

Vanishing Twin Syndrome: A Case Report

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Abstract

A vanishing twin, also known as twin resorption, is a condition where one of the fetuses in a multiple gestation pregnancy dies in the uterus. The foetus that dies can either be absorbed partially giving rise to foetus papyraceous or is completely absorbed giving rise to normal pregnancy with few small placental evidence. The incidence has risen nowadays due to increase in number of women seeking fertility treatment and early detection is happening attributable to advanced diagnostic technology.

We present a case of vanishing twin syndrome in a triplet pregnancy conceived by IVF treatment giving rise to twin pregnancy as one of the sacs disappeared during the first trimester.

CASE REPORT:

A 40-year-old female was referred to our OPD with a history of secondary infertility with suspected bilateral tubal block for further evaluation. Her obstetric history being married for 3yrs non consanguineous marriage first pregnancy with missed abortion medically treated and second pregnancy with right ectopic pregnancy ruptured, right salpingectomy done in 2020. She had undergone treatment for infertility with four cycles of IUI in 2021. We posted the patient for hystero-laparoscopy which showed following findings:

1.Laparoscopy -right tube not visualised right ovary normal, left tube cornual end appears constricted, left ovary normal.

2.Hysteroscopy -endometrium normal, cervical canal and uterine cavity normal.

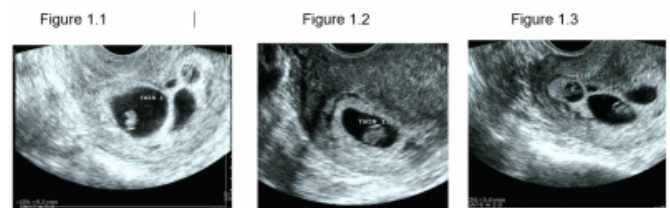
Right ostia visualised.

Left ostia seen but stenosed.

In view of the above findings, she was referred to infertility unit for further management, as husband's semen analysis was normal, she was advised to have "IN-VITRO FERTILISATION" (ICSI -ET). She conceived in her first cycle but had a missed abortion which was treated medically. In her next cycle, she had frozen embryo transfer (three embryos) and had triplet pregnancy. Her scan report at 7 weeks showed triplet pregnancy (Figure 1.1-1.3).

Figure 1.1-1.3

Ultrasound at 7 weeks showing triplet pregnancy



A week later she was admitted with history of spotting p/v, Ultrasound examination showed triplet pregnancy with one sac smaller than others with small subchorionic haemorrhage (Figure 2.1). A day later repeat scan showed dichorionic diamniotic twin and one cardiac activity disappeared spontaneously (Figure 2.2). She had a scan one month later which showed healthy pregnancy with DCDA twins (Figure3). Later patient bleeding subsided, and she continued her pregnancy uneventfully and delivered twin baby one male and one female.

Figure 2.1

Triplet pregnancy with subchorionic haemorrhage in the third sac



Figure 2.2

Twin pregnancy with disappearance of third sac

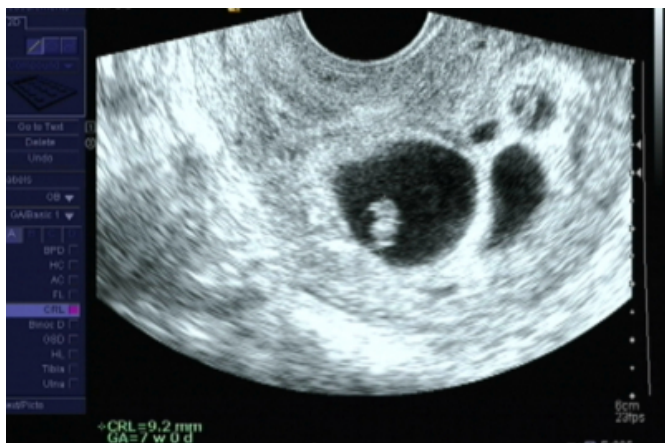


Figure 3

Healthy twin pregnancy after a month



DISCUSSION:

Vanishing twin syndrome was first recognized in 1945 by Stoeckel. Vanishing twin syndrome is when one of a set of twin/multiple foetuses disappears in the uterus during pregnancy.¹ This is the result of a miscarriage of one of the foetuses in a multiple pregnancy. The foetal tissue is absorbed by the other pregnancy, placenta, or the mother. This gives the appearance of a “vanishing twin. The occurrence of this phenomenon is sometimes referred to as twin embolization syndrome or vanishing twin syndrome (VTS). Occasionally, rather than being completely reabsorbed, the dead fetus will be compressed by its growing twin to a flattened, parchment-like state known as foetus papyraceus.²

