shoulders was 20 in.; of the thorax at the nipples 15.35 in.; of the abdomen at the umbilicus 15 in.; while the bitrochanteric circumference was 15.50 in. In weight, length, and girth it nearly approximated the standard for children in their fourth month, so greatly did it exceed in these particulars the average newborn infant.

The blunt hook is a perfectly safe instrument—except in the hands of the clumsy or ignorant—as far as the mother is concerned. If the child is known to be dead its use is practically free from all danger, but if the child is still alive, then it must be employed with care lest it produce several undesirable results, such as fracture or dislocation of the femur, injury to the genitalia, laceration of the skin of the thigh, or damage to the femoral blood vessels. A large hook is more unlikely to do mischief of this kind than a small one, but it is less easy to apply, less safe for the mother, more difficult to manipulate, and takes and retains a less firm and accurate hold. Moreover, the small hook is the one most generally in the possession either of the purchaser of the wholesale outfit or of the inheritor of ancestral implements. Personally I always use a small instrument, but have attempted to obviate its disadvantages by employing a short second shank made to screw into the free end of the original hook. This device may appear somewhat clumsy, but I have found it satisfactory in practice, as it provides against the chief dangers, converts the hook into a steel vectis, and allows of greater latitude in the direction of the applied extractive force.

The free end of the hook constitutes the chief element of danger in prudent hands, and when the second shank is screwed into position this free end is obviously obliterated. Needless to say, the "blunt hook" should never be employed except in those difficult cases in which Nature has proved inadequate, and when other less stringent means have failed to effect delivery.

A CASE OF EXTRAUTERINE PREGNANCY IN WHICH UNUSUALLY EARLY RUPTURE OF THE GRAVID TUBE OCCURRED.

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EXTRAUTERINE pregnancy is a condition of so much interest on account of its scientific as well as of its practical problems that it appeals to all members of the medical profession. It assumes so many forms and varieties and so many accidents and changes may occur, that any case presenting unusual features deserves record. In the one to be narrated there can be no doubt as to the diagnosis, the rent in the tube being large and clearly visible after the abdomen was opened, and its interest lies in the fact that the rupture took place at an unusually early date, earlier than in any other case of which I have been able to discover a report—after little more than a week's gestation.

History.

At 3.15 a.m. on May 29th, 1906, I received a telephonic communication from Dr. J. Barr Stevens of Renfrew, and as a result I was very soon driving with all speed to Renfrew, where I found Dr. Stevens in anxious attendance upon a lady. She was in a state of collapse, the lips and cheeks were blanched, the pulse was about 180 and soft and thready, the voice was faint and weak, she spoke with an effort; in fact, there were all the symptoms of shock and haemorrhage. The history obtained then, supplemented by what I learned at later dates, was that the patient, aged 30, had been married two years, and had never been pregnant. Menstruation had begun at the age of 14, had from the first always been of the twenty-eight-day type, had continued for six days, and had been unattended with pain or any discomfort. Since her marriage no change had happened, her health had been perfect, and especially there had never been any pelvic disorder. The last menstruation had begun on May 6th, had continued as usual for six days, in every respect had been normal, and had presented the same phenomena as usual. For a week afterwards no coitus took place; regarding that fact the patient was very emphatic, so that we can date its occurrence as being on May 19th—that is, nine days before the onset of her illness. During May 28th she was in her ordinary good health, and went about her household duties as usual. About 6 p.m. she suddenly felt a severe pain in the front of the abdomen, which continued for, she thinks, a minute or two, and was succeeded

by nausea and vomiting. She lay down upon a sofa, and after a short time she rose, and the bowels moved twice loosely. After this she felt very faint and sick, and was put to bed in a semi-conscious condition. Dr. Stevens was obliged to employ every method to keep her alive, injecting strychnine and digitalin hypodermically, giving stimulants by the mouth, and raising the lower part of the body.

It was not possible to make a very thorough examination when I saw the patient. She made no complaint of pain anywhere, but she felt, as she looked, exhausted and collapsed. Some tenderness was experienced upon palpation of the lower half of the abdomen, and percussion showed dullness in that part, reaching well into the flanks. Vaginal examination revealed no change in the cervix from normal; there was no bulging in the lateral fornices nor behind the uterus, and, as far as could be made out from bimanual examination, imperfectly performed on account of pain, the uterus was not enlarged. A little pain was complained of when I made pressure in the left lateral fornix under the site of the Fallopian tube. The breasts were in every detail absolutely virginal.

It was very apparent that the condition was that of internal haemorrhage of a serious nature, and, in spite of the want of evidence as to pregnancy, I stated that my opinion was that we had to deal with the intraperitoneal rupture of a tubal gestation. After waiting and watching for more than an hour, we concluded that the bleeding had ceased for a time, and that an operation, not being urgently required, could be safely deferred to a more suitable time and place. Later on in the day, therefore, an ambulance wagon safely removed the patient, under the personal supervision of Dr. Stevens, to a private nursing home in Glasgow. She rallied to a slight degree, and, carefully watched, passed the night in safety. I delayed in order to allow her to recover from the shock and collapse, as well as to permit the abdominal wall to be prepared for operation, while I was, of course, ready to operate at once in the event of any alarming symptoms appearing.

