

Outcomes of fetoscopic laser ablation for twin-to-twin transfusion syndrome at University College London Hospital

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Objective

To evaluate the outcomes and complications of fetoscopic laser ablation of placental anastomoses (FLAP) for twin-to-twin transfusion syndrome (TTTS) at University College London Hospital (UCLH).

Design

Prospective 7-year audit of pregnancies complicated by TTTS and managed with FLAP.

Methods

Inclusion criteria were monochorionic diamniotic (MCDA) twin pregnancies complicated by TTTS and undergoing FLAP at UCLH. Triplets were excluded. Data was prospectively collected from electronic patient records and retrospectively reviewed. Of 108 eligible cases, 27 delivered in local hospitals and were lost to follow up, therefore leaving 81 cases. Severity of TTTS was documented using the Quintero system. Antenatal, procedural, and postnatal outcomes were evaluated.

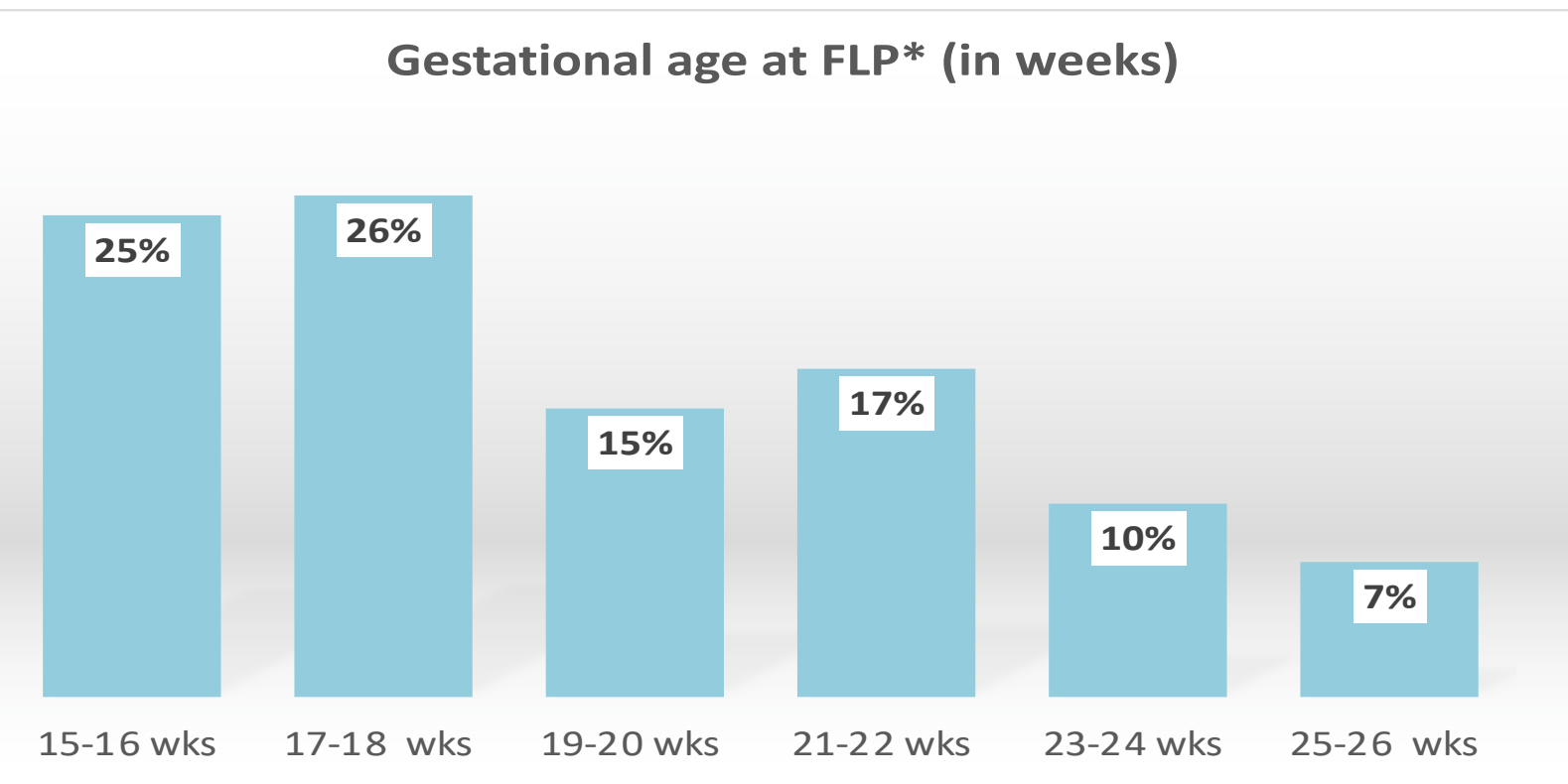
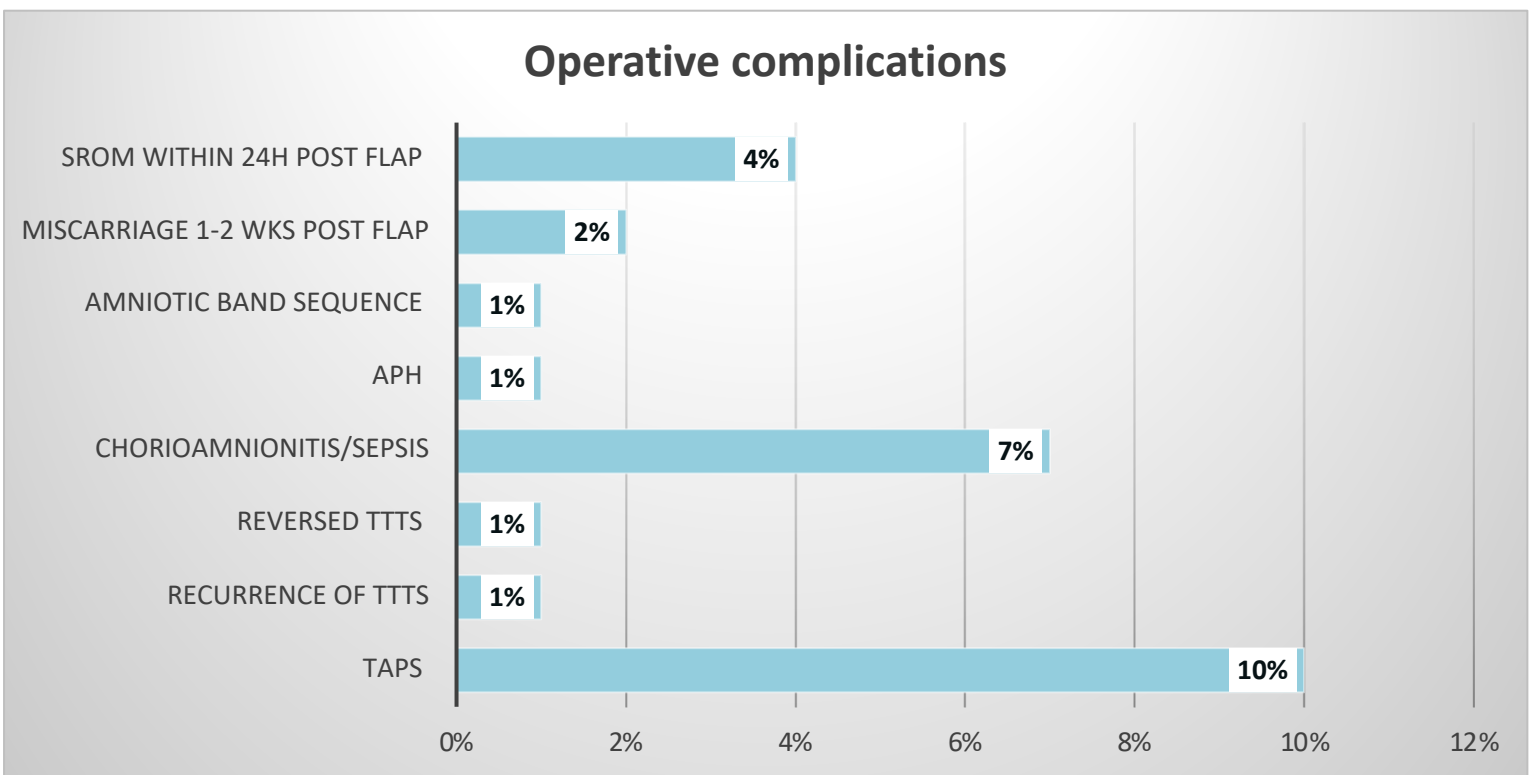
Results

Ablative technique and staging

Individual placental anastomoses were selectively ablated in 64% of cases; in the remaining 36% Solomon technique was employed. Most cases (61%) were TTTS stage 3, 30% were stage 2, stage 1 and stage 4 comprised 4% and 5% respectively.

