PRIMARY OVARIAN PREGNANCY

by

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Primary ovarian pregnancy is rare and therefore, report of a case is not accepted as authentic unless and until it fulfills all the criteria for diagnosis laid down by Spiegelberg in 1878. These are: (1) The fallopian tube, including the fimbrial end must be intact and separate from the ovary. (2) The gestational sac must occupy the normal position of the ovary (3) It must be connected to the uterus by the ovarian ligament. (4) The wall of the gestational sac must show definite ovarian tissues. Norris (1909), Stander (1941) and Baden *et al,* (1952) added further modifications to these criteria in order to make the diagnosis absolutely certain. Though extremely rare, ovarian pregnancy has, however been known to occur since early 17th century. Mercerdus reported an authentic case in 1614 and St. Maurice met with a case in 1682 during an autopsy examination. Since then, occasional reports of primary ovarian pregnancy have been appearing in literature. Novak (1961) collected 50 authentic cases of ovarian pregnancy till 1940 and Pewters (1956) 125 cases till 1956. Boronow *et al,* (1965) could find 65 cases during the period from January, 1950 to January 1963, and they believe that in all about 150 authentic cases were on record. Quite a few cases of ovarian pregnancy have since been reported from India (Upadhyay *et al* 1955; Dalal, 1964; Rakshit, 1964; Vaish 1965; Sakuntala Devi, 1967. Raja Ram 1967; Kalyanikutty *et al,* 1969). The first and the only case that we have come across in the Gauhati Medical College Hospital during the last eight years amongst 22,149 pregnancies is reported here.

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Case Report

Mrs. S.R., aged 37 years, para 10, was admitted on 10-12-69 into the Gynaecological Ward of the Gauhati Medical College with complaints of pain in the lower abdomen and more or less continuous bleeding per vaginam for the last two months. There was no history of amenorrhoea and the pain and bleeding started at a time when her menstruation was due. As her menstruation had always been normal and painless, persistant pain and bleeding aroused suspicion of abnormality and she came to attend our out patient clinic.

The patient had ten normal deliveries at term, her last child was one and half years old.

On examination, she was anaemic, pulse rate 80 per minute; temperature—normal and B.P.—120/70 mm of Hg. Physical examination of different systems revealed no abnormality but the lower abdomen was tender and slightly rigid. A firm tender lump about 8 cm x 6 cm in size was palpable in the suprapubic region. Vaginal examination showed lax vaginal walls, slight oozing of dark fluid blood from within the cervical canal. Cervix was closed and pointing forwards. Uterus was retroverted and slightly bulky. A firm tender lump well defined in outline and separate from the uterus could be palpated through the right lateral and anterior fornices. There was no fullness or mass in the pouch of Douglas.

A provisional diagnosis of a twisted ovarian tumour was made.

Laboratory Investigation: Haemoglobin 8 gm. per cent, W B.C's 6,400 per cmm. Poly-74%, lympho-16%, mono-4%, eosino-6%. E.S.R.—25 mm at the end of the first hour, Blood group—AB, Rh(D) positive; V.D.R.L.—non-reactive; Blood urea—28 mg%. Routine examination of urine and stool detected nothing abnormal.

On 20-12-69, a laparotomy was performed under spinal anaesthesia. On opening the abdomen, no blood was found in the peritoneal cavity. Uterus was retroverted and slightly bulky. The left fallopian tube and the ovary were normal. The right tube with its fimbrial end was healthy and intact. The right ovary was enlarged about 8 cm x 6 cm in size. Its surface was congested and at places dark or blackish in colour. There was no torsion anywhere. The enlarged ovary was attached to the uterus by the ovarian ligament. There were no firm adhesions and the enlarged ovary could be easily lifted out and removed intact together with the right tube. As the patient wanted sterilisation, left salpingiectomy was also done and both the round ligaments were sutured to the back of the uterus so as to cover the stumps and make the uterus anteverted. The abdomen was closed in layers.

The patient had a smooth convalescence and uneventful recovery. She was discharged from the hospital on the 10th post-operative day.

Specimen: The wall of the ovarian sac was intact. When it was cut open, dark clotted blood surrounding a mass of necrotic material resembling dead and degenerated placental tissue could be seen (Fig. 1).

Histopathological Report: Sections from different places on the sac wall showed ovarian tissue with trophoblasts and chorionic villi scattered in the stroma. At places tiny follices of ovary could be seen (Fig. 2).

Primary Ovarian Pregnancy was therefore the final diagnosis.

