A CASE OF PRIMARY OVARIAN PREGNANCY

BY

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Primary ovarian pregnancy is an obstetrical rarity. Courtiss (1942) gave its incidence as 1 in 25,000 pregnancies and, using the figures of the Mayo Clinic, stated that it occurred in about 0.5% of ectopic pregnancies. Eckerson (1941), basing his estimate on the statistics of St. Luke's Hospital, reckoned that it occurred in something like 0.2% of ectopic gestations. Just over 100 cases have been reported in the English language, and a perusal of the relevant British, American, and Dominion obstetrical and gynaecological references leaves one with the impression that some of these may be spurious, as they seem to be backed by inadequate information.

Spiegelberg (1878) established four criteria upon which the diagnosis is to be based. He stated that if a case is to be accepted as one of primary ovarian pregnancy: (1) the Fallopian tube on the affected side must be intact and separate from the ovary; (2) the gestation sac must occupy the position of the ovary; (3) the gestation sac must be connected to the uterus by the ovarian ligament; and (4) ovarian tissue must be found in the wall of the sac. Since the following case seems to comply with these standards, it is submitted as an addition to the existing literature on the subject.

Case Record

A woman aged 37 was admitted on August 13, 1951, complaining of dull aching left-sided pain of some hours' duration. A similar but less severe attack had occurred one week previously, but had passed off in a few hours. Both attacks had been accompanied by nausea and retching, but there was no vomiting. The pain did not radiate and was not aggravated by movement. The last menstrual period had started on June 29.

The patient had been married for 17 years, but had never been pregnant. In 1942 she and her husband had undergone a series of investigations by a "specialist" in infertility. The scope and nature of these investigations were not clearly revealed by the patient, but she was emphatic in stating that no apparent cause for her failure to conceive had been advanced.

At the time of her admission she had been attending regularly at the out-patient department of the Maudsley Hospital, where she was being treated for what she called "nerves." Her history was otherwise without significance.

Examination showed that the patient's general physical condition was good. Her pulse rate was 80 a minute, regular, and of good volume. Her blood pressure was 105/65 mm. Hg. Examination of the cardiovascular and respiratory systems revealed no abnormality. The abdomen moved freely with respiration and there was no rigidity. Some guarding was noted in the left iliac fossa, where tenderness was elicited on deep palpation. No mass was, however, felt by the examining hand. On bimanual examination the uterus was found to be normal in size and consistence and to be acutely anteverted. No palpable mass could be detected, but tenderness was very acute in the left fornix. A presumptive diagnosis of ectopic pregnancy was made and the patient prepared for laparotomy. Two pints (1.1 litres) of cross-matched blood of the appropriate group was held in readiness.

Operation.—Under thiopentone, nitrous oxide, oxygen, and cyclopropane anaesthesia the abdomen was opened through a subumbilical midline incision. The uterus was found to be normal in size and to occupy the position disclosed by vaginal examination. A few tenuous adhesions were found on the posterior uterine wall, but no evidence of gross inflammation or of endometriosis was detected. The right tube and ovary were normal in appearance, as was the left tube. At the site of the left ovary was a tumour, about 2½ cm. in diameter, which appeared to consist of the ovary in addition to an adherent mass of blood clot. There was no free haemorrhage in the peritoneal cavity. Left oophorectomy was performed and the specimen submitted to the pathologist, Dr. J. H. H. Keale, for histological examination. The abdomen was closed in the usual manner, and the patient made an uninterrupted recovery, being discharged from hospital 14 days later.

Pathological Report.—Microscopical examination of the tissue was performed by Dr. Keale, who reported: "A fibro-cystic ovary to which was attached a circular mass of tissue fully 2 cm. in diameter containing a small ragged haemorrhage. Contained in the haemorrhage and lying centrally was a small mass of tissue which was considered to be a very early foetus. A section of this circular mass of tissue showed fibrous tissue, and on the inner edge was a haemorrhage with chorionic villi. A section of the ovary proper displayed a few follicular cysts only." The pathologist concluded that the specimen submitted was "an ovarian pregnancy."

The normal appearance of the left tube, the location of the foetal sac at the site of the left ovary, the fact that the mass was connected to the uterus by the ovarian ligament, and the presence of chorionic villi situated in close relation to ovarian tissue, mark this case as satisfying Spiegelberg's criteria and enable one to classify it as a case of primary ovarian pregnancy.

Discussion

The cause of primary ovarian pregnancy has evoked much speculation, but little that is definite is known concerning it. As recently as 1888 Lawson Tait gave it as his opinion that no such condition existed. When, however, irrefutable evidence to the contrary was repeatedly submitted, challenging medical opinion to explain this phenomenon, endometriosis of the ovary was initially invoked as a convenient and plausible basic cause. In the above case (as in many other cases in the literature) there was no evidence of endometriosis on naked-eye examination of the pelvis, and histological examination of the ovary revealed neither endometriosis nor decidual reaction to implantation.

It is known that fertilization and implantation may occur initially in the Fallopian tube, and that the foetal sac subsequently becomes dislodged, to achieve a secondary implantation in the ovary (secondary ovarian pregnancy). It is possible also that even when the tube on the affected side presents a normal appearance it nevertheless is the primary site of implantation in certain cases hitherto classified as primary ovarian pregnancies. Not all cases can, however, be explained away in this fashion, as fastidious

Ovarian mass split to reveal gestation sac of very early foetus.

histologists have in many instances subjected the apparently normal tube on the affected side to serial histological examinations and in the end have been compelled to concede it normal upon the basis of a complete absence of chorionic tissue.

