

The Twin reversed arterial perfusion in monoamniotic twin pairs – different cases, same adverse outcome?

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Objective

Twin Reversed Arterial Perfusion (TRAP) sequence is a rare, severe condition in monochorionic multiples, an even more challenging in case of monoamniocity. We report three cases of monoamniotic twin pairs in two twin (plus an additional novel case) and one triplet pregnancies complicated by a TRAP sequence diagnosed in the first trimester.

Methods

This is a retrospective case series of three (+1) monoamniotic twin pairs out of which two were diagnosed as early as ten (resp. eleven) completed weeks (wks) with an acardiac acephalic twin. The third (a monoamniotic twin pair of dichorionic triplets) presented as an acardius anceps with signs of an imperfectly formed heart seen at 12 completed wks.

Results

In both TRAP sequences seen as early as 10 wks the pump twin had already signs of moderate hydrops, leading to intrauterine demise in one case before an intrauterine intervention could be performed. In the other 2 cases an US-guided intrafetal laser and cord transection has been applied.

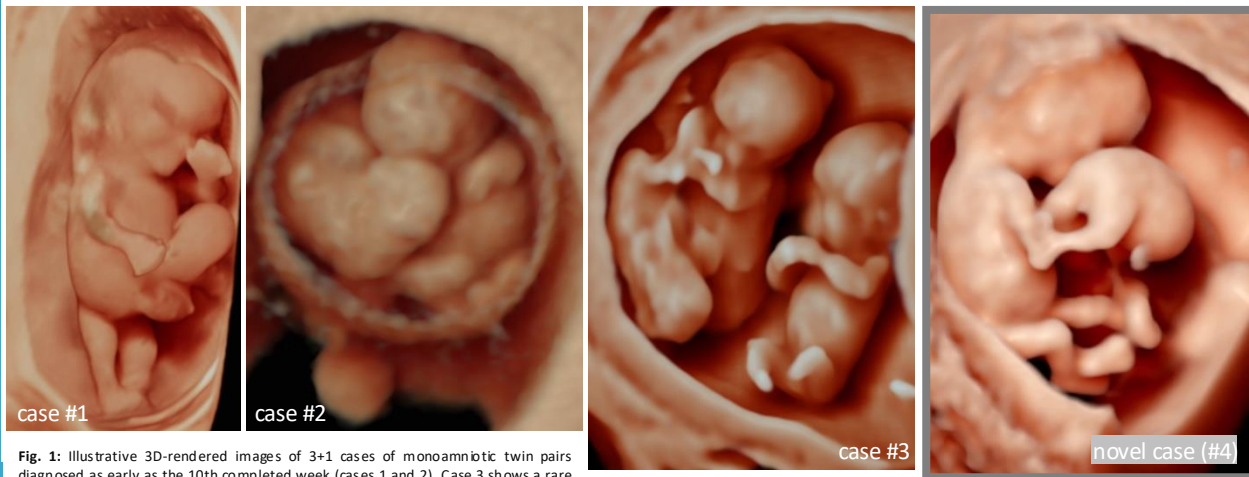


Fig. 1: Illustrative 3D-rendered images of 3+1 cases of monoamniotic twin pairs diagnosed as early as the 10th completed week (cases 1 and 2). Case 3 shows a rare acardiac anceps (with an imperfectly formed heart on color Doppler) at 12 wks. A novel 4th case has been added showing an acardiac acephalus @ 11 wks.

However, the TRAP of the triplets exhibited residual cardiac activity even 3 wks after the procedure. Unfortunately, in both treated cases the pregnancies ended unfavourably - the pump deceased in late 2nd trimester (after very early preterm birth and subsequent survival of only the remaining dichorionic triplet). The other cases showed postprocedural rupture of the membranes and the couple opted for TOP (karyotyping confirmed trisomy 21). The 4th case is an ongoing pregnancy.

Conclusion

Our small series exemplifies the deleterious course of monoamniotic pregnancies diagnosed with a TRAP sequence, which is in line with current literature. Nowadays, this condition can be diagnosed even prior to 11 wks with 2D/3DUS enabling an early individually tailored counselling of the parents.