

Missed Diagnosis of Twin Reverse Arterial Perfusion (TRAP) Sequence Case Report

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INTRODUCTION

Twin Reversed Arterial Perfusion (TRAP) Sequence is a rare condition seen in monozygotic monochorionic twins which causes one twin (the acardiac twin with absent or non-functioning heart) to survive off of the pump twin (who has the functioning heart). It accounts for 1:35000 live births.

OBJECTIVE

To highlight the outcome of a missed diagnosis and discuss prognostic factors.

CASE REPORT

- 27 year old G₁P₀ referred to us with an ultrasound (U/S) showing two gestational sacs, with one containing a live fetus at 11 weeks, and another with a 2.5 x 2.3cm heterogeneous mass.
- Subsequent U/S at 20wks reported a cystic hygroma of a demised Twin B.
- U/S at 29⁺⁴:- Twin A with a prominent right atrium, and a 22x14x16cm mass containing the demised Twin B with severe polyhydramnios.
- She was admitted to hospital at GA 30+1 because of symptomatic anemia and polyhydramnios. (Hb - 7g/dl)
- She received corticosteroids for fetal lung maturation, and blood transfusions.
- A review at the MFM Clinic showed Twin A having abnormal umbilical artery doppler studies. However, unfortunately she (Twin A) demised the following day.
- At Cesarean delivery, Twin B was found to consist of an irregular mass with lower limbs only. The diagnosis of TRAP Sequence was thus made.

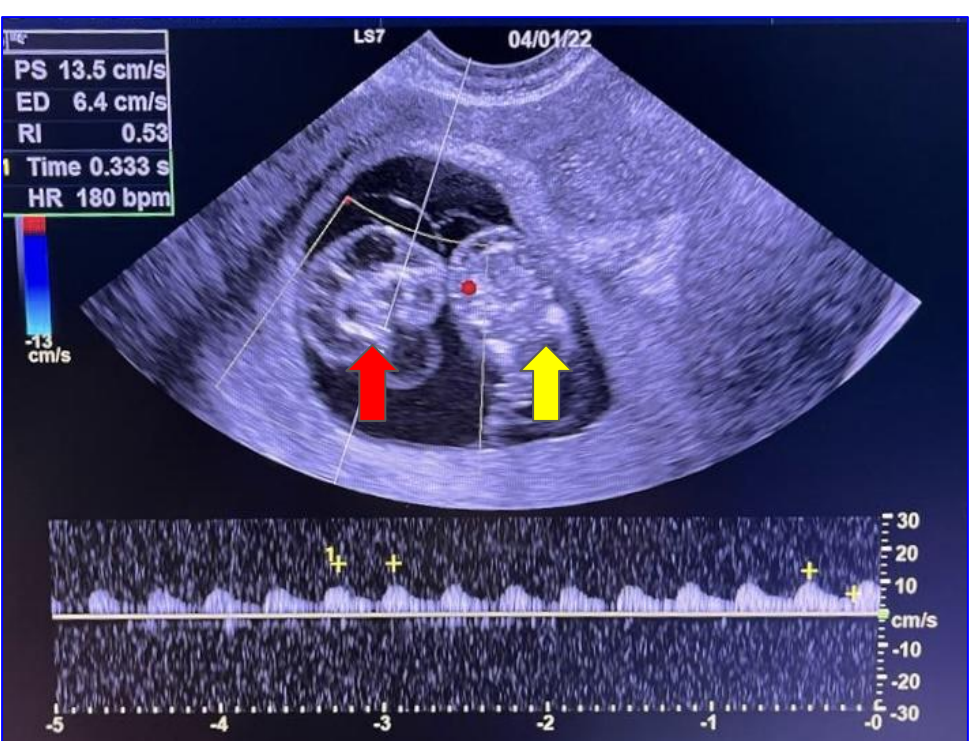


Figure 1. First trimester ultrasound: Red arrow - heterogenous mass of Twin B with blood flow as noted by the doppler pattern. Yellow arrow - normal appearing Twin A with cardiac activity. Red dot represents blood flow in heart on color doppler.