Curtis (1941) suggested that in certain cases the ovum, after becoming fertilized in the Fallopian tube, may "slide downwards to the gaping recently ruptured ovary, there to develop." Other writers, like Mann *et al.* (1941) believe that "the ovum becomes fertilized while remaining in the follicle and develops its sac from contiguous ovarian tissue." Each of these views has the merit of plausibility, and it is not improbable that both processes may occur.

In view of the unfavourable nature of the implantation site it might be supposed that ovarian pregnancies generally would come to an abrupt and early termination. Statistics, however, do not support this view, and Dale (1947) collected from the literature 38 cases in which the pregnancy had proceeded beyond seven months, and from which 12 living infants had been produced.

Lithopaedion formation has been recorded in several cases of ovarian pregnancy, and De Lee (1943) reports an ovarian hydatidiform mole. The coincidence of ovarian pregnancy and eclampsia reported by Pride and Rucker (1942) may, however, claim distinction as a rarity of rarities.

Many writers have stressed the relatively slight danger of alarming haemorrhage in ovarian pregnancy as compared with the tubal variety, and the above case in this respect conforms to type. Indeed, it stands out in my experience as one of the very few cases of ectopic pregnancy in which the administration of a blood transfusion would have been completely without justification.

Summary

The relative rarity of primary ovarian pregnancy is stated, with statistical support.

Spiegelberg's criteria of primary ovarian pregnancy are quoted and a case is reported which seems to satisfy these criteria.

Various views on the aetiology of primary ovarian pregnancy are mentioned, with brief comment.

The unexpectedly high proportion of viable infants resulting from ovarian pregnancy is mentioned.

The relative infrequency of severe haemorrhage attendant upon this type of ectopic gestation as compared with tubal pregnancy is stressed.

I am indebted to Mr. Douglas M. Lindsay for permission to report this case, which occurred in his unit at Beckenham Hospital.

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DELAYED CHLOROFORM POISONING IN OBSTETRIC PRACTICE

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Cases of delayed chloroform poisoning in obstetric practice have been reported by numerous writers. The outcome in many of the cases was fatal. Nine of the 10 cases reviewed by Gibberd (1935) were fatal. Stander (1932) reports a mortality of 80% in five cases. This figure is regarded as too pessimistic by Sheehan (1940), since his last six cases recovered and two of them were very severe. Clinical histories of three patients who developed delayed chloroform poisoning are here briefly described.

Case 1

The patient, aged 24, was admitted to hospital on January 10, 1947, following a difficult forceps extraction under chloroform anaesthesia at home 48 hours previously. This was her first confinement and followed a normal antenatal period. The duration of labour was 83 hours. The food and fluid intake had been insufficient during this time, and the patient had experienced troublesome vomiting.

On admission she was drowsy and slightly jaundiced. There was no vomiting. Her blood pressure was 130/85 and her temperature 99.8° F. (37.7° C.). Prophylactic penicillin had been given since delivery. There was no liver tenderness or enlargement. Shortly after admission she became very restless and cried out as if in pain. This was associated with muscle-twitching. Periods of extreme restlessness occurred during the next three days, and on occasion she became almost maniacal. The jaundice deepened during this time. No vomiting occurred and sips of fluid were taken. Her condition then gradually improved, and a slow, steady recovery was made.

Retention of urine before and after admission into hospital necessitated catheterization. The urine output was always satisfactory. A bacteriological examination of the urine showed a *Bact. coli* infection, and the cervical swab yielded a growth of haemolytic streptococci. The blood culture was negative. Pyrexia persisted for several days after admission, but responded to penicillin and sulphonamide therapy.

Intravenous dextrose therapy was given on admission and continued for five days. In each 24 hours two litres of 5% dextrose and one litre of 4.3% dextrose in 0.18% sodium chloride were given. Five units of soluble insulin twice a day, 20 ml. of 10% calcium gluconate intravenously, and vitamin B by injections were given each day. Intramuscular paraldehyde was administered when necessary to control the restlessness.

Laboratory Investigations.—On January 11 (third day after delivery) an immediate positive van den Bergh reaction was given by the serum. The indirect van den Bergh reaction was 5.8 units; this increased to a maximum of 10.3 units on January 13. The alkaline phosphatase was 21.4 King-Armstrong units on January 11 and 22.3 on the 15th; it then slowly returned to a normal level. At all times the colloidal gold test showed no precipitation (0). The Takata-Ara reaction did not show a positive result, and the serum thymol turbidity varied between 0 and 3.2 units. Other blood chemistry estimations on January 11 showed the alkali reserve 34 vols. CO₂ per 100 ml., with the chlorides and total protein within normal limits. The blood urea was 108 mg. per 100 ml., and remained raised for several days. On January 15 the blood urea was 104 mg. per 100 ml., and then returned to a normal level. The urine contained bilirubin and urobilin. The Rothera test was negative on all occasions before and after the beginning of intravenous dextrose therapy. The blood-sugar level of 135 mg. per 100 ml. of blood on January 13 was probably influenced by the dextrose therapy.