Recurrent Bilateral Hyperreactio Luteinalis Associated With Singleton Pregnancy: A Case Report[1*]

Esra KELEŞ PEKER

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
dresrakeles@hotmail.com,
ORCID ID: 0000-0001-8099-8883

Canan KABACA

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
canankabaca@yahoo.com,
ORCID ID: 0000-0002-7069-279X

Burak GİRAY

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
burakgiray@gmail.com,
ORCID ID: 0000-0002-3832-6634

Serkan AKIŞ

Corresponding Author, University of Health Sciences,
Department of Gynecologic Oncology, Zeynep Kamil Training and Research Hospital.
Uskudar, Istanbul, Turkey
serkanakis67@hotmail.com
ORCID ID: 0000-0003-0620-1500

Yunus Emre PURUT

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
purutemreyunus@hotmail.com,
ORCID ID: 0000-0001-5779-3847

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Mine GÜRAY UZUN

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
mineguray@gmail.com,
ORCID ID: 0000-0001-9327-9685

Murat APİ

University of Health Sciences,
Zeynep Kamil Women's and Children's Disease Training and Research Hospital,
Department of Gynecologic Oncology, Istanbul, Turkey
muratapi@hotmail.com,
ORCID ID: 0000-0001-9442-2690

ABSTRACT

We aimed to report a case of conservatively managed recurrent bilateral theca lutein cysts associated with a singleton pregnancy after taking informed consent. A 31-year-old woman with a singleton pregnancy, bilaterally multicystic adnexal mass and within the normal beta-hCG range was referred at 13.week pregnancy. She had a history of bilaterally enlarged ovaries up to 18 cm in her first pregnancy. Magnetic resonance imaging showed 112x142x136 mm right ovary and 197x118x242 mm left ovary at 21-week pregnancy. The right multicystic ovary resolved spontaneously during the third trimester. Thin-walled multicystic left ovarian cyst with clear serous fluid content without a solid component measured about 25x15x20 cm in size during cesarean section. Left ovarian cystectomy was performed. At the final pathology, normal morphological findings were detected in the left ovarian cyst. The follow-up could be a reasonable choice in women with enlarged multicystic ovaries without malignant signs such as papillary, complex and/or solid structure.

Keywords: *Hyperandrogenism, hyperreactio luteinalis, pregnancy, theca lutein cyst*

Esra KELEŞ PEKER, Canan KABACA, Burak GİRAY, Serkan AKIŞ,
Yunus Emre PURUT, Mine GÜRAY UZUN, Murat APİ

Tekil Gebelikte Ortaya Çıkan Tekrarlayan Bilateral Hiperreaksiyo Lutenalis: Olgu Sunumu

ÖZ

Tekil bir gebelikle ilgili tekrarlayan ve konservatif yaklaşım gösterilen tekrarlayan bir bilateral teka lutein kisti vakasını aydınlatılmış onamı aldıktan sonra sunmayı amaçladık. Otuz-bir yaşında 13 haftalık gebeliği olan ve gebeliğe göre normal beta-hCG değerine sahip hasta bilateral multikistik adneksial kitle sebebiyle refere edildi. Hastanın hikâyesinde ilk gebeliğinde bilateral overlerinin 18 cm'ye kadar ulaştığı bilgisi vardı. Manyetik rezonans görüntüleme 21. haftada sağ overin 112x142x136 mm olduğunu ve sol overin de 197x118x242 mm olduğunu gösterdi. Sağdaki multikistik yapı üçüncü trimesterde spontan geriledi. Sezaryen sırasında gözlenen sol overdeki solid komponent içermeyen ince duvarlı seröz içeriğe sahip multikistik yapı yaklaşık 25x15x20 cm boyutunda idi. Sol ovarian kistektomi yapıldı. Nihai patolojide sol ovarian kistte normal morfolojik bulgular izlendi. Papillarite, kompleks yapı veya solid yapılar gibi malign bulguların olmadığı kadınlarda takip mantıklı bir seçenek olabilir.

