recovery was complete in both cases. Clinically the disease was identical with the acute lymphocytic meningitis of Wallgren.

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BILATERAL TUBAL PREGNANCY

REPORT OF A CASE

BY

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Multiple extra-uterine pregnancy is a sufficiently unusual condition to merit a report of any case that may be encountered. Such cases may be grouped under the following three headings:

1. Intra-uterine pregnancy combined with extra-uterine gestation.
2. Multiple pregnancy in a single Fallopian tube.
3. Coincident pregnancy in each tube.

This last group may be subdivided into two groups: (a) successive or repeated gestation as seen in the case of Ferguson (1899); (b) simultaneous binovular gestation as seen in the cases reported by Launay and Seguinot (1911) and Lockyer (1917). The second subdivision of the last group is undoubtedly the rarest form of multiple extra-uterine pregnancy, and it is often extremely difficult to prove that a given case falls into this category.

Case History

The present case is that of a woman aged 28, married nine years, who was admitted to hospital on February 14, 1937. The following are the particulars:

Menstrual History.—Menstruation started when the patient was 15 years old; regular twenty-eight-day interval lasting three to six days; no vaginal discharge. The last menstrual period occurred on December 24, 1936; there had been no loss per vaginam since then.

Previous History.—There had been one normal confinement eight years ago, and one miscarriage at six weeks four years later. Three years ago the patient had pains in the lower abdomen, with vomiting and constipation. Two months later she had a similar attack, and six months ago another attack in which the pains were less severe but lasted longer.

Present Illness.—At 6 p.m. on February 13, 1937, the patient suddenly felt faint and had slight pain in the lower abdomen shooting upwards. This pain became worse and caused the patient to vomit. She fainted, and does not remember the events very clearly. The vomitus was brownish in colour. During the night the pains came on again, starting in the pelvis and shooting up into the abdomen. They were colicky in nature. She felt she was choking and vomited constantly, and on attempting to pass urine she fainted. On the morning of February 14 the pains were still present, and she also

complained of pain in the right shoulder. She was admitted to hospital on February 14 at 2 p.m. On examination the patient appeared shocked and the skin was cold; she was very pale, and the tongue brown and dry. Temperature 97.2° F.; respirations 22; pulse 120, thin and running. Heart and chest were clear. The abdomen moved evenly on respiration, and was not distended; there was no rigidity, but marked voluntary guarding. Very tender in right iliac fossa.

On vaginal examination a soft boggy mass was found in the pouch of Douglas, and an ill-defined soft swelling in the left fornix. The uterus was very tender, and voluntary guarding made adequate examination of the right fornix very difficult.

A diagnosis of ruptured tubal gestation was made.

Operation

Under general anaesthesia the abdomen was incised by a mid-line infra-umbilical incision, and free blood escaped on opening the peritoneum. On exploring the pelvis a mass was found on the left side formed by the left tube surrounded by omentum. Through a gap about one centimetre long on its anterior aspect chorionic tissue and old blood clot were seen protruding. Clamps were placed on the uterine end of the tube, the mesosalpinx, and the proximal end of the omentum, and the tube and adjacent omentum removed. Clots were removed from the pouch of Douglas and haemostasis secured. Then fresh blood was seen to be escaping from the fimbrial end of the right tube, in which there was now observed to be a swelling the size of a hazel nut impinging on to the uterus. The right tube was removed. Some difficulty was experienced in checking the bleeding from the uterine cornu. The right ovary was the seat of a corpus luteum of pregnancy, but no similar change was seen in the left ovary. Clots were taken from the peritoneal cavity and the abdomen closed. The patient was given a continuous intravenous saline transfusion for three hours, and then continuous rectal saline for forty-eight hours. Apart from some difficulty in getting the bowels to act the patient made an uninterrupted recovery, and left hospital in three weeks.

Macroscopically both tubes were found to be thin and tortuous. In the left tube on the anterior aspect about three centimetres from the uterus there was a rent one centimetre long through which chorionic villi and old blood clot protruded. The omentum had wrapped itself round the rent, but the adhesions were plastic and therefore of quite recent origin. The foetus unfortunately was not found. The attachment of the omentum to the site of rupture recalls the findings of Paul Bloch in the case reported by him (1931), though in his case the attachment was of longer duration. He too found no trace of either foetus. The right tube was unruptured; there was a swelling the size of a hazel nut at the site of foetal implantation. Haemorrhage had occurred around this area and in the lumen of the tube; the amniotic sac was ruptured, but no sign of a foetus was discovered.

Unfortunately the specimens were thrown away before a microscopical examination was made. Microscopical study was therefore impossible, but the macroscopic examination definitely revealed two areas of foetal implantation separated from each other by the fundus of the uterus. On the left side there was definite rupture and, on the right, evidence of tubal abortion. The foetus was not recovered on either side. There was only one corpus luteum of pregnancy, but according to Lockyer (1917) this is the usual finding, though in the case reported by Schockaert (1928) there were two, one in each ovary. Apart from this Schockaert's macroscopic findings closely resemble those seen here. That this case is not one of haematosalpinx on one side and tubal pregnancy on the other is proved by the presence of chorionic tissue on both sides and absence of distension of the tube in its whole length, as was found in Doran's case (1891).