Gestational age at procedure and complications

Mean gestational age (GA) at FLAP was 18.4 weeks. Intra-amniotic bleeding and iatrogenic septostomy (to facilitate visualisation of anastomoses) occurred in 5% of patients. Spontaneous rupture of membranes within 24 hours of FLAP complicated 4% of cases; miscarriage within 2 weeks occurred in 2%; antepartum haemorrhage, reversal and recurrence of TTTS were rare, each at 1%; infective complications occurred in 7%; Twin Anaemia Polycythaemia Sequence (TAPS) complicated 10% of cases. Overall survival was 73%.



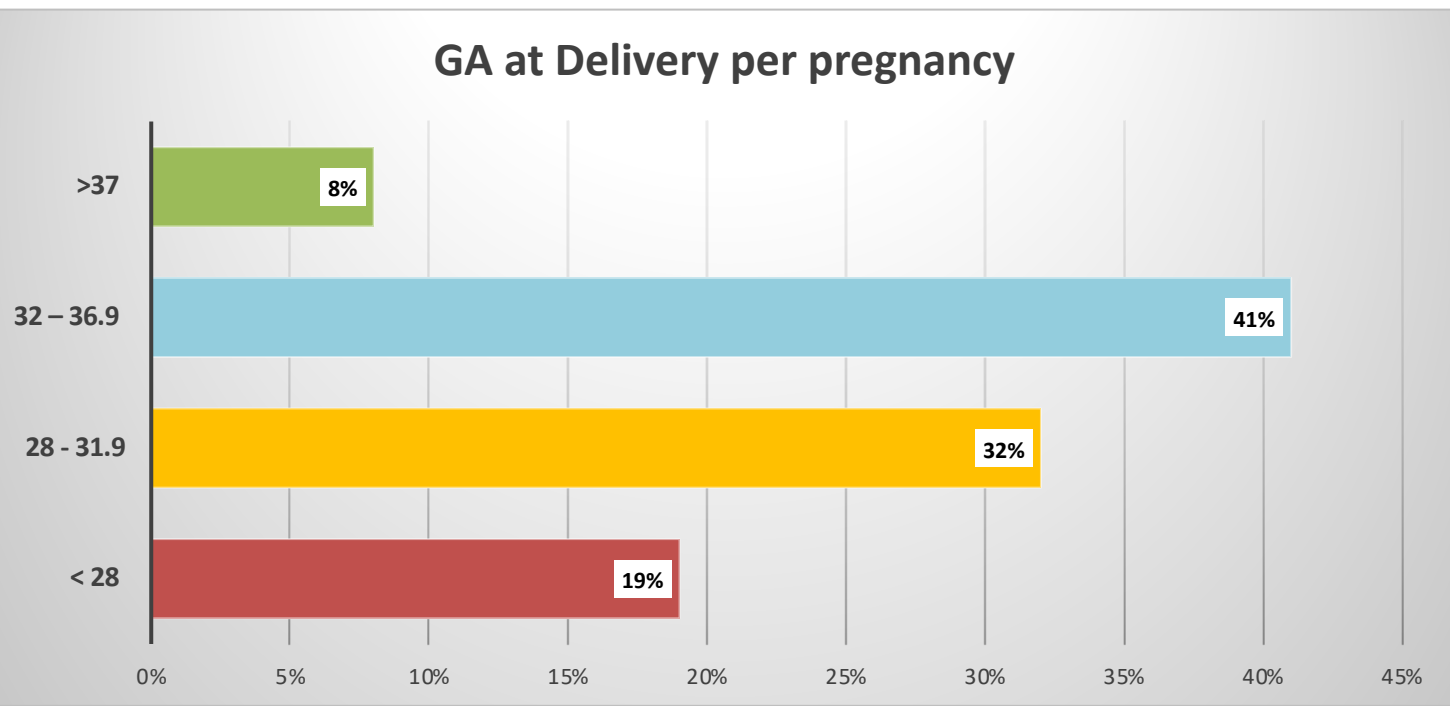
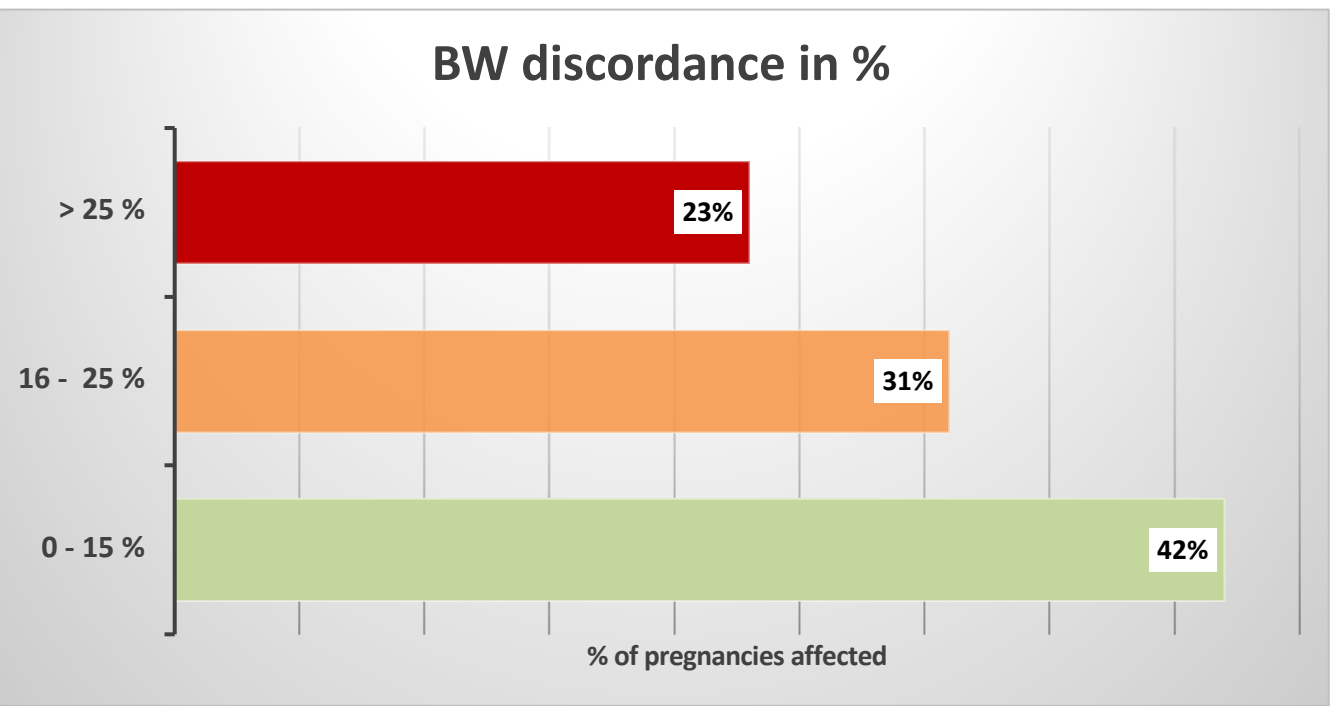
Survival

Double foetal survival occurred in 59% of pregnancies, and at least single survival occurred in 86%. Donor demise occurred more commonly than recipient demise (28% vs 11%). Neonatal death occurred in 2% of new-borns. Mean GA at delivery was 31.8 weeks (range 21-38 weeks).

Parameter	No./Total (%)
	Overall (81 P, 162 F)
Overall survival*	118/162 (73%)
Double fetal survival †	48/81 (59%)
At-least-single fetal survival †	70/81 (86%)
Dual demise †	11/81 (14%)
Donor demise †	23/81 (28%)
Recipient demise †	9/81 (11%)
Neonatal death	4/162 (2%)

GA at delivery and birth weight

19% of pregnancies were delivered before 28 weeks, 32% between 28-31.9 weeks, 41% were 32-36.9 weeks, and 8% delivered at term. Most surviving twins had concordant birth weights (BW), a third had a mild discordance and 23% had severe BW discordance above 25%. 33% of babies were born with a BW below the 10th centile.



Conclusions

Outcomes of FLAP for