Anahtar Kelimeler: *Gebelik, hiperandrojenizm, hiperreaksiyo luteinalis, teka lutein kisti*

INTRODUCTION

Theca lutein cysts is a benign rare condition of usually bilateral or unilateral ovarian multicystic enlargement due to theca lutein cysts during pregnancy. The etiology of this condition is unknown but is believed to be associated with excessive stimulation of the ovaries by beta-hCG or increased ovarian sensitivity to this hormone. Hyperreactio luteinalis (HL) has been more commonly documented in cases of multiple gestations, gestational trophoblastic disease, infertility treatment, hydrops fetalis, large placenta, diabetes, Rh sensitization where beta-hCG is elevated. There are only 51 reported cases of recurrent HL associated with singleton pregnancies in literature. Herein, we report a case of conservatively managed recurrent bilateral theca lutein cysts associated with singleton pregnancy.

CASE REPORT

A healthy 31-year-old woman with a singleton pregnancy, bilaterally multicystic adnexal mass measured up to 25 cm, and within the normal range according to 13-week of pregnancy was referred to the gynecologic oncology department at pregnancy week 13. The patient had a history of bilaterally enlarged ovaries up to 18 cm in her first pregnancy. The patient had an uncomplicated first pregnancy ended vaginal delivery. A postpartum follow-up ultrasound had shown the resolution of multicystic ovaries in the first pregnancy. Her first three children were born healthy with average birth weights. A detailed ultrasonography showed 21 weeks healthy fetus with normal pulsed Doppler. Ultrasound revealed singleton pregnancy with bilaterally adnexal thin-walled multiseptated cystic enlarged ovaries entrapped in the pelvic area. There was no history of hypertension, renal or cardiovascular disease. Laboratory tests showed at 20^{th} week of pregnancy as follows: AFP: 106 ng/ml, CA125: 59 U/ml, total testosterone: 4.65 nmol/L, TSH: 1.14 mIU/ml. Magnetic resonance imaging showed 112x142x136 mm right ovary and 197x118x242 mm left ovary at 21^{st} week pregnancy (Figure 1 A-E). There was no solid component or mural nodule. Based on the patient's history, clinical and sonographic findings, the patient was diagnosed with bilateral theca lutein cysts in association with singleton pregnancy. Therefore, the patient was managed conservatively. The right multicystic ovary resolved spontaneously during the third trimester. The patient was asymptomatic throughout her pregnancy. Although the total testosterone level was high, there was no sign of virilization or facial acne. Laboratory tests showed at 38^{th} week of pregnancy as follows: total testosterone: 2.28 nmol/L, sex hormone binding globulin: >250 nmol/L, albumin: 3.0 g/L, CA125: 22.5 U/ml, beta-hCG: 24,684 mIU/ml. At 38^{th} week, the patient underwent cesarean section. The operation was performed via pfannenstiel incision. A male infant was born weighing 3150 g, 49 cm long, 1-minute Apgar score 8, and 5-minute Apgar score 9 with no evidence of virilization. At cesarean delivery there was no abnormal finding in the placenta. The right tube and ovary were normal (Figure 2A). The left ovary appeared as thin-walled multicystic with clear serous fluid content without solid component (Figure 2A). The left ovarian cyst measured about 25x15x20 cm in size. Left ovarian cystectomy was performed (Figure 2B). The frozen section was reported to be benign. She was discharged home 2 days postoperatively. The patient began lactating at 5-6 weeks postpartum. At 6-week follow-up ultrasound showed normal- size ovaries and uterus. At the final pathology, normal morphological findings were detected in the placenta and left ovarian cyst.

DISCUSSION

HL is a rare, benign condition with enlarged ovaries due to multiple theca lutein cysts and resolves till the third trimester or after delivery (Lynn, Steinkeler, Wilkins-Haug & Benson, 2013). The increased sensitivity of the ovarian stroma to beta-hCG or excessive reproduction of this hormone is believed to be possible causes of theca lutein cysts in pregnancy (Bidus, Ries, Magann & Martin, 2002). HL rarely occurs in a normal spontaneous pregnancy and there were only 51 well-documented cases of recurrence of HL in the literature.