Discussion

Incidence—Table I shows that the incidence of ovarian pregnancy reported by different authors varies widely. While Dowling *et al,* (1960) could find only one ovarian pregnancy amongst 59,740 pregnant women, Boronow *et al,* (1965) and Sakuntala Devi (1967) observed four ovarian pregnancies among 36,914 and 31,512 pregnancies respectively giving an incidence of one in 9,229 and 7,878 pregnancies, respectively. Considerable variation from 0.17 per cent (Bobrow *et al,* 1956) to 2.71 per ent (Boronow *et al,* 1965) is also observed in the reported frequency of occurrence of ovarian pregnancy amongst all types of ectopic gestations (Table I). In our hospital there were 93 ectopic gestations amongst 22,149 pregnancies and of them, one was an ovarian pregnancy. This wide variation in the incidence may be explained by the fact that it is easy to mistake other types of ectopic gestation or other conditions such as, ruptured haemorrhagic follicular or corpus luteum cysts, chocolate cysts, etc. for primary ovarian pregnancy. Hence, the importance of stressing on the diagnostic criteria. On the other hand, it is possible that some genuine cases of ovarian pregnancy are overlooked or remain unreported (Bobrow *et al,* 1956). Strict adherence to the modifications of Spiegelberg's fourth criterion as suggested by Stander (1941) and Baden *et al,* (1952) may lead to false negative diagnosis and an authentic case of primary ovarian pregnancy may be missed especially if it is an advanced one (Rakshit, 1964, Vaish, 1965).

Pathogenesis

The mechanism of ovarian pregnancy is still obscure. There are different views. According to Leopold (1899), primary ovarian pregnancy results from fertilization of the ovum before it is ex-

TABLE I

Showing the Incidence of Ovarian Pregnancy Amongst All Pregnancies and Among all Ectopic Pregnancies

Author and year of publication	Incidence of ovarian pregnancy	
	Frequency among all pregnancies	Frequency among all ectopic pregnancies
1. Courtise, 1942	One in 24,733	One in 106 (0.97%)
2. Hertig, 1951	One in 25,000 to 40,000	One in 110 (0.81%)
3. Bossert et al, 1951	One in 36,978	One in 201 (0.50%)
4. Taber et al, 1952	—	One in 37 (2.70%)
5. Bobrow et al, 1956	One in 52,833	One in 587 (0.17%)
6. Dowling et al, 1960	One in 59,740	One in 486 (0.17%)
7. Boronow et al, 1965	One in 9,229	Four in 146 (2.71%)
8. Sakuntala Devi, 1967	One in 7,878	Four in 393 (1.02%)
9. Raja Ram, 1967	One in 27,013	—
10. Kalyanikutty, 1969	One in 27,385	One in 260 (0.31%)
11. Baden et al, 1952	—	One in 209 (0.47%)
12. Present study	One in 22,149	One in 93 (0.10%)

truded from the mature follicle. Normally, the ovum leaves the follicle and enters the tube by the time it attains the degree of maturity fit for fertilisation. Occasionally however, it may undergo full maturation while still inside the follicle (Rock and Hertig, 1932) or something may delay its expulsion leading to intra-follicular fertilisation. Curtis (1941) states that the fertilised ovum may slip off backwards from the lumen of the tube and come to get implanted on the recently ruptured follicle. Novak (1961) supports Meyer's view that the surface epithelium of the ovary differentiates into endometrium at some places, attracts the ovum and leads to its cortical implantation.

Classification

The term ovarian pregnancy is likely to create lot of confusion and, therefore, Wittenberg and Ries (1948) suggest that the type of the ovarian pregnancy should be specified as primary, secondary or combined. Primary ovarian pregnancy may further be subdivided into deep and superficial groups with their sub-groups as intrafollicular, juxtafollicular and true superficial and suprafollicular, respectively. Baden *et al*, (1962) also recommend a similar classification based on the site of implantation and development of the fertilised ovum.

Diagnosis

The well known cardinal signs and symptoms of all types of ectopic gestations are more or less the same and a diagnosis of primary ovarian pregnancy cannot be made on clinical examination alone. Even on laparotomy, the diagnosis cannot be conclusive as the fourth criterion of Spiegelberg demands histopathological examination of the sac wall to show unquestionable ovarian tissues. However, certain clinical findings such as older age, a period of sterility, etc. are said to be helpful in suspecting ovarian pregnancy (Dalal, 1964). It is true that ovarian pregnancy is common during the third and fourth decades of life. The

present case was 37 years old, and so was the case reported by Raja Ram (1967); and Kalyanikutty's patient was 38 years of age. But a period of sterility or relative infertility is a common feature for all ectopics. On the other hand, the case reported here is a mother of as many as 10 children and her youngest child was only one and half years old. It is interesting to note that the two women with ovarian pregnancy reported by Raja Ram (1967) and Kalyanikutty (1969) were also not less fertile—one had six children and the other eight. The history of amenorrhoea is absent in ovarian pregnancy in a higher percentage of cases (about 50%). Most of the primary ovarian pregnancies—75 per cent (Baden *et al*, 1952) to 91 per cent (Boronow *et al*, 1965)—terminate in the first trimester. Advanced primary ovarian pregnancy—some of them going even upto full term have, however, been reported by a number of authors (King, 1954; Upadhyay *et al*, 1955; Rakshit, 1964; Vaish, 1965). Other rarities such as ovarian pregnancy eleven years after vaginal hysterectomy (Lyle *et al*, 1955), molar ovarian pregnancy (Modovi, 1962, Green 1963) are also on record.

Treatment

The treatment of all ectopic pregnancies is same—namely immediate laparotomy or surgical intervention preceded by resuscitative treatment where necessary.

Summary

1. A case of primary ovarian pregnancy treated in the Gauhati Medical Hospital is reported.

2. Its rare incidence, pathogenesis, classification, diagnosis, differential diagnosis and treatment have been discussed.

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See Figs. on Art Paper I