The attempt to correlate the operative findings with the history is interesting. The first onset of pain was slight, but rapidly became worse and was apparently extremely severe. It was accompanied by internal haemorrhage and shock, as the patient fainted and was only semi-conscious for several hours. This apparently was caused by the rupture of the

left tube. The patient's condition then improved, but during the night she was seized with colicky pains, evidently the attempt at abortion of the part of the right tube. In both cases she referred the pain to the centre of the lower abdomen. The physical findings were not helpful in aiding the diagnosis of bilateral tubal pregnancy, but in the light of subsequent findings the extreme tenderness on the right side in conjunction with the tumour on the left should have suggested the possibility.

The question of the relative ages of the pregnancies in this case it is impossible to decide. The periods had been regular till six weeks before the onset of the illness, and it is therefore reasonable to assume that both pregnancies were of equal development. Neither foetus was recovered, so help from that source is lacking. Finally, there was only one corpus luteum of pregnancy. It is probable that this was a case of simultaneous bilateral tubal gestation, but further than this it is impossible to go. The aetiology of tubal pregnancy is still *sub judice*. That inflammatory changes are frequent precursors of tubal pregnancy is, however, extremely probable, and in this case the history of three previous attacks of lower abdominal pain is very suggestive of salpingitis being at least a predisposing factor.

Finally, with regard to treatment opinions vary. Lockyer (1917) considers that the possession of a normally menstruating uterus is of great importance to the mental outlook of the patient. Launay and Seguinot (1911) consider that in such cases it is often impossible to tell ovary from tube; that both are grossly disorganized and both may need to be removed. They argue, then, that the uterus is superfluous when both tubes and ovaries are removed, and a subtotal hysterectomy permits of better toilette of the pelvic cavity and reperitonization of the raw areas. Beckwith Whitehouse (1935) advocates conservation of the ovaries when possible and also of the uterus, unless special circumstances call for its removal. Undoubtedly if the condition is diagnosed before rupture double salpingectomy is sufficient. After rupture, when the patient is suffering from shock and haemorrhage, the minimum of surgical intervention necessary to relieve the condition seems indicated, and therefore the author is in favour of double salpingectomy, conserving the ovaries, or at least a portion of the ovaries, whenever possible.

I am indebted to Dr. Fitzgerald for permission to operate and report on this case.

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A special commission for scientists and doctors and others interested in the relation of science and medicine to peace, meeting simultaneously with other commissions on Saturday, May 29, will be a feature of this year's National Peace Congress, to be held at Friends House, Euston Road, London, from May 28 to 31. The chairman of the commission is Professor S. Chapman, F.R.S., of the Imperial College of Science, and the introductory speech will be made by Professor P. M. S. Blackett, F.R.S. The commission will discuss the development of the contribution of the scientific and medical world to the promotion of international peace. All interested organizations, national and local, are entitled to appoint delegates to the congress or to the science commission. Individuals can also attend as visitors. Copies of the programme and full particulars are available from the National Peace Council, 39, Victoria Street, S.W.1.

INTRA-EPIDERMIC VACCINATION

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The vaccination of a large number of individuals speedily and efficiently is a problem which often confronts the medical officers of port health authorities. For instance, in the event of a case of small-pox occurring in a large passenger liner the number of contacts to be vaccinated may amount to several hundreds; the quantity of lymph at one's disposal may be limited, and it is imperative that the method adopted should be simple, speedy, efficient, economical, and, above all, leave as few ill effects as possible.

Intra-epidermic vaccination, which has been in practice for ten or more years in Canada and the United States, and has also been used exclusively by the medical officers of the Liverpool Port Health Authority for the past three years, satisfies all these requirements, and experience has shown it to have many advantages over the scarification method.

It is *simple and speedy*, in that it is merely one intra-epidermic puncture not more than a sixteenth of an inch, and in addition is entirely painless.

It is *efficient*, since when the lymph is good and the technique correct a specific reaction never fails to appear.

It is *economical*. The avoidance of wastage of lymph is sometimes of paramount importance when the amount is limited. By the intra-epidermic method an efficient vaccination is obtained with a minute drop of lymph, so that a tube indicated for one vaccination is sufficient to vaccinate twelve people or even more. As no dressing is required on the arm at the time of vaccination a great saving in gauze or lint, and bandages or strapping, is effected. Dressing is only necessary if and when the pustule appears.

Technique

The usual means by which lymph is transferred from the tube to the arm have never been satisfactory; rubber bulbs for fixing on to the end of the lymph tube after the ends have been broken off do not entirely meet the case, as the bulb is too small to give that delicacy of touch which is necessary for the expression of successive and discrete minute quantities of lymph from the tube, while the unhygienic practice of blowing the lymph out of its tube cannot be too strongly deprecated, and may possibly be the cause of secondary infection.

In the transference of minute drops of lymph from the tube to the arm the following procedure has been found to be eminently satisfactory; the only apparatus required is a soft rubber teat as used in a baby's feeding bottle. At least a dozen persons may be vaccinated with one ordinary small tube of lymph, and this number can be increased with practice. The glass tube, sealed at both ends and containing the lymph, is pushed through the small hole of the teat until about an inch of it is visible (Fig. 1, A). This end (Fig. 1, A) is broken off, and the glass tube drawn back again until about an inch is still left within the teat (Fig. 2). The free end of the lymph tube is then broken off, and by means of gentle pressure with the thumb over the open end of the teat successive and discrete minute quantities of lymph can be expressed (Fig. 3). Whereas by the old methods one tube of lymph was used to vaccinate one or perhaps two persons, it will be found that by the method just described one small