In our case, we presented theca lutein cysts in singleton pregnancy with normal beta-hCG levels. Until now, several views have been proposed to reveal the etiology of HL. A genetic predisposition was proposed, which no link was found. One study suggested the mechanism through increased sensitivity due to gonadotropins cause hypertrophy followed by luteinization of the theca-interna layer (Check, Choe & Nazari, 2000). We assume that it was not a beta-hCG induced ovarian stroma reaction but, most likely, it was the sensitivity of the theca lutein cells to beta-hCG. HL has been more commonly seen in cases of multiple gestations, gestational trophoblastic disease, infertility treatment, hydrops fetalis, large placenta, diabetes, Rh sensitization, and elevated beta-hCG levels (Frıtz & Speroff, 2014). In this case, beta-hCG levels were within the normal range and the patient was not complicated with these risk factors. Foulk et al. reported 28% of HL cases were asymptomatic while 72% of cases have symptoms such as abdominal pain, nausea, emesis, dyspnea due to pleural effusions and abdominal ascites (Foulk, Martin, Jerkins & Laros, 1997). We described an asymptomatic patient as seen infrequently. HL is diagnosed predominantly in the third trimester (54%) while 16% of the cases in the first trimester. Over 37% of cases are diagnosed at the cesarean section (Foulk et al., 1997; Onodera, Kishi, Tamaoka, Yamazaki & Kamei, 2008). We indicate a noteworthy case that diagnosed incidentally in the first trimester and followed up until delivery. Angioni et al. reported 15% of the HL cases lead to hyperandrogenism and hirsutism (Angioni, Portoghese, Milano, Melis & Fulghesu, 2007), although in our case patient's blood total testosterone levels high, whereas there was no sign of hirsutism, virilization or acne. Theca lutein cysts may be the cause of delayed lactogenesis due to increased testosterone levels. The high levels of androgens may be responsible for delayed breastfeeding for as long as 31 days (Betzold, Hoover & Snyder, 2004; Bidus et al., 2002). In our case, lactating was began at 5-6 weeks postpartum. There are 51 previously reported cases

of recurrent HL with singleton pregnancy in the literature (Bishop, Patel & Fries, 2016; Onodera et al., 2008). We present an uncommon case of asymptomatic recurrent bilateral theca lutein cysts in singleton pregnancy diagnosed in the first trimester with normal beta-hCG level and delayed breastfeeding due to high levels of androgens.

In conclusion, we may consider HL in pregnant women with enlarged multicystic ovaries without malignant signs such as papillary, complex and/or solid structure even if normal beta-hCG level. The follow-up could be a reasonable choice in women with HL.

Informed Consent: Informed consent was obtained from the patient.

Conflict of Interest: The authors declare no conflict of interest.

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AUTHOR CONTRIBUTION

Literature reviewing was made by SA, CK, EKP, MGU. Data of the study was collected by SA, CK, EKP and BG. Data was interpreted by SA, CK, MA, YEP. EKP, SA, CK had contributions to the concept of the study. All the authors had contributions on preparing the study critically in terms of intellectual content.

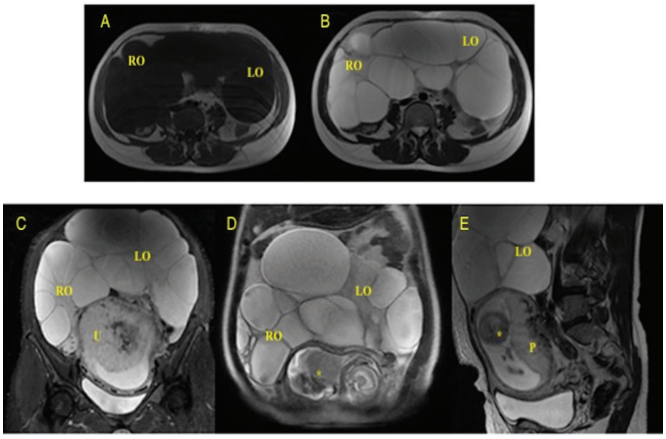

Figure 1: Magnetic resonance imaging of right ovary (112x142x136 mm) and left ovary (197x118x242 mm) at 21th week pregnancy. **A-B)** Transverse plane; **C-D)** Coronal plane; **E)** Sagittal plane. (LO: left ovary; RO: right ovary; U: uterus; P: Plasenta; *: Fetus).

