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Ovarian Pregnancy - A Clinicopathologic Spectrum

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OBJECTIVE – To study the incidence of clinical presentation of ovarian pregnancy. **METHOD –** Nine cases of ovarian pregnancy were located among 500 cases of extra uterine pregnancies (1.8%) in the records of the Department of Pathology, over a period of 42 years. These records were analysed. **RESULTS –** Symptomatology included pain in abdomen (seven cases), amenorrhea (five cases) and vaginal bleeding (four cases). Seven cases presented with acute abdomen needing emergency laparotomy. One case presented with a mass in abdomen without history of amennorhea but with positive Spalding's sign on plain x – ray. One case presented with irregular vaginal bleeding and no history of amenorrhea. A tender cystic forniceal mass was felt and ultrasonography revealed extrauterine gestational sac with fetal pulsations. In four cases where history was available the patients were intrauterine contraceptive device (IUCD) non-wearers. All patients underwent salpingo-oophorectomy and fulfilled the Spiegelberg's criteria for a diagnosis of ovarian pregnancy. In eight cases, the diagnosis was suspected clinically and only in one case it was revealed on x – ray examination while ovary as the site was confirmed by histopathology. **CONCLUSION –** Ovarian pregnancy is not so rare as believed earlier. IUCD seems to play no role in its causation.

Key words : ovary, ectopic pregnancy, ovarian pregnancy

Introduction

Ovarian pregnancy is considered to be a rare form of extrauterine pregnancy. There is evidence that the incidence is increasing both in intrauterine contraceptive device wearers and non-wearers[1]. True primary ovarian pregnancy with intrafollicular fertilization of the ovum seldom occurs since the ovum is considered to be incapable of being fertilized at this point in its maturation. Extrafollicular pregnancy occurs in the tube and the conceptus is regurgitated to secondarily implant on the ovary. The criteria for recognition of ovarian pregnancy were first formulated by Spiegelberg in 1978 to establish that the pregnancy is in the ovary and does not involve the tube. Many extrafollicular pregnancies do not fulfill the criteria so far as ovarian tissue is not necessarily present in the wall of the gestational sac.

Materials and Methods

The age, clinical history and gynecological findings available in the records of Department of Pathology in nine cases of ovarian pregnancy among 500 cases of ectopic pregnancies over a period of 42 years were obtained and are given in Table I. In all cases, salpingo-oophorectomy specimen was studied histopathologically and a diagnosis of ovarian pregnancy was made based on Spiegelberg's criteria which state that i) the fallopian tube on the affected side must be morphologically normal, clearly separated from the ovary and devoid of any evidence of a tubal gestation ii) the gestational sac must occupy the normal position of the ovary iii) the gestational sac must be connected to the uterus by the ovarian ligament and iv) ovarian tissue must be histologically demonstrable in the wall of the gestational sac[2].

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Results

The age of the patients ranged from 22 to 32 years (mean 26.9 years). Symptomatology included pain (seven cases), amenorrhea (five cases) and bleeding (four cases). Emergency laparotomy and salpingo – oophorectomy was done for ruptured ovary in seven cases. Histopathologically ovary showed corpus lutcum of pregnancy with decidua, trophoblasitc cells and chorionic villi in the adjacent hemorrhagic area. Fallopian tubes were normal. A diagnosis of abdominal pregnancy was made in Case 1. At laparotomy, the gestational sac was removed with the fallopian tube. No separate ovary was identified. Histologically ovarian tissue was present in the wall of the gestational sac which contained a macerated fetus. In Case 6, a diagnosis of unruptured extrauterine pregnancy was made by ultrasonograpy. At laparotomy, ovary was the seat of the gestational sac containing a 6 week old embryo.

Discussion

The occurrence of ovarian pregnancy is reported to be more frequent than previously believed and is of the order of 1 per 7000 deliveries and slightly less than 3% of all ectopic pregnancies[1]. In the present study 9 out of 500 cases of extrauterine pregnancies were located in the ovary (1.8%).

Intrauterine contraceptive device (IUCD) neither provokes nor protects against the occurrence of ovarian pregnancy[1]. None of the four patients where history was available used IUCD in this study. The average age of the patients with ovarian pregnancy is between 28 and 30 years. In this study it was 26.9 years. Most of the patients are parous and infertility is rare among the patients with ovarian pregnancy[3,4]. A similar observation was made in the present study.

Table - I : Clinical Features of Ovarian Pregnancy

Case	Age (years)	Parity	Amenorrhea	Pain	Bleeding	Clinical findings	IUCD
1	32	2	No	No	No	Mass in the abdomen – 1 ½ years, 28 weeks size Per vaginum – Normal uterus, mass felt separate from uterus, X – ray – Spalding's sign + Diagnosis - Abdominal pregnancy	NA
2	22	0	45 days	+	+	Acute abdomen	NA
3	31	2	45 days	+	+	Acute abdomen	NA
4	28	1	33 days	+	+	Acute abdomen	NA
5	28	1	No	+	No	Acute abdomen and shock	No
6	25	1	No	No	+	Tender cystic mass in the left fornix. USG – Extra uterine pregnancy. Fetal pulsation +	No
7	26	NA	NA	+	No	Adnexal mass	NA
8	26	infertility	40 days	+	No	USG – Intraperitoneal hemorrhage	No
9	24	NA	40 days	+	No	USG – Intraperitoneal hemorrhage	No

IUCD – Intra uterine contraceptive device NA – Information not available + present

As with tubal pregnancy, most of the ovarian pregnancies (75% - 90%) rupture spontaneously within the first trimester[5]. Seven out of nine cases (77.7%) presented with pain and intraperitoneal bleeding in our study. Ovary as the site of bleeding was detected at laparotomy. Upon rupture, if the conceptus is completely extruded a histopathological diagnosis may be difficult. The most common histopathologic feature consists of decidua like tissue interspersed with hemorrhage and trophoblasts. Demonstration of villi requires extensive microscopic search[1]. The presence of an embryo is a rare finding[1,3], however Boronow et al[4] recognised embryo in 41% of the cases collected over a period of 13 years. The ovary has the greatest capacity to accommodate a pregnancy when compared to other ectopic sites and has the highest incidence of term gestations and surviving infants[5]. A macerated fetus of about 28 weeks, was present in the gestational sac in Case 1. Among the 25 cases documented by Hallatt[3], 18 were unsuspected and were considered to be simply bleeding corpus luteum or ruptured ovarian cyst. A specific histopathologic explanation was sought for ovarian bleeding. Hallatt[3] opined that the bleeding site in every instance of hemoperitoneum from the ovary should be excised and subjected to histopathologic examination to know the true incidence of ovarian pregnancy. About 1/3 of tubal pregnancies are capable of spontaneous resolution. However, specific information regarding ovarian pregnancy is lacking[5]. With the widespread availability of both ultrasonography and assay for βhCG, a closer approximation of the actual incidence of ovarian pregnancy may be developed.

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