CONCLUSION

When an ultrasound reveals twin gestation with an abnormality of one, doppler studies must be done, TRAP sequence considered and referral to MFM specialist made.



Figure 4: TRAP Sequence - Pump twin (left) and acardiac twin (right)

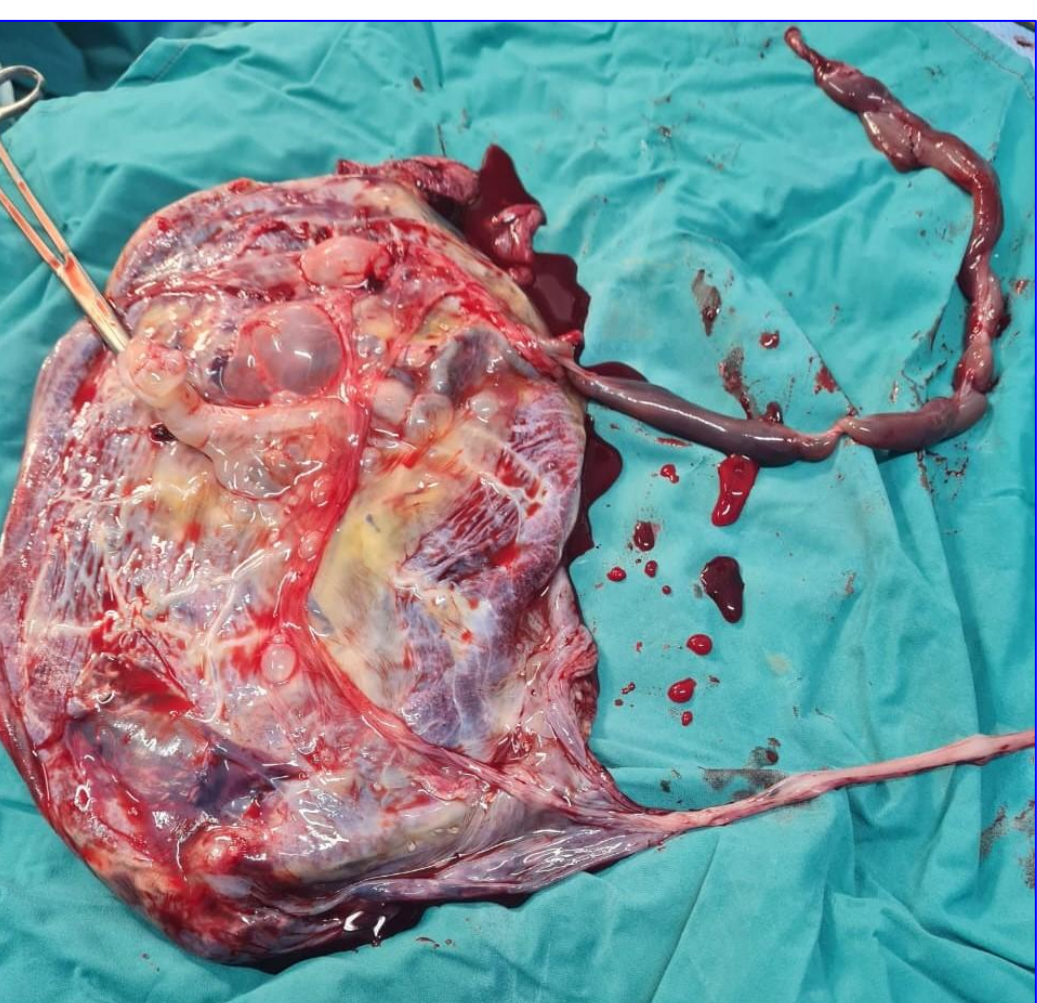


Figure 5: Placenta of the TRAP Sequence with the two umbilical cords attached

DISCUSSION

- The TRAP sequence comprises a pump twin and an abnormal, non-viable acardiac twin which is otherwise kept “alive” in-utero by blood being pumped from the umbilical artery of the pump twin via intrafetal arterial anastomosis.
- The resultant deoxygenated blood to the acardiac twin contributes to underdevelopment or absence of the torso, head, heart and upper limbs while there is more development of the lower limbs.
- TRAP sequence is considered when there is no cardiac activity or lack of normal cardiac structures in a twin.
- Definitive diagnosis is made when doppler studies show reversed pulsatile flow to the acardiac twin. Early diagnosis allows for weekly ultrasound surveillance for fetal hydrops.
- Poor prognosis include 1) pump twin cardiac failure, 2) polyhydramnios, 3) acardiac weight: pump weight > 0.7, 4) a well developed body and upper extremities of the acardiac twin, and 5) preterm delivery before 32 weeks.
- Timely intervention decreases the perinatal mortality rate (55%) but isn’t available locally.

