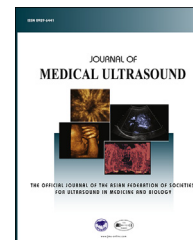


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## IMAGING FOR RESIDENTS

# Dichorionic Twin Pregnancy with Reversed Diastolic Flow of the Umbilical Artery in One of the Twins?

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## Section 2 – Answer

### Case description

A 25-year-old woman in the 19<sup>th</sup> week of a twin pregnancy and claiming no notable medical history or obstetrical history was referred from a local medical doctor due to a significant fetal weight difference between the twins. According to the patient, the local medical practitioner reported that they could be dichorionic twins from *antepartum* examination (Figure 1). During examination, an ultrasound was performed in the clinic and the smaller twin was revealed to have severe oligohydramnios, and the end diastolic flow of the umbilical artery was reversed. By contrast, the larger twin was diagnosed as having polyhydramnios (Figures 2 and 3). What could be the differential diagnosis?

### Interpretation

According to the ultrasound at our clinic, one of the twins had oligohydramnios and the other twin had polyhydramnios. We highly suspect that this is twin–twin

transfusion syndrome, although the local medical doctor said the twins were dichorionic by ultrasound (Figure 1). However, Figure 1 does not show a typical lambda sign, so there is not enough evidence for heterozygous twins. Therefore, we favor that the diagnosis should be twin–twin transfusion syndrome Stage III.

### Discussion

It is important to determine whether twins are monochorionic or dichorionic in the first trimester of pregnancy. This is because monochorionic twins have a shared fetoplacental circulation, which puts them at risk for specific serious pregnancy complications, such as twin–twin transfusion syndrome and twin anemia polycythemia sequence. These complications increase the risk for neurologic morbidity and perinatal mortality in monochorionic twins compared with dichorionic twins [1,2].

We can determine that twins are monochorionic or dichorionic by the shape of the junction of the placenta and intertwin membrane in the first-trimester ultrasound. The junction of the placenta and intertwin membrane with the 'lambda sign' indicates dichorionic twin (Figure 4) [3]. A 'T-sign' at the junction of the placenta and intertwin membrane indicates dichorionic twins.

The placentae of the dichorionic twins are completely separate, therefore, there will be no blood exchange. However, monochorionic twins will share the same placenta, so there will be connected vessels on the placenta, which will allow blood exchange between monochorionic twins. If the blood exchange between

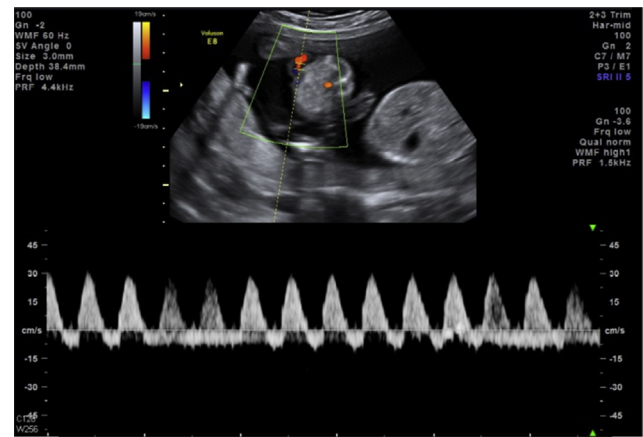
Conflicts of interest: All authors declare no conflicts of interest.

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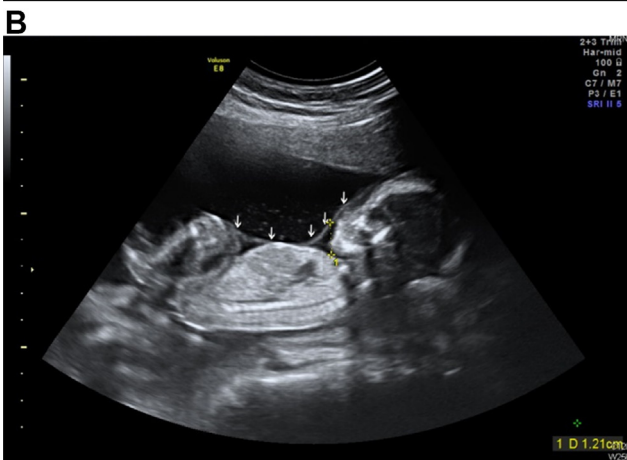
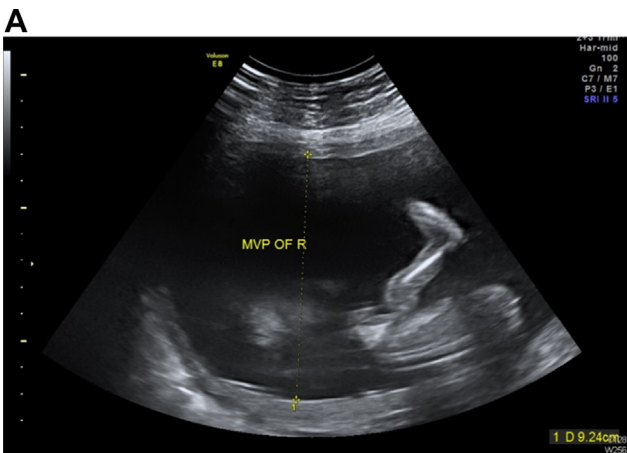
E-mail address: [singsingsing5@gmail.com](mailto:singsingsing5@gmail.com) (S.-Y. Huang).



**Figure 1** Based on this picture, the local medical doctor said that the twins were dichorionic.



**Figure 3** The end diastolic umbilical artery flow of the smaller twin is reversed.



**Figure 2** (A) One twin with oligohydramnios and (B) the other with polyhydramnios.

monochorionic twins is unbalanced, it will cause twin–twin transfusion syndrome. Because of blood flow imbalance, the recipient twin will get too much blood, causing polyhydramnios, whereas the donor twin will get too little blood, causing oligohydramnios. If monochorionic twin pregnancy results in one of the twins with polyhydramnios



**Figure 4** Dichorionic twin with lambda sign.

and the other with oligohydramnios, it can be diagnosed as twin–twin transfusion syndrome. Quintero et al [4] divide the severity of twin–twin transfusion syndrome into five stages according to ultrasound findings (see Table 1).

**Table 1** Quintero et al [4] stages of twin–twin transfusion syndrome.

Stage	Ultrasound finding
I	Oligohydramnios and polyhydramnios sequence, and the bladder of the donor twin is visible. Dopplers in both twins are normal.
II	Oligohydramnios and polyhydramnios sequence, but the bladder of the donor is not visualized. Dopplers in both twins are normal.
III	Oligohydramnios and polyhydramnios sequence, nonvisualized bladder, and abnormal Dopplers. There is absent/reversed end-diastolic velocity in the umbilical artery, reversed flow in a-wave of the ductus venosus, or pulsatile flow in the umbilical vein in either fetus.
IV	One or both fetuses show signs of hydrops.
V	One or both fetuses have died.

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