

Should expectant management be considered for atypical IIID twin-twin transfusion syndrome?

Felicia V LeMoine MD¹, Nkechinyelum Ogu MD¹, Sami Backley MD¹, Jimmy Espinoza MD¹, Anthony Johnson DO¹, Ramesha Papanna MD, MPH¹

¹ Division of Fetal Intervention, Department of Obstetrics, Gynecology, and Reproductive Sciences, McGovern Medical School at UTHealth Houston

Objective

Given the known poor perinatal outcomes associated with fetoscopic placental laser ablation (PLA) in atypical stage III twin-twin transfusion syndrome (TTTS), we aimed to compare perinatal outcomes between atypical and typical stage IIID TTTS cases treated with fetoscopic PLA.

Study Design

- Secondary analysis of a prospective cohort study of 983 PLA cases (2011-2025)
- Included monochorionic, diamniotic twin gestations
- Excluded TRAP sequence, terminations, selective reductions, and cases with missing outcome data
- Compared perioperative factors using t-test, χ^2 test, and Fisher's exact test, where applicable
- Assessed association, by multivariate logistic regression, between dual neonatal survival and stage III type (typical versus atypical), weight discordance (%), cervical length (mm), and gestational age (GA) at PLA (days)
- Compared perinatal outcomes post hoc between atypical IIID cases and cases with expectantly-managed selective fetal growth restriction types II/III



Cases with atypical IIID TTTS demonstrated greater perinatal morbidity and lower dual neonatal survival than expectantly-managed sFGR II/III.

Table 1. Comparison of perinatal outcomes between atypical and typical stage IIID twin-twin transfusion syndrome (TTTS) and atypical stage IIID TTTS and expectantly-managed selective fetal growth restriction (sFGR) types II/III.

	Atypical IIID (n=59)	Typical IIID (n=126)	Atypical IIID vs. Typical IIID <i>p</i> value ¹	sFGR type II/III-expectant management (n=15)	Atypical IIID vs. sFGR II/III <i>p</i> value ²
Dual survival	29 (49.2%)	74 (58.7%)	0.358	12 (80%)	0.042
Donor (smaller) intrauterine demise	20 (33.9%)	34 (27%)	0.335	3 (20%)	0.365
Recipient (larger) intrauterine demise	4 (6.8%)	7 (5.6%)	0	0	0.576
GA at delivery (days)	217 (114, 264)	222 (122, 284)	0.289	222 (206, 241)	0.398
Delivery < 28 week	14 (23.7%)	29 (23%)	0.915	2 (13.3%)	0.499
Delivery < 32 week	34 (57.6%)	64 (50.8%)	0.385	8 (53.3%)	0.778
CAS	8 (13.6%)	13 (10.3%)	0.517		
Iatrogenic MCMA	5 (8.5%)	2 (1.6%)	0.022		
PPROM	15 (25.4%)	51 (40.5%)	0.059	1 (6.7%)	0.166

Abbreviations: CAS, chorion-amnion separation; GA, gestational age; MCMA, monochorionic monoamniotic; PPRM, preterm prelabor rupture of membranes; sFGR, selective fetal growth restriction

¹Fisher's exact test used for comparison of categorical variables; Welch's *t* test used to compare continuous variables comparing Atypical IIID and Typical IIID.

²Fisher's exact test used for comparison of categorical variables; Welch's *t* test used to compare continuous variables comparing Atypical IIID and expectantly-managed sFGR type II/III.

Stage III: Typical versus Atypical

	Typical	Atypical
Amniotic fluid	Recipient MVP > 8 cm and donor MVP < 2 cm	Recipient MVP < 8 cm or donor MVP > 2 cm
Donor bladder	Absent	Visible
UA Doppler	Absent EDF	Absent EDF

Abbreviations: EDF, end diastolic flow; MVP, maximum vertical pocket; UA, umbilical artery

