



## THE “VANISHING TWIN” SYNDROME - A MYTH OR CLINICAL REALITY IN THE OBSTETRIC PRACTICE?

Emil Kovachev<sup>1,2</sup>, Vilislava Ivanova<sup>1</sup>, Stefan Kisiov<sup>1,2</sup>

1) Department of Obstetrics and Gynecology, Medical University of Varna, Bulgaria

2) Medical Centre of Assisted Reproduction “Varna”, Ltd.

### ABSTRACT

**Background:** A case of triplets pregnancy after IVF ET, ended with a spontaneous reduction of one of the fetuses. The patient was with secondary infertility, with two unsuccessful preceding IVF Procedures and reduced ovarian reserve. A short flare up protocol with recombinant FSH was performed and three embryos were transferred on day three. An intrauterine pregnancy and three gestational sacs with CA (cardiac activity) were visualized via transvaginal ultrasonography by the twenty-first day. After the patient refused to go through an embryo reduction, during a routine sonography by the fourteenth week, the death of one fetus was reported. The pregnancy was finalized with the Cesarean delivery of two newborn in good health by thirty-seventh week. During the regular examination of the placenta, a mummified fetus -fetus papyraceus was found

**Objective:** To report a case of “Vanishing Twin” syndrome.

**Design:** Case report.

**Methods:** Clinical presentation, examination and ultrasound were consistent with diagnosis “Vanishing Twin” syndrome.

**Conclusion:** The frequency of multi fetal births considerably increased after ART.

**Key words:** vanishing twin syndrome, fetus papyraceus,

### INTRODUCTION

Multifetal pregnancies may occur from two or more fertilization events, from a single fertilization, followed by an erroneous splitting of the zygote, or from a combination of both. Amongst the various factors, causing multiple pregnancy, such as: race, maternal age, parity, heredity and nutritional factors, we should also consider the iatrogenic multiple pregnancies as a risk of ART.

In their review of the practice, McClamrock et. Al. (2012) reported rates of twin and higher - order multifetal pregnancies as high as 28.6 percent and 9.3 percent, respectively. Such high rates remain a major concern. There are currently two ongoing multicenter trials- Assessment of Multiple Gestations from Ovarian Stimulation (AMIGOS) and Pregnancy in Polycystic Ovary Syndrome II (PPCOSII) – that are designed to provide guidance on achieving maximum pregnancy rates while minimizing multifetal gesta-

tion rates (Diamond, 2011; Legro, 2012). [1, 2]. According to another report, in 1998, the incidence of multiples in the UK was 25% twins and 5% triplets [3, 4]. Whilst globally there have been reductions in these rates, following ART in the recent years, it is still an issue.

An interesting fact is that most of the multiple pregnancies end up in the delivery of a lower number of the earlier registered offspring- one of the fetuses is lost. As it often happens, it gets resorbed during the first trimester. This is the so-called “Vanishing Twin” syndrome. When the fetal death happens in a slightly more advanced pregnancy, it might go undetected until the delivery of a normal-appearing live infant, along with a death fetus, that is barely identifiable. It might be appreciably compressed - *fetus compressus* or it might be flattened remarkably through desiccation - *fetus papyraceus*.

Dickey and associates (2002) describe spontaneous reduction in 709 women with a multifetal pregnancy. Before 12 weeks, one or more embryos died in 36% of twin pregnancies, 53% of triplet pregnancies and 65% of quadruplet pregnancies. [1, 5]

### CLINICAL CASE

The Patient in our case is a 40 year- old woman with a secondary infertility with two unsuccessful preceding IVF procedures: first unsuccessful and the second - a spontaneous abortion in the eight gestational week, with reduced ovarian reserve (reduced FSH and AMH). The result of the spermogram is Normozoospermia. The ovulation induction has been done via Flare Up protocol with an initial dose of 450 E FSH and triggering of ovulation with 10000E of hHG. On the 12th day of the COH a puncture and aspiration of four oocytes was performed, as three of them were in a metaphase II and another one in a GV-stage. The embryo transfer (ET) was performed on the 72nd hour after the puncture with 20µl culture (BlastAssist™, Origio, Denmark) via Wallace catheter (Smith Medical International, UK) and transabdominal ultrasound control. Three embryos were transferred 1-2 cm from the fundus uteri. The luteal support was performed with micronized progesterone, administered vaginally (Utrogestan 200mg, 3x/day). On day 14, a quality pregnancy test was done, and it resulted as positive. The first transvaginal ultrasonography was done on day 21st after the ET and an intrauterine pregnancy and three gestational sacs (trichorionic and triamniotic) with CA were visualized (Fig-

