither the symptoms nor the condition of the blood was compatible with leucocythæmia; and, lastly, there were no sufficient grounds to attribute the splenic enlargement to portal obstruction. In the first case the structure of the enlarged spleen seemed to be healthy; in the second case it is of course possible that the enlargement of the organ was consequent on portal congestion.

The fact, however, that the spleen was enlarged in all four cases suggests the inquiry whether there was any relation between the presence of jaundice and this enlargement. It is admitted, I believe, by physiologists that one function of the spleen is to cause the disintegration of effete red corpuscles, and that the serum of the blood in the splenic vein is tinged with the dissolved hæmoglobin derived from this source. It seems not unlikely, therefore, that (whatever may be said as to the first two cases) in the last two cases the enlargement of the spleen was connected with an undue destruction of red corpuscles in this organ, and the discharge into the blood-stream of a larger amount of dissolved hæmoglobin than could be got rid of by normal physiological processes, and hence the general staining of the blood-serum and the general yellow tint of the body. But, at any rate, the jaundice in no case presented the characters of jaundice from obstruction of the hepatic ducts, and there is no sufficient ground for attributing it in any one of the cases to disease or disorder of the liver.

The different characters of the cases I have brought forward and the different kinds of treatment adopted in them make it impossible to deduce from their clinical history any valuable information as to the effects of treatment. If my paper had been devoted to the subject of pernicious anæmia alone, I should have been able to confirm the general belief that cases of this disease are in large proportion fatal under any kind of treatment; but I should have been able to show that many cases which appear to be of the same kind undergo great improvement or get well, and that (as is now generally held) arsenic seems to have in a large number of cases a strikingly beneficial influence over the progress

of the disease. Of this beneficial influence my second case is a good illustration.

A CASE OF EXTRA-UTERINE GESTATION CURED BY ABDOMINAL SECTION TWO HOURS AND A HALF AFTER RUPTURE.

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THE following case has more than one point of interest. First, I believe it is unique in the shortness of the interval between rupture and operation. Very few cases of extra-uterine gestation have been operated on while the patient was in collapse from the first hæmorrhage; in most of the published cases hæmorrhage had stopped, and the patient had rallied before the operation was done. I do not know of any case in which the operation was done so soon as two hours and a half after rupture. This promptness of interference was due to the patient's good fortune in being in hospital at the time of rupture.

Secondly, the case is unusual in the lateness of rupture. Tubal gestations usually rupture before the end of the third month, while this one went on for about four months.

Thirdly, if the diagnosis of the first illness be correct, the case is an instance of two successive extra-uterine pregnancies in the same patient, first in one tube, then in the other. There may have been an identical morbid condition of the right and left tubes which occasioned the failure of the ovum to reach the uterus.

Fourthly, the uterine *souffle* was distinctly heard. This is so rare in extra-uterine gestation that it has even been maintained that the presence of a uterine *souffle* justifies the conclusion that a pregnancy is uterine. The case now reported shows that this general rule is not without exception.

H. N., aged 24, admitted December 16th, 1885. (The notes on this occasion were taken by Mr. H. J. Hawthorn.) Until the present illness she had always had good health. She began to menstruate at 15, and was regular every month, the flow being scanty, and only attended with slight pain. She was married at 18, and had two children, the last ten months ago; labours easy; no miscarriages. During the whole of the last pregnancy, and for a month after delivery, she had a copious yellow discharge, and her womb seemed to come down. After the last confinement she was regular, without pain, till September 4th. From this date till October 20th, she saw nothing. She then had a slight discharge of blood, and this recurred every week till five weeks ago, since which time she has been losing continuously and copiously. About five weeks ago, on getting into bed after passing water, she was seized with faintness and a cramp-like feeling at the bottom of the stomach; she broke out into a cold sweat, shivered, and her husband said she looked very white. This cramp-like pain continued severe for about three days and then improved, but soon recurred, and has continued on and off ever since, often preventing her from sleeping. For two or three days after the first attack of pain micturition was painful and the urine scanty. There was no trouble in defæcation.

