

# Prenatally diagnosed giant mesenteric cyst in the pelvis in an ICSI twin

*ICSI ikizinde prenatal olarak tanısı konmuş dev mezenter kisti*

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## Abstract

The evidence of risk for birth defects due to artificial reproductive technology (ART) cycles is not yet clear. However, there may be a possible link between ART cycles and epigenetic abnormalities. Abdominal cysts are rarely seen pathologies after intracytoplasmic sperm injection (ICSI) cycles.

A giant mesenteric cyst was diagnosed in one of the ICSI twins by ultrasonographic examination at 14th gestational week. Infants born following ART are at increased risk of birth defects, compared to spontaneously conceived infants. When a mesenteric cyst is prenatally diagnosed, the differential diagnosis of enteric duplication cysts, ovarian cysts, urogenital tract malformations and biliary tract abnormalities should be done. Also we should keep in mind that mesenteric cysts may accommodate other pathologies. (J Turkish-German Gynecol Assoc 2009; 10: 238-40)

**Key words:** Giant mesenteric cyst, prenatal diagnosis, ICSI

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## Özet

Yardımla üreme tekniklerine bağlı oluşan doğumsal defekt riskleri konusundaki kanıtlar açık değildir. Ancak, yardımla üreme teknikleri ve epigenetik anormallikler arasında bir ilişki olabilir.

ICSI ikizlerinin birinde 14. gebelik haftasında yapılan ultrasonografik incelemede mezenter kisti tanısı konuldu. Spontan olarak oluşan gebeliklerle karşılaştırıldığında yardımla üreme teknikleri ile oluşan gebeliklerde doğumsal defektler artmaktadır. Prenatal olarak mezenter kistinin ayıncı tanısında enterik duplikasyon kistleri, over kistleri, ürogenital yol anormallikleri ve safra yolu anormallikleri göz önünde bulundurulmalıdır. Ayrıca mezenter kistlerinin altta yatan başka patolojilere bağlı olabileceği de unutulmamalıdır.

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**Anahtar kelimeler:** Dev mezenter kisti, prenatal tanı, ICSI

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## Background

It is well established that pregnancies following in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) have complications such as multiplicity, preterm delivery and low birth weight infants. However, the evidence related to the risk of birth defects is less clear. Despite reports of increased risk for birth defects following assisted reproductive technologies (ART), most authors have been reassuring, often dismissing increased risk estimates because they were not statistically significant (1). According to studies from different countries, the congenital malformation risk after ART is 2,2%, which is same with natural pregnancies (2-4).

However, there are also many reports about increased risk of congenital malformations in ART cycles. According to a meta-analysis of 26 studies ART have an increased risk for congenital abnormalities (5).

Here we report a case of twin pregnancy after ICSI which was prenatally diagnosed with a mesenteric cyst in one of the twins.

## Case

A 26 year old G1 P0 woman referred to our clinic with the complaint of infertility for 4 years. The infertility work up yielded male

factor infertility. After the first attempt of classical long luteal protocol induction followed by ICSI, she became pregnant with twins. Leuprolide acetate was used beginning from the luteal phase of the previous cycle and ovarian hyperstimulation was supplied by follitropin alpha with a total dose of 1350 IU. The culture medium was a bicarbonate buffered medium containing hyaluronan and human serum albumin. There were no embryo manipulations. Together with these, vaginal progesterone was used during the first trimester beginning from the luteal phase.

At the 14<sup>th</sup> gestational week, an abdominal cystic lesion was detected in one of the fetuses. The lesion was anechoic, regularly circumscribed and located in the pelvis. Amniotic fluid of the fetus was extremely decreased and the bladder was visualized separately. It was thought to be a benign structure, and normal antenatal care was planned for the patient. At the 18<sup>th</sup> gestational week a dichorionic twin pregnancy and a 6 cm cystic lesion filling the abdominal cavity and replacing liver and bowels were determined by magnetic resonance imaging (MRI). Initially, it was thought to be a lymphatic pathology such as a mesenteric cyst. Also, infravesical obstruction and enteric duplication cyst were considered in the differential diagnosis but at ultrasonographic examination there were no peristaltic movements. Other abdominal organs and the neural system were normal.

At the 36<sup>th</sup> gestational week the patient was referred with the complaint of vaginal bleeding. After the first examination regular uterine contractions and cervical dilatation of 2 cm were determined. Cesarean section was performed with the indication of presentation abnormality and a 2160 g female and 1630 g male live babies were born. The male fetus had lower APGAR scores at the 1<sup>st</sup> min:3rd and 5<sup>th</sup> min. He was dysmorphic and his left side was hypertrophic, and his chest was deformed. Pes equinovarus in the left foot, abdominal distention and loose abdominal skin were observed. The external auditory meatus was atresic. Intratracheal adrenaline was admitted twice and he was intubated. However, he did not respond to the resuscitation and was determined dead.

The autopsy report was compatible with the ultrasonography and MRI and revealed a giant mesenteric cyst in the pelvis.

## Discussion

ART are important medical treatments for infertile people of reproductive age and account for 1-3% of the total annual births in developed countries. Recently, some human and animal studies have suggested a possible link between ART and certain birth defects related to epigenetic abnormalities, that is, genetic changes not involving DNA sequences (1).

In several studies of babies born following ART, the prevalence of major congenital malformations were comparable to those in the general population. A study from Australia showed a malformation rate of 2,2% in the first 2242 births after IVF in that country, which was no more than the corresponding figure in the general population (6).

Although the studies suggesting the safety of ART, there have also been reports of increased fetal abnormalities and other complications. A Swedish study of 5856 babies showed that 5.4% of babies born after IVF had a major malformation and that neural tube defects (anencephaly, hydrocephaly and spina bifida) and esophageal atresia were more frequent in IVF babies than in the control group (7).

A recent study of 135 ICSI pregnancies revealed that birth defects in ICSI children is significantly higher than the normal population (13,3% vs 4,6%;  $p < 0,001$ ). However, the general health of ICSI children did not differ significantly. ICSI children required more surgery or hospitalization (8). Infants born following ART are at increased risk of birth defects, compared to spontaneously conceived infants. The main perinatal complications of ART include congenital malformations, chromosomal aberrations, multiple pregnancy, and prematurity. A large Australian study found that, by one year of age, the incidence of congenital malformations in IVF/ICSI children is increased in comparison to those naturally conceived. Multiple pregnancy is a major cause of perinatal mortality due to increase of both

prematurity and congenital malformations, as in our case. Even in singleton pregnancies conceived by ART, the risk of prematurity and newborns small for gestational age is increased. Factors that may increase the risk of birth defects include the relatively advanced age of the infertile couple, the underlying cause of infertility, and the medications used to induce ovulation (9).

Since some ART procedures have been implicated in various adverse outcomes for babies, basic research is required to elucidate the biological mechanisms underlying the genetic and epigenetic effects of ART. Large-scale prospective epidemiological studies could estimate the magnitude of the risk of ART in human pregnancy. In addition, it is important for clinicians to precisely record the ART procedures including the stimulation protocol, method of embryo culture, culture media used and timing of embryo transfer (1).

Mesenteric cysts are very rarely diagnosed defects after ICSI. They are most commonly found in the small bowel mesentery, together with omental and retroperitoneal cysts (10). Although they are normally simple cysts they may be septate and may be echogenic so that they are readily confused with ovarian and duplication cysts (11). Large cysts may cause abdominal distension and pain but otherwise they tend to be asymptomatic.

It still remains unclear whether the increased risk of adverse obstetric outcome in IVF singletons is a direct effect of the procedure involving such technology or reflects some other factors related to the underlying infertility of the couples. Recent studies have shown that infertility per se, unrelated to treatment, is associated with an increased risk of adverse obstetric outcome. Furthermore, the overall higher risk in twin pregnancies might conceal a limited risk of adverse outcome in IVF twins. The considerable higher risk of adverse obstetric outcome in IVF twins than in singletons and the 20-fold higher ART twin birth rate is still one of, if not, the most serious adverse effects of ART (12).

## References

1. Kohei Shiota and Shigehito Yamada. Assisted reproductive technologies and birth defects. *Congenital Anomalies* 2005; 45: 39-43.
2. MRC Working Party on Children Conceived By IVF (1990). Births in Great Britain resulting from assisted conception, 1978-1987. *Br. Med J* 300.
3. Friedler S, Mashiach S, Laufer N. Births in Israel resulting from IVF/embryo transfer, 1982-89: National registry of the Israeli Association for Fertility research. *Hum reprod* 7: 1159-63.
4. French National Registry. Analysis of data 1986-90. *FIV-NAT (french in vitro national) Fertil Steril* 64: 746-56.
5. Kurinczuk JJ, Hansen M, Bower C. The risk of birth defects in children born after ART. *Curr Opin Obstet Gynecol* 2004; 16: 201-9.
6. Saunders DM, Lancaster P. The wider perinatal significance of the Australian IVF data collection program. *Am J Perinatol* 1989; 6: 252-7.
7. Bergh T, Ericson A, Hillensjo T. Deliveries and Children born after IVF in Sweden 1982-95: a retrospective cohort study. *Lancet* 1999; 354: 1579-85.

8. Snajderova M, Zemkova D, Mardesic T, Sipek A, Gregor V, Krejcirova D, Sobotkova D, Kraus J, Lanska V. Birth defects, medical outcome and somatic development in children conceived after intracytoplasmic sperm injection (ICSI). *Ceska Gynekol* 2008; 73: 22-9.
9. Mohammed A. Perinatal Complications of Assisted Reproduction. *Croat Med J*. 2005; 46: 751-6.
10. Ogura T, Hamada H, Obata-Yasuoka M, Watanabe H, Okuno S, Fujiki Y, Yamada N, Sohda S, Yoshikawa H. 2002. Antepartum assessment of fetal cystic lymphangioma by magnetic resonance imaging. *Gynecol Obstet Invest* 53: 237-9.
11. Deshpande P, Twining P, O'Neill D. 2001. Prenatal diagnosis of fetal abdominal lymphangioma by ultrasonography. *Ultrasound Obstet Gynecol* 17: 445-8.
12. Anja Pinborg. IVF/ICSI twin pregnancies: risks and prevention, *Human Reproduction Update*. 2005; 11: 575-93.