To simplify it means that the number of embryos conceived, as observed via ultrasonographic examination in early pregnancy, differs from the number of foetuses delivered. This phenomenon occurs in multi-foetus pregnancies, commonly during the first trimester. This phenomenon occurs in about half of pregnancies with three or more gestational sacs, 36% twin pregnancies, and 20 to 30% of pregnancies achieved with assisted reproductive techniques.^{3,4} The history will usually indicate a previously documented foetal heart activity or more than one gestational sac to spontaneous reduction into singleton pregnancy as per subsequent ultrasonographic findings through later gestational ages or at the time of delivery.⁵

Causes:

In the majority of cases, the cause is not known but certain factors are attributed to the loss of the embryo may include^{6,7}

- Advanced maternal age (usually more than 30 years)⁸
- Chromosomal abnormalities in the deceased twin
- Use of assisted reproductive techniques (ART) such as in vitro fertilization (IVF)⁹
- Increase the incidence of multiple gestations
- Genetic and teratogenic factors¹⁰
- Small placenta or other anatomical abnormalities like improper cord implantation may be associated with early twin loss¹¹

PRESENTATION:

The most common clinical presentation of vanishing twin pregnancy is vaginal bleeding or spotting, uterine cramps, or pelvic pain, which are markers of the loss of conceptus.

If the loss occurs within the first trimester, neither the remaining foetus nor the mother has clinical signs or

symptoms. The prognosis of the surviving twin is usually excellent, but it depends on the factors that contributed to the death of the other twin. If the twin dies in the second or third trimester, there are increased risks to the surviving foetus including increased chances of preterm labour, IUGR, preeclampsia and perinatal mortality.¹² This could include a higher rate of cerebral palsy and a threat to the continuation of the pregnancy.^{13,14}

Outcome:

- Resorption: Most often occurs in the first trimester from as early as the seventh week to as late as the twelfth week of gestations. It is evident that resorption of gestational sacs during pregnancy happens without affecting the co-twin. Regardless of the resorption of the vanishing twin, there are excellent chances of the survival of the other twin, as resorption mostly occurs in the first trimester.¹⁵
- Blighted Ovum: A blighted ovum is the gestational sacs inside which no embryo can be visualized via ultrasonography. According to some studies, most of the pregnancies that ended up with the vanishing of a foetus were subsequently found to be anembryonic pregnancy co-existing with normal pregnancy. The result could be in the form of vaginal bleeding in the first trimester, indicating the expulsion of the anembryonic sac.
- Foetus papyraceous: Foetus papyraceous is a mummified, compressed, or flattened foetus associated with the other viable pregnancy. This is very rare and most commonly occurs in multiple gestations. The deceased foetus gets flattened in between the membranes of the other viable foetus and the uterine wall. The demise of the foetus usually occurs in the early second trimester. The early demise of the twin may result in complete resorption, but as the pregnancy continues to term, the twin may become macerated and may affect the other viable twin as well, as the pregnancy continues. At delivery, the deceased foetus may be identified as foetus compresses (compressed enough to be noticed) or as foetus papyraceous (flattened remarkably through loss of fluid and most of the soft tissue).¹⁶ The pathological findings in placentas from pregnancies complicated by the vanishing twin syndrome confirmed by ultrasound findings revealed well-delineated plaques of fibrin deposits and embryonic tissue remnants, hinting towards the disappearance of a conceptus.¹⁷

DIAGNOSIS:

Before the advent of modern diagnostic tools like ultrasound, the diagnosis of the death of a member of a multiple pregnancy was made through an examination of the placenta after delivery. Today, with increased patient and physician awareness and the plentiful availability and training in ultrasound the presence of twins or multiple foetuses can be detected during the early first trimester. A follow-up ultrasound may reveal the “disappearance” of a

twin.

Vanishing twin syndrome has been diagnosed more frequently since the use of ultrasonography in early pregnancy. A conservative estimate of frequency is that vanishing twin syndrome occurs in 21-30% of multifetal pregnancies. With the use of artificial reproductive technology, incidence has been increasing in present days.

TREATMENT:

No special medical care is necessary with an uncomplicated vanishing twin in the first trimester. Neither the surviving twin nor the mother would require medical treatment. If the fetal death is in the second or third trimester, the pregnancy may be treated as high-risk. Cerebral palsy may result in the surviving twin¹⁸. The vanishing twin syndrome in later gestation was seen to be associated with very low birth weight (VLBW) and low APGAR scores.¹⁹

Psychological impact of vanishing twin syndrome: The loss of one foetus in uterus is a type of miscarriage and can lead to feeling of grief and anger among parents especially more so with infertility couples. Sometimes the surviving twin can develop feelings of guilt. The whole family may need help from counselling and mental health support.²⁰

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