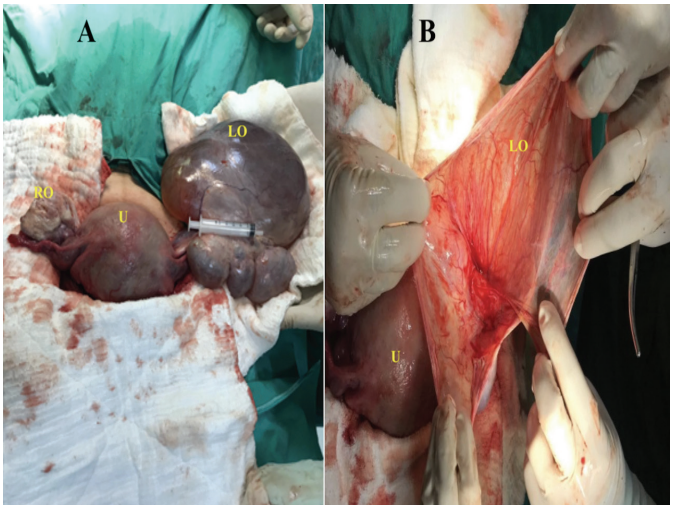

Figure 2: A) Normal right tube and ovary **B)** Enlarged multicystic left ovary without solid component. (LO: left ovary; RO: right ovary; U: uterus).

REFERENCES

Angioni S, Portoghese E, Milano F, Melis GB & Fulghesu AM. (2007). Hirsutism and hyperandrogenism associated with hyperreactio luteinalis in a singleton pregnancy: a case report. *Gynecol Endocrinol*. 23(5):248-251.

Betzold CM, Hoover KL & Snyder CL. (2004). Delayed lactogenesis II: A comparison of four cases. *J Midwifery Womens Health*. 49(2): 132-137.

Bidus MA, Ries A, Magann EF & Martin JN. (2002). Markedly elevated beta-hCG levels in a normal singleton gestation with hyperreactio luteinalis. *Obstet Gynecol*. 99(5 Pt 2):958-961.

Bishop LA, Patel S & Fries MH. (2016). A case of recurrent hyperreactio luteinalis in three spontaneous pregnancies. *J Clin Ultrasound*. 44(8): 502–505.

Check JH, Choe JK & Nazari A. (2000). Hyperreactio luteinalis despite the absence of a corpus luteum and suppressed serum follicle stimulating concentrations in a triplet pregnancy. *Human reproduction* (Oxford, England), 15(5), 1043–1045.

Foulk RA, Martin MC, Jerkins GL & Laros RK. (1997). Hyperreactio luteinalis differentiated from severe ovarian hyperstimulation syndrome in a spontaneously conceived pregnancy. *Am J Obstet Gynecol.* 176(6):1300-1304.

Lynn KN, Steinkeler JA, Wilkins-Haug LE & Benson CB. (2013). Hyperreactio luteinalis (enlarged ovaries) during the second and third trimesters of pregnancy: common clinical associations. *J Ultrasound Med.* 32(7):1285-1289.

Marc A. Frıtz & Leon Speroff. (2014). Clinical Gynecologic Endocrinology and Infertility. Normal and Abnormal Sexual Development. Chapter 9. p. 363-364.

Onodera N, Kishi I, Tamaoka Y, Yamazaki K & Kamei K. (2008). A case of recurrent hyperreactio luteinalis. *Am J Obstet Gynecol*. 198(5):e9-e10.