Operation.

On the next forenoon (May 30th) I opened the abdomen. The dark clotted blood which could be seen beneath the peritoneum spurted out immediately on the latter being divided. Large clots filled up the lower abdomen and lay among the coils of intestines, and when they were cleared out fresh blood could be seen welling up from the pelvis. The Trendelenburg position permitted us then to discover that the bleeding was from a ragged-edged opening fully half an inch in length, situated in the upper surface of the left tube. I at once controlled the bleeding and removed the tube, but with some difficulty, as I was obliged to tie and stitch in the tear, it being so near the junction of tube and uterus while not actually implicating the latter. This unfortunately destroyed the portion of the tube in which the rent had been situated, and consequently only healthy tube was left for microscopical examination. The tissues of the tube at the rent were so friable that one could have imagined that the opening had been formed from below upwards by the action of some corrosive poison, which, in forcing its way outwards, had eaten away the tissues, destroying those in its path, and disintegrating those near at hand. On examination of the right ovary it was found to be enlarged by a cyst to the size of a cricket ball. We examined it carefully, and, finding that the ovary was practically all cyst, with Dr. Stevens's full assent, I very reluctantly removed it. No normal ovarian tissue could be felt or seen; resection was therefore impossible.

After-History.

The patient made a very good recovery, and went home in less than four weeks.

The principal feature of interest in this case is the date of rupture of the tube. Usually it occurs about the sixth to the tenth week. In the *British Gynaecological Journal* for May, 1904, Dr. William Duncan reported a case in which rupture had taken place on the nineteenth day, and he said that, so far as he could ascertain, only one other case had been recorded in which there had been rupture at as early a date. That was one in which it was said to have been on the fifteenth day. The patient was a multipara and had not missed a period. Though internal haemorrhage was diagnosed no operation was performed, and only after death was the ruptured tubal gestation discovered. Dr. Duncan's patient had had previous miscarriages, in the other case the patient was a multipara, and it is conceivable that in neither of these women was menstruation absolutely always regular. The patient on whom I operated had never previously been pregnant. Her menstrual periods recurred every twenty-eight days ("to the day," as she told me), and the one in May appeared on the day expected, was in every respect exactly like all those which had preceded it, and continued till the 12th of the month. I was assured that there was no coitus until exactly a week after that date. That brings us to the 19th, and the rupture took place on the evening of the 28th, nine days later. So far as I know this forms a record.

The amount of blood which was lost was enormous, and one could not but be amazed at its quantity as well as at the large size of the opening in the tube. Over and over again I have operated upon tubes distended to an enormous size by pus, and yet in which no rupture had occurred. Certainly at such an early date the cause of rupture could not be ascribed to over-distension of the tube, and when we looked on the everted, ragged edges of the gap we seemed to find clinical corroboration of the evidence brought forward by Herzog and others. They consider that one of the chief factors in the production of early rupture in tubal gestation is the action of the syncytium, which displays greater phagocytic properties, that is, greater penetrating powers, than it does in normal uterine pregnancy. In the latter instance the muscular coat affords an insurmountable obstacle, while in tubal pregnancy it is hardly present at all. So continuously destructive is the action of the syncytial cells upon the wall of the tube that Werth compares the condition to a malignant process, which in every case requires to be treated as such.

With respect to the amount of bleeding which had taken place, this was due in part to the position of the rupture. The nearer it approaches the uterine end of the tube the greater is the hæmorrhage.

As to the diagnosis in these cases, it may not be possible to be absolutely dogmatic. When menstruation has been quite regular and no period has been missed, when there have been no symptoms such as nausea or sickness, and when the breasts are virginal in appearance, the practitioner is liable to be thrown off his guard. Rupture of an ovarian, tubal, or appendical abscess, and acute torsion of the pedicle of an ovarian cyst may cause sudden and severe pain followed by shock. But there is then usually no pallor such as accompanies loss of blood, and there is probably a history of previous ill-health or abdominal swelling. The rupture of a gravid tube at a very early date of pregnancy generally occurs in a woman in a state of good health, while the pallor that follows it in serious cases is strikingly apparent. One need, therefore, have no great hesitation in diagnosing as ruptured extrauterine pregnancy a case presenting signs and symptoms similar to those described, even when the proofs of pregnancy are entirely absent.

