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TWIN-TO-TWIN TRANSFUSION SYNDROME (TTTS)



**TWIN-TO-TWIN
TRANSFUSION
SYNDROME
(TTTS)**

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HO-TWIN FUSION ROMIE TS)

Part 1



Having twins is a dream of most parents. Here is about twin pregnancy in brief:

• **Will the twin be identical or non-identical?**

- Twins can be identical (monozygotic) or non-identical (dizygotic).
- Identical twins come from one egg, which is fertilised by one sperm and then split into two after fertilisation. Identical twins share identical genes; they will look the same and be the same sex.
- Non-identical twins have come from different eggs, which have been fertilised by different sperms. If your babies are 2 non-identical, they will have different genes and will be no more similar than any other brothers or sisters.

• **What does chorionicity mean?**

- Chorionicity refers to whether your babies have their own placenta or share a placenta. If your babies share a placenta (monochorionic), then they will be identical. If they have their own placenta (dichorionic), then they are more likely to be non-identical but can still be identical, in a way.
- Chorionicity is checked at your first ultrasound scan. It is important to know about this because the babies who share a single placenta have a higher chance of having complications during the pregnancy.
- Your first ultrasound scan also checks whether the babies are within their own amniotic sac or share a sac. Babies who are found to share a sac also have a higher chance of complication.

Twins can be either of the following 3 types:

- i. Dichorionic Diamniotic (DCDA) twin – This means that each baby has its own placenta and its own sac. This is the most common type of twin pregnancy.



Dichorionic, Diamniotic
(Fused Placentas)

Dichorionic, Diamniotic
(Separate Placentas)

Figure 1: Dichorionic Diamniotic (DCDA) twins

- ii. Monochorionic Diamniotic (MCDA) twin – Monochorionic Diamniotic (MCDA) – This means that the babies share a placenta, but they are in their own sacs.



Monochorionic, Diamniotic

Figure 2: Monochorionic Diamniotic (MCDA) twins

Your babies image will load from:

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- iii. Monochorionic Monoamniotic (MCMA) twin – This means that both babies share a placenta and are within the same sac. This is a much rarer type of twin pregnancy.



Monochorionic Diamniotic

Figure 3: Monochorionic Monoamniotic (MCMA) twins

However, not all parents are aware of the risks due to twin pregnancy. As twin pregnancy has a higher chance of developing complications, all twin pregnancies are considered high-risk.

One of the complications during twin pregnancy is a Twin-to-twin Transfusion Syndrome (TTTS). In around 15 in 1006 (15%) monochorionic pregnancies, the blood flow to the babies may be unbalanced. This is called the twin-to-twin transfusion syndrome (TTTS). The TTTS is an uncommon pregnancy condition that affects identical twins and other multiples. The TTTS occurs in pregnancies, in which twins share a placenta (monochorionic pregnancies) and a network of blood vessels that provide oxygen and nutrients necessary for foetal development, which only occurs in identical twins.

Occasionally, the vessel connections within the placenta are not evenly distributed, resulting in an imbalanced blood exchange between the twins. In the most severe cases, one twin that is the donor twin, risks malnutrition and organ failure by donating more blood than it receives in return. Normally, the foetus is smaller and appears to be adhered to the uterine wall as a result of the decreased quantity of amniotic fluid caused by decreased urine production and kidney perfusion, which is termed as 'stucked twin'.

Meanwhile, the recipient twin receives

an excessive amount of blood and is susceptible to cardiac overwork and other complications, making its size larger and surrounded by an excessive quantity of amniotic fluid because of its increased urine production is caused by an increase in kidney perfusion. The differences can be seen in Figures 4 and 5 below.



Figure 4: Normal MCDA (identical) twins with a shared placenta and connecting blood vessels



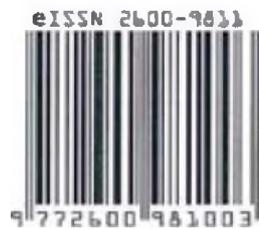
Figure 5: MCDA (identical) twins with TTTS

All in all, the TTTS can be fatal for both infants if left untreated. The donor twin may experience a much slower-than-normal development, whereas the recipient twin is at risk of heart failure due to the increased blood volume. There is a 95% risk that one or both twins will die in the womb. Even if these twins do not die, a significant number of them will endure heart conditions or brain damage.

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