

Multidisciplinary Management of Severe Hemolytic Disease of the Fetus and Newborn (HDFN) Requiring Multiple Intrauterine Transfusions (IUT)

Patricia Fuentes, MD, Nguyen Nguyen, DO, Jacqueline Galvan, MD

Introduction

- HDFN: incompatibility of Rh blood group between mother and fetus
 - Severe anemia, hydrops fetalis, and perinatal death
- IUT: Cornerstone Tx for fetal alloimmune anemia (95% survival rate)
 - UV cannulation under US guidance
 - Tx intervals guided by fetal MCA velocity

IUT Complications (3.3%)

- Infection or hemorrhage
- Non-reassuring FHR pattern

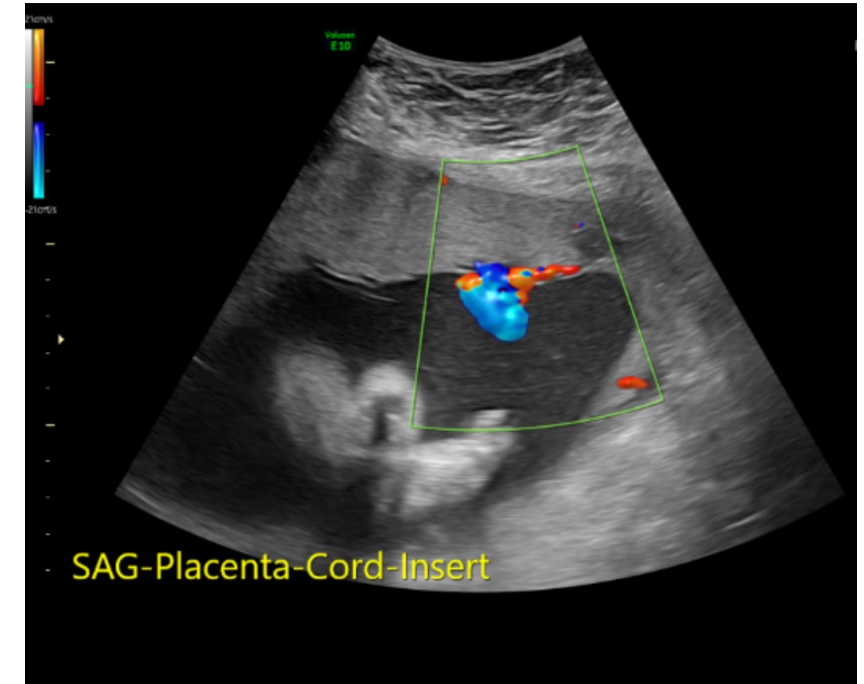


Preterm delivery
Cesarean Delivery (CD)
Fetal/neonatal death

IUT Anesthetic Goals

- Minimize maternal and fetal risk
- Maintain adequate uteroplacental blood flow
- Optimize surgical conditions

Multidisciplinary management for HDFN requiring multiple IUTs with resultant emergent (CD) and neonatal demise



Pre-operative fetal doppler US

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33 yo G4P2 at 30 weeks, w/ known fetal anemia and hydrops, CD x1, preeclampsia w/out severe features

PMH/OBHx

- G2 → term fetal demise 2/2 alloimmunization
- G3 → IUTs x3, CD at 33 wga
- **G4→ anti-C and D alloimmunization**

Multidisciplinary Team

- Blood Bank, MFM, Ob Anesthesia
- Nursing, NICU, anesthesia technicians

OB IUT Plan

- **Fifth IUT** due to persistent fetal tachycardia

Intraoperative IUT Management

Anesthesia

- CSE
- Significant vasopressor support

IUT

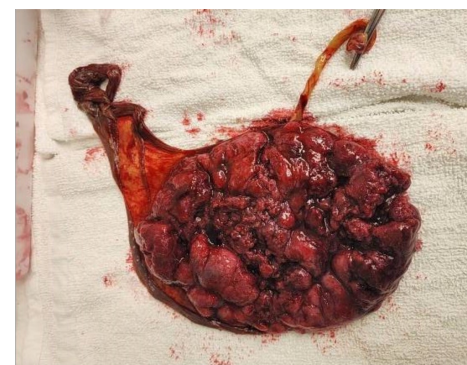
- Initial **fetal Hbg: 5.6 mg/dL**
- Difficult umbilical vein cannulation
- Fetal paralysis (Rocuronium)
- 40mL / 80mL of irradiated blood transfused to the fetus
- ⇒ Mom, fetus in stable condition

Postoperative IUT Course

→ Fetal tachycardia (HR 170s) and minimal variability

→ **Emergent repeat CD: Fetal Demise**

- Acute on chronic anemia and hypoxia
- Preeclampsia
- Hydrops



Beefy appearing placenta

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Discussion

IUT for HDFN:

- Safe and effective way to Tx HDFN
- Multidisciplinary approach
- Outcome influenced by fetal conditions (GA, HDFN severity, obstetric comorbidities)

Anesthetic Goals:

- Minimize maternal and fetal risk: *optimize comorbid conditions in mom*
- Maintain adequate uteroplacental blood flow: *maintain mom's hemodynamic stability*
- Optimize surgical conditions: *fetal paralysis*

Pre-Procedural Counseling:

- Individualized Care
- Maternal safety
- Fetal conditions

References

1. Zwiers C, et al. *Expert Rev Hematol*. 2017;10(4):337-344.
2. Chatterjee D, et al.. *Anesth Analg*. 2021;132(4):1164-1173.