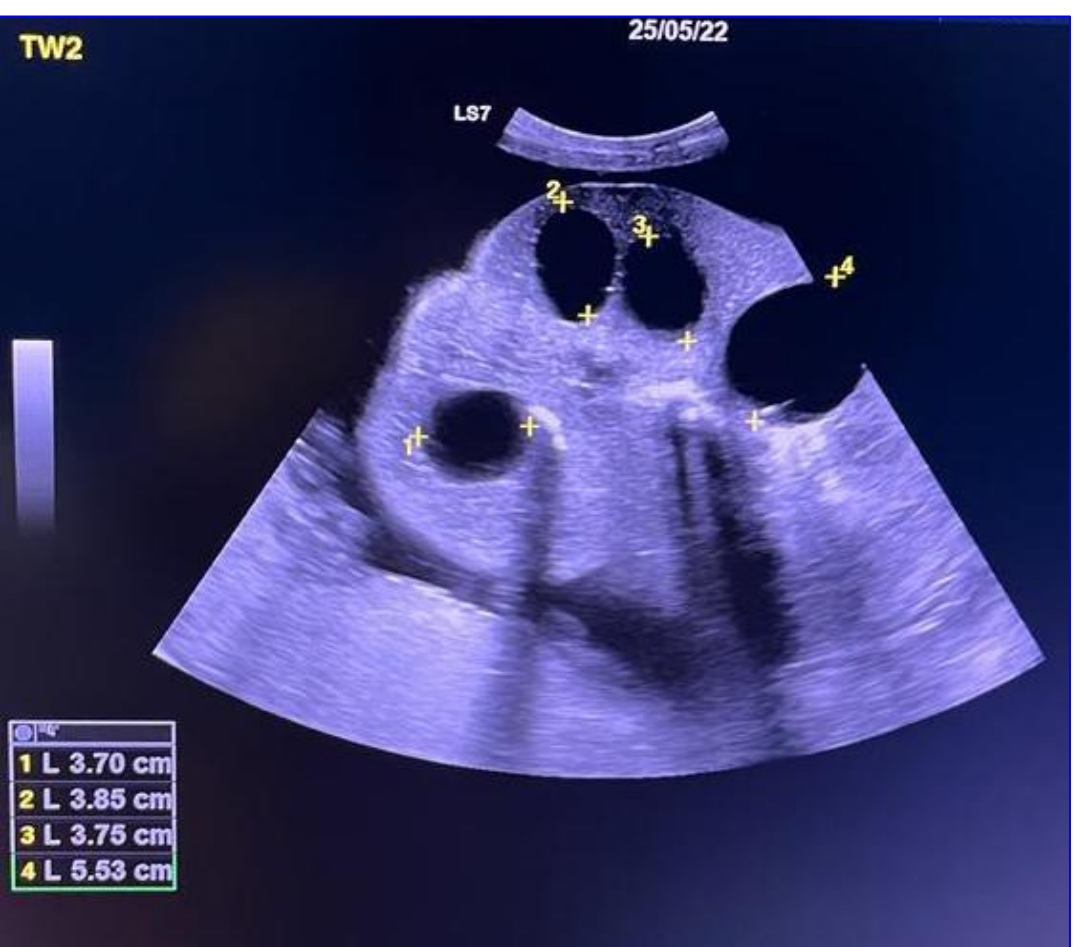


Figure 2: Cystic Hygroma of Twin B

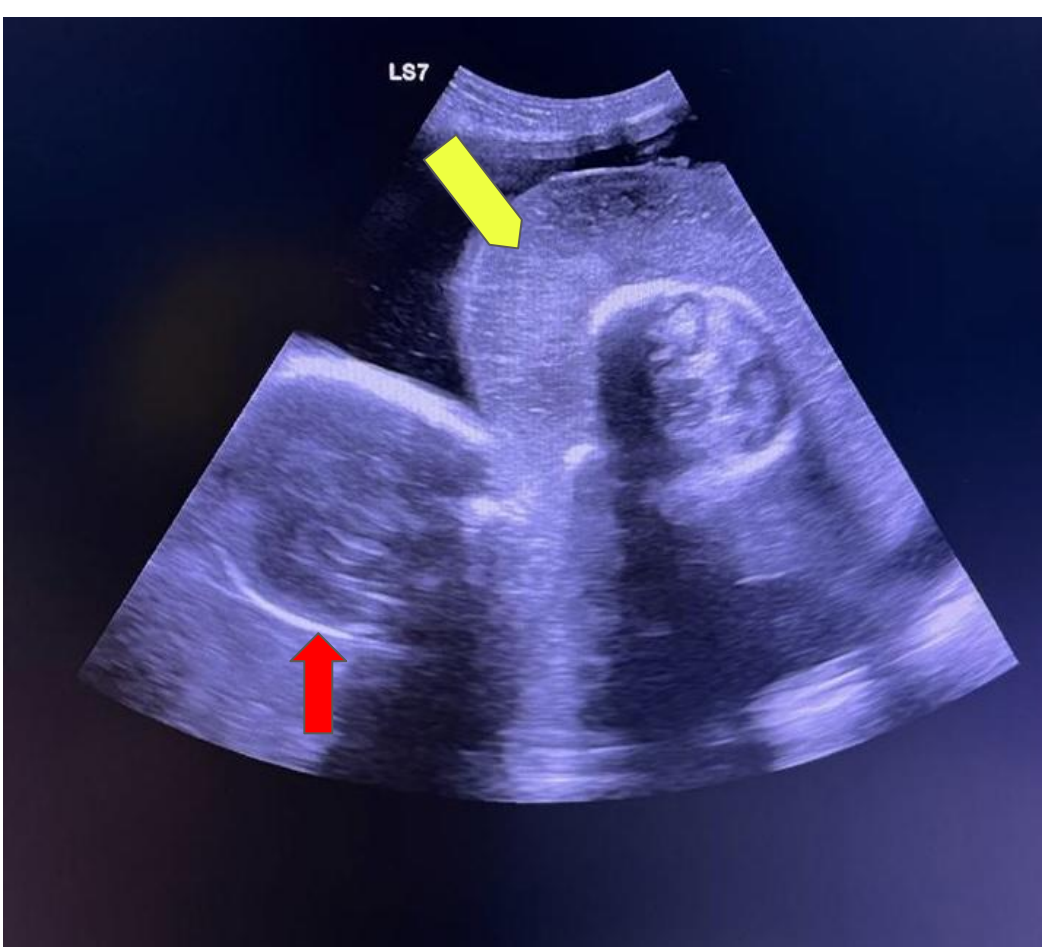


Figure 3: Twin A (red arrow) and B. Twin B with homogenous mass (yellow arrow) around skull.

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