The treatment consists, of course, in opening the abdomen and securing the bleeding points as soon as possible. But each case requires separate judgement. I would have operated whenever I saw the patient, had we believed that the bleeding was continuing so actively as to render death imminent; but being convinced that it had ceased, even although only temporarily, I am sure that we adopted the best method of treatment—waiting until the shock had passed away, and operating before the recurrence of another hæmorrhage. The result was eminently satisfactory. During the operation ether was administered, the technique was carried through as rapidly as possible, and, before the patient was removed from the table, saline fluid was transfused under one of the breasts. For a day or two the pulse was feeble, but after then no anxiety was felt as to the issue of the case. The wound healed without trouble, and the patient is now going about in perfect health.

ON THE MICRO-ORGANISM ISOLATED FROM ACUTE RHEUMATISM,

AND ITS RELATION TO OTHER MEMBERS OF THE
STREPTOCOCCUS GROUP.*

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THAT acute rheumatism, or rheumatic fever as it is commonly called, is an infective disease, will hardly be questioned at the present day. It conforms in all respects to the type of an acute infective fever. Its rapid onset, with pyrexia; its fairly definite course, apart from complications; its seasonal variation, its apparent endemicity in certain areas, and the occurrence of well-recognized epidemics, as shown by Newsholme, all tend to the conclusion of an infective origin. Moreover, a certain number

of cases have been recorded, though they are comparatively few, in which there appeared to be evidence of transmission of infection from one individual to another. Doubt has been thrown on the value of the evidence in these cases, which occurred chiefly among blood relations; but that such cases should have been recorded at all is, I think, a somewhat striking fact. The disease is clearly one against which the natural resistance of a large proportion of individuals is high, as compared, for example, with such acute fevers as scarlatina or diphtheria, so that under ordinary circumstances they exhibit no susceptibility to it. And it is also one in which the nature and the situation of the lesions are unfavourable to the liberation and dissemination of an infective agent. If also, as I believe to be the case, the infective agent is one of low vitality outside the living body, it is not surprising that the infectiousness of the disease is practically negligible.

Various bacteria have been described by different observers as the causal agents of this disease. Thus, Achalmé in 1891 described an anaërobic spore-bearing bacillus, which he had isolated from cases of acute rheumatic fever. Beside Achalmé's cases this bacillus was obtained from a number of rheumatic patients by Thiroloix, Coyon, and others, and once by Hewlett of King's College. It is, however, now generally admitted to have been an accidental finding; and it is probably identical with the *Bacillus enteritidis sporogenes* of Klein.

In a certain number of cases also staphylococci have been described, but these have been for the most part isolated cases. In some of them the diagnosis of acute rheumatism appears to have been somewhat uncertain, and others of them were clearly cases of pyæmia; thus, one case recorded by Guttman had multiple abscesses in the kidneys, muscles, and pericardium. It would indeed be very curious, if a staphylococcus were in reality the cause of acute rheumatism, that the connexion of so robust and so readily isolated an organism had not long ago been clearly established. And it would be very odd that rheumatic lesions suppurate with such very extreme rarity as is the case were their causal agent an organism so pre-eminently prone to pus formation. These cases are, therefore, generally agreed to have presented either accidental findings, or terminal infections, or cases of mistaken diagnosis.

Within the last decade a good deal of attention has been directed to the possible relation of streptococci, or a streptococcus, to acute rheumatism.

More than thirty years ago—in 1875—Klebs observed cocci ("monadina") in the cardiac valves in rheumatic fever. And Popoff, in 1887, isolated a micrococcus from the blood of a case of rheumatic fever, and found that on injection into rabbits it caused arthritis, endocarditis, and pericarditis. Following Popoff's observations, Netter, Kraus, G. Lion, and Buday have all found streptococci in rheumatic fever. In 1894 Professor Dana isolated a diplo-streptococcus from the meninges of a fatal case of acute rheumatic chorea. And Riva also demonstrated streptococci in acute rheumatism. Triboulet and Coyon described a diplococcus in rheumatic lesions; and Apert and Triboulet isolated the organism from 11 cases of rheumatic fever in 1898. Lastly, in 1899, Wassermann, Westphal, and Malkoff obtained a diplostreptococcus from a fatal case of rheumatic chorea, and found that on injection into rabbits it gave rise with constancy to a condition of acute polyarthritis.

In 1900 the subject was seriously attacked by English workers; and in that year Poynton and Paine announced that they had obtained a diplococcus in eleven successive cases of acute rheumatism—five times in pure culture. They described the organism in some detail, and supported their contention as to its causal relation to the disease by the results of animal inoculations, which had yielded in rabbits acute non-suppurative polyarthritis, endocarditis with vegetations, pericarditis, and on one or two occasions a condition which they regarded as comparable to chorea.

Since their original paper in 1900, Poynton and Paine have continued their investigations with the greatest perseverance, and have now isolated the organism on, I believe, some 29 or 30 separate occasions. Von Leyden and Fritz Meyer also claim to have shown the association of a streptococcus with acute rheumatism.

This, broadly speaking, was the state of the case in favour of the constant presence of a diplostreptococcus and

* A paper read before the Oxford Medical Society.