On admission patient complained of pain in the back and lower abdomen, and was losing blood. The abdomen was tender, and the muscles held very rigid. *Per vaginam* a hard, convex, very tender swelling was felt, occupying the left posterior quarter of the pelvis, and pressing the uterus forwards and to the right. The sound entered 3½ inches. Temperature was 100° F.

A week after admission the hæmorrhage became slight, but it continued until January 6th. After this date, throughout the patient's stay in hospital, there was no hæmorrhage. No decidua membrane was noticed in the discharge. The temperature, all the time the patient was in hospital, never exceeded 100°.

The pain continued much the same as on admission, generally severe, but with occasional remissions, for about six weeks. Then it improved, and at the beginning of February was only slight and occasional. The mass in the pelvis remained of about the same size for at least a month, and then began to gradually become smaller, harder, and less convex. Patient was discharged on February 14th, 1886.

March 23rd she came to report herself. She felt quite well. Swelling in pelvis smaller than when in hospital. Patient men-

struated last week, the first time for eleven weeks, without pain, flow copious.

The diagnosis made at the time was that the swelling behind and to the left of the uterus was either a dilated Fallopian tube, which was suggested by the position of the tumour and the severity and persistence of the pain, or a hæmatocele from a ruptured extra-uterine gestation. The latter supposition was based on the history of amenorrhæa, followed by a sudden illness, attended with pain, faintness, and pallor. The course of the case seems to me to accord with this diagnosis rather than with the former. It is far from certain, but many cases have been published as "cures" of extra-uterine gestation by electricity in which the diagnosis rested on no better grounds. Had electricity been used in this case, it might perhaps have been erroneously credited with the cure.

The patient came again to the hospital, and was readmitted on February 9th, 1888 (the notes on this occasion were taken by Mr. C. J. Kirton, clinical clerk). She said she had been perfectly well since leaving the hospital until the last four months. She had menstruated regularly and painlessly, the last time being in October, 1887, after which she saw nothing until December 25th, when she menstruated, the flow being rather more copious, but otherwise as usual. Nothing like a membrane was observed in the discharge. In this interval she had noticed nothing that made her think she was pregnant. After December she saw nothing, and she then thought she was pregnant. About December 20th she began to have pain after passing urine. Throughout January, 1888, she had pain in the back and lower abdomen, chiefly on the right side, so bad as to oblige her to keep her bed; this pain she described as continuous, not paroxysmal, and not relieved by lying down. Her appetite became bad, and at times she felt faint.

On the morning after admission she was examined by the resident accoucheur. Her general condition at that time was not such as to suggest any imminent danger; she walked to and from the examination couch. The abdomen was tender on pressure, and there was a rounded swelling rising out of the pelvis as far as to a little below the umbilicus. On vaginal examination the cervix was found pushed forwards, and behind it was a large rounded swelling feeling very much like a retroverted gravid uterus. The sound entered $3\frac{1}{2}$ inches, in the normal direction. A distinct uterine *souffle* was heard over the abdominal swelling. The temperature was normal.

A little before one o'clock on February 10th the patient was suddenly seized with violent pain in the abdomen, so severe as to make her feel faint; she became distinctly pallid, broke out into a cold sweat, and her pulse became small, rapid, and weak. Dr. Herman saw her shortly before three o'clock. The symptoms clearly pointed to internal hæmorrhage, and the history and previous physical signs made it probable that this might be due to a ruptured extra-uterine gestation. Therefore at 3.20 P.M. (that is, as soon as the necessary preparations could be made) Dr. Herman opened the abdomen, first by a small exploratory incision about an inch in length, which gave exit to a quantity of fluid blood. The diagnosis being thus confirmed, the incision was extended to $2\frac{1}{2}$ inches. Much fluid and clotted blood was then expressed by pressure on the abdominal walls. Then a fetus of about four months' intra-uterine age, which was lying free (except for its umbilical cord attachment) among the bowels was removed. The placenta was found attached, at least mainly, to the right Fallopian tube. This was pulled up and removed, together with the ovary, the stump being tied with the Staffordshire knot. No attempt was made to search for or remove such part of the placenta as might not be attached to the tube. The peritoneum was then washed out with clean warm water. A large drainage-tube was put in, reaching to the bottom of Douglas's pouch, and the wound closed in the usual way. The pulse when the operation was begun was 150. After its completion (4.10 P.M.) 152.

In the evening (8.30 P.M.) the pulse had sunk to 138. The drainage tube was removed on the following day, but it appeared from the subsequent course of the case that this may have been rather too soon, for on the fifth day the patient complained of some abdominal pain, and the temperature rose to 100.5° . On the sixth day there was a discharge of dark bloody fluid from the wound, and the temperature on this and the following day reached 101. It then gradually sank, and after the fourteenth day did not exceed 99. On the eighth day a small drainage-tube was inserted. The discharge continued sanguineous for about five days, and then

became slight and purulent. The drainage-tube was gradually shortened.

March 17th. Patient got up.

March 30th. Discharged feeling quite well.

ON THE TREATMENT OF INJURIES OF THE ABDOMINAL VISCERA.

By BRIGADE-SURGEON C. H. Y. GODWIN, M.S.,

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THE freedom with which surgeons have been for some time dealing with disease of the abdominal and pelvic viscera with such remarkable success has had a considerable effect in stimulating surgeons to inquire whether it was not possible for them to take bolder steps in the treatment of perforating wounds of the abdomen, a class of injury hitherto most fatal in character, whether as the result of stabs or of gunshot wounds. Moreover, the dread of interfering with the peritoneum has, in a measure, passed away, since it has been found that if antiseptic precautions are duly taken, the peritoneum is as tolerant of treatment as any of the other serous membranes in the body.

With a view of inquiring more particularly into the nature of gunshot wounds of the abdomen, and the best methods of treating them, Dr. C. T. Parkes, Professor of Anatomy in the Rush Medical College, Chicago, performed a series of experiments upon dogs by inflicting upon them intentionally gunshot wounds. He operated in this way upon 39 dogs in all; the bullet was of large size—38 or 44 calibre—and the firearm possessed great penetrating and lacerating power. Several most important lessons have been taught by these experiments.

Dr. Parkes says: "There was not manifested in any case any recognisable evidence of shock aside from that following great loss of blood. The transit of the bullet made no noticeable impression upon the pulse or respiration. In every instance where signs of severe prostration became manifest through change in respiration or weakening of pulse, there was found profuse hæmorrhage to account for such condition."

Intense and prolonged shock has always been recognised as one of the most marked symptoms of a perforating wound of the abdomen. By these experiments Dr. Parkes finds himself unable to disassociate this symptom from the condition caused by severe internal hæmorrhage. He tabulates the following conclusions:—

1. Hæmorrhage following shot wounds of the abdomen and intestines is very often so severe that it cannot be safely controlled without abdominal section.
2. Extravasation of the contents of the bowel after shot injuries thereof are as certain as the existence of the wound.
3. No reliable inference as to the course of the bullet can be made from the position of the wounds of entrance and exit.
4. The wounds of entrance and exit should not be disturbed in any manner, except to control bleeding or remove foreign bodies when present.
5. Several perforations of the intestines close together require a single resection including all the openings. Wounds destroying the mesenteric surface of the bowel always require resection.
6. The best means of uniting the wounded intestine after resection is by the use of fine silk thread, after Lembert's method.
7. Wounds of the stomach, small perforations, and abrasions of the intestine can be safely trusted to the continued catgut suture.
8. Every bleeding point must be ligatured or cauterised.
9. Primary abdominal section in the midline gives the best command over the damage done, and furnishes the most feasible opening through which the proper surgical treatment of such damage can be instituted.

Supposing we have before us a wound of the abdominal parietes, the first thing that we shall wish to know is, Does it penetrate? and, if so, are any of the viscera wounded? What symptoms can we rely upon as diagnostic of a wound of the viscera? If the wound is due to a bullet, and supposing it to have passed out, the experiments teach us that we can really form very little idea of its track by comparing the position of the wounds of entrance and exit.

Dr. Parkes remarks: "Nothing can be more uncertain and erratic than the track of a missile through the body."

Sir William MacCormac, in speaking of wounds of the bowel,