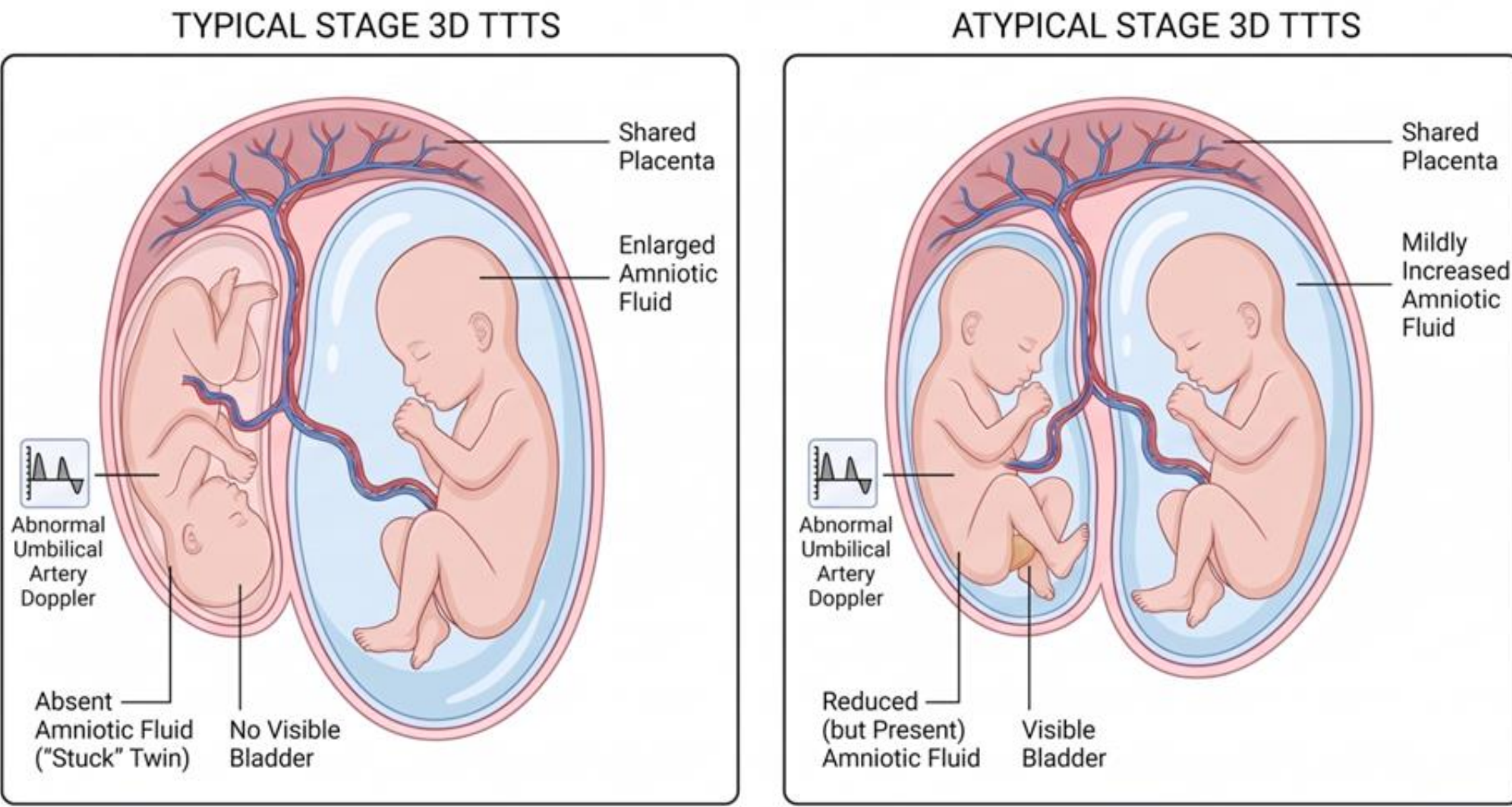


Figure 1. Illustration depicts the differentiation in typical (left) and atypical (right) stage IIID diagnostic criteria as also outlined in the table above.

Results

- 185 of 983 (18.8%) PLA cases were staged IIID
- Recipient cord insertion, trocar size, and amnioreduction volume differed between IIID groups (all *p* < 0.05)
- Though DNS did not differ between IIID groups, DNS was achieved more frequently in cases of sFGR type II/III that were expectantly managed than in cases of atypical IIID TTTS that were managed with PLA (Table 1).
- Iatrogenic monoamniocity occurred more frequently in cases of atypical than typical IIID TTTS (Table 1).
- On logistic regression modeling, weight discordance and GA at PLA were independently associated with DNS.

Table 2. Multiple logistic regression evaluating the association between prenatal characteristics and dual neonatal survival.

	aOR	95% CI	<i>p</i> value
Atypical stage IIID TTTS v. Typical IIID	1.56	0.77, 3.18	0.220
Weight discordance	1.04	1.01, 1.07	0.016
Cervical length (mm)	0.99	0.95, 1.02	0.381
Gestational age at PLA (days)	0.98	0.96, 0.998	0.031

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; PLA, placental laser ablation; TTTS, twin-twin transfusion syndrome