ure 1). A selective embryoreduction was suggested to the patient, but she refused to go through it. The pregnancy continued undisturbed, without fetuses discordant reported, until the 13-14th gestational week. During a routine sonography by the 15th week, one of the fetuses was found without CA. On the 21st of October 2014 a planned Cesarean delivery was performed. Two live infants were delivered with Apgar score 9-10: one male with 2900g and a female with 2400g weight. During the routine examination of the placentas, a mummified fetus (*fetus papyraceus*) was found (Figure 2, Figure 3). Although no significant differences in the outcomes were noted, many obstetricians prefer Cesarean delivery to reduce the risk for the mother and the fetus in case of multifetal pregnancy.



**Fig. 1.** Triplet pregnancy view in early gestational week. (Our case)



**Fig. 2.** This *fetus papyraceus* is compressed against the fetal membranes.(Our case)



**Fig. 3.** *Fetus papyraceus*. (Our case)

## DISCUSSION

The vanishing twin syndrome (VTS) is a comparatively rare complication in obstetric practice. Unknown aspects in the pathogenesis exist, such as why in some cases the fetus is fully resorbed, while in others it is mummified - fetus papyraceus. Sometimes this condition may cause real spontaneous miscarriage of the other fetuses in multiple pregnancy [1]. The frequency increases reciprocally to the number of fetuses. In modern ART technologies double or single ET is encouraged and in exceptional cases (patient age over 40 years, unsuccessful preceding IVF attempts) three embryos may be transferred in order to increase the chances for a successful clinical pregnancy. [6]

## CONCLUSION

Although numerous healthy multiple infants are delivered daily, following ART conception, the human female is programmed by nature to have one child at a time. When there is a high level of risk in multiple pregnancy, it is highly recommended to perform single ET. In the case of patients with a planned ART procedure, it is necessary to inform them about the risk of multiple pregnancy. Statistics show the issue of selective reduction should be discussed before conception with the couples seeking infertility treatment. Grobman and associates (2001) reported that these couples were generally unaware of the risk, associated with multifetal gestation and they were less desirous of having multifetal gestation once informed of the risks. [1, 7]

---

## REFERENCES:

1. Williams Obstetrics, Twenty-Fourth Edition: Multifetal Pregnancy. 45:891, 2014.
2. McClamrock HD, Jones HW Jr, Adashi EY. Ovarian stimulation and intrauterine insemination at the quarter centennial: implications for the multiple births epidemic. *Fertil Steril*. 2012 Apr;97(4):802-9. [[PubMed](#)] [[CrossRef](#)]
3. Templeton A, Morris JK. Reducing the risk of multiple births by transfer of two embryos after in vitro fertilization. *N Engl J Med*. 1998 Aug 27;339(9):573-7. [[PubMed](#)] [[CrossRef](#)]
4. Callen PW. Ultrasonography in Obstetrics and Gynecology. Fifth Edition, Saunders. 2008; 13:18.
5. Dickey RP, Taylor SN, Lu PY, Sartor BM, Storment JM, Rye PH, et al. Spontaneous reduction of multiple pregnancy: incidence and effect on outcome. *Am J Obstet Gynecol*. 2002 Jan; 186(1):77-83. [[PubMed](#)] [[CrossRef](#)]
6. Textbook of Assisted Reproductive Techniques, volume 2: Clinical Perspective; Iatrogenic multiple pregnancies: The risk of ART. 374, 2012.
7. Grobman WA, Milad MP, Stout J, Klock SC. Patient perceptions of multiple gestations: an assessment of knowledge and risk aversion. *Am J Obstet Gynecol*. 2001 Oct;185(4):920-924. [[PubMed](#)] [[CrossRef](#)]

*Please cite this article as:* Kovachev E, Ivanova V, Kisyov S. The “Vanishing Twin” syndrome - a myth or clinical reality in the obstetric practice? *J of IMAB*. 2015 Jul-Sep;21(3):853-855. DOI: <http://dx.doi.org/10.5272/jimab.2015213.853>

Received: 18/05/2015; Published online: 04/09/2015

### Address for correspondence:

Assoc. prof. Emil Kovachev;  
Department of Obstetrics and Gynecology, Medical University, Varna  
E-mail: [kovachev\\_md@abv.bg](mailto:kovachev_md@abv.bg),