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Analysis of cases of rupture corpus luteum with hemoperitoneum in females-A clinical study

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Abstract
Background: Corpus luteum rupture resulting in hemoperitoneum is a rare clinical entity with an increased likelihood of rupture during pregnancy likely due to the increase in corpus luteum cysts in pregnancy. The present study was conducted to evaluate the cases of ruptured corpus luteum in females.
Materials & Methods: The present study was conducted in the department of Gynaecology & Obstetrics. It included 34 cases of ruptured corpus luteum. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee. Features such as parity, nausea, vomiting, day of menstrual cycle was recorded. Urine pregnancy test was performed. USG was performed in all cases.
Results: Patients with <20 years were 7, 20-30 years were 21 and 31-40 years were 6. Depending on parity, they were nulliparas (17) and mutiparas (17). In < 14 days, pregnancy test was negative in 2 cases, between 15-28 days were 20 negative cases and between 29-60 days were 8 negative cases and 2 positive cases and > 60 days were 2 positive cases. On right side, wedge resection was performed in 9 cases and suturing of bleeding edges was done in 7 cases. On left side, wedge resection was performed in 6 cases and suturing of bleeding edges was done in 12 cases.
Conclusion: Ruptured corpus luteum is not uncommon among females. Careful examination is required to rule out the possibility of corpus luteum cyst.

Keywords: Corpus luteum, Ectopic pregnancy, Hemoperitoneum

Introduction

Corpus luteum cyst rupture resulting in hemoperitoneum is a rare clinical entity with an increased likelihood of rupture during pregnancy likely due to the increase in corpus luteum cysts in pregnancy. The clinical symptomatology and sonographic features of corpus luteum cyst rupture can closely mimic ectopic pregnancy [1].

The combination of positive pregnancy test and absence of the intrauterine gestational sac on sonographic exam places a woman at high risk of ectopic pregnancy. These diagnostic procedures are not specific and can also be seen in normal early intrauterine pregnancies which are too early to visualize. Historically, the introduction of "discriminatory zones" for human chorionic gonadotropins (hCG) facilitated the diagnosis and management of ectopics, thus significantly reducing the associated morbidity and mortality. Although the introduction of transvaginal sonography further reduced hCG discriminatory levels, there is an increasing concern that procedures performed in unclear cases can harm normal intrauterine pregnancies [2].

Corpus luteum cyst is a functional cyst which is formed in the second phase of ovarian cycle. The natural history typically includes regression in the absence of pregnancy or regression after the first trimester of pregnancy and maturation of placenta. It is highly vascular structure and occasionally a subject of rupture. Blood loss is usually self-limited, but rarely can lead to massive hematoperitoneum and even death. Due to variable clinical presentation and sonographic appearance, the potential for misdiagnosis is high [3].

The diagnosis and management of hemoperitoneum due to corpus luteum cyst rupture could be extremely difficult for the gynecologist, especially when present with a pregnancy in an unknown location [4]. The present study was conducted to evaluate the cases of ruptured corpus luteum in females.

Materials & Methods

The present study was conducted in the department of Gynaecology & Obstetrics. It included 34 cases of ruptured corpus luteum. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc. was recorded. Features such as parity, nausea, vomiting, day of menstrual cycle was recorded. Urine pregnancy test was performed. USG was performed in all cases. Results thus obtained were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

Age (years)	Number	P value
<20	7	0.01
20-30	21	
31-40	6	
Parity		
Nulliparas	17	1
Multiparas	17	

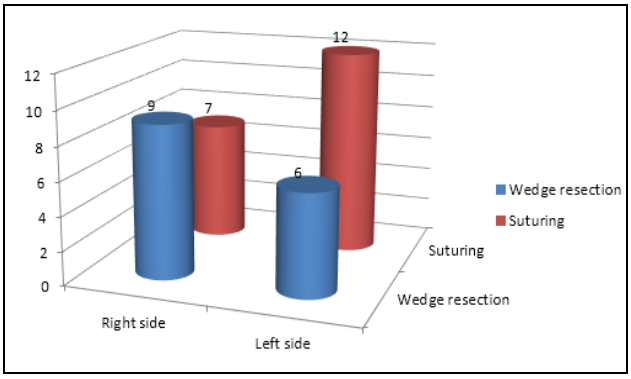
Table I shows that patients with <20 years were 7, 20-30 years were 21 and 31-40 years were 6. Depending on parity, they

were nulliparas (17) and mutiparas (17).

Table 2: Menstrual cycle and pregnancy test

Days from last menstrual period	Urine pregnancy test	
	Negative	Positive
<14	2	0
15-28	20	0
29-60	8	2
>60	0	2

Table I shows that in < 14 days, pregnancy test was negative in 2 cases, between 15-28 days were 20 negative cases and between 29-60 days were 8 negative cases and 2 positive cases and > 60 days were 2 positive cases.



Graph 1: Management of cases

Graph I shows that on right side, wedge resection was performed in 9 cases and suturing of bleeding edges was done in 7 cases. On left side, wedge resection was performed in 6 cases and suturing of bleeding edges was done in 12 cases.

Discussion

Hemoperitoneum is one of the causes of acute abdomen. Rupture of corpus luteum cyst is one of the major gynecologic causes of hemoperitoneum. Appropriate evaluation of gynecological hemoperitoneum always has a priority in practice because of the potential need for emergent surgical intervention [5].

Corpus luteum cysts are thin-walled, functional vascular structures, and most of them are predisposed to rupture. The etiology for cyst rupture is not known, although it has been suggested that the increased vascularity of the ovary in the luteal phase and pregnancy may predispose to rupture of a corpus luteal cyst. The right ovary seems predisposed to rupture more than the left one, as seen in our case [6].

We found that patients with <20 years were 7, 20-30 years were 21 and 31-40 years were 6. Depending on parity, they were nulliparas (17) and mutiparas (17). This is in agreement with Bjerke *et al*. [7].

One of the possible explanations for this predisposition is the protection of left ovary from trauma by the cushioning of the recto-sigmoid colon. By a thorough history after operation, we found that the abdominal pain had started immediately after sexual intercourse, highlighting the role of trauma in right-sided corpus luteum cyst rupture. Typically at the time of rupture, there may be sharp and sudden onset of pain, which has no typical characteristics. Blood loss can vary from very little bleeding to hypovolemic shock. At the time of operation, we found that the pelvic cavity was full of approximately 3L of hemorrhagic fluid. According to Hallatt *et al*. [8] the hemorrhage from a ruptured corpus luteum cyst is likely to be less than in an ectopic pregnancy and likely to be non-recurrent once it stops.

In present study, < 14 days, pregnancy test was negative in 2 cases, between 15-28 days were 20 negative cases and between 29-60 days were 8 negative cases and 2 positive cases and >60 days were 2 positive cases. On right side, wedge resection was performed in 9 cases and suturing of bleeding edges was done in 7 cases. On left side, wedge resection was performed in 6 cases and suturing of bleeding edges was done in 12 cases. This is similar to Wang *et al*. [9].

The distinction between normal early pregnancy and early pregnancy complications can be quite challenging. Visualization of a gestational sac within the uterus is the earliest sonographic confirmation of an intrauterine pregnancy. Prior to this, thickening of the endometrium or intradecidual sign might be recognized, but these can not be taken as reliable indicators of pregnancy. Thickening of the endometrium can be seen in the late luteal phase of the menstrual cycle, in the very early intrauterine pregnancy, in ectopic pregnancy or in association with early pregnancy resolution [10].

Conclusion

Ruptured corpus luteum is not uncommon among females. Careful examination is required to rule out the possibility of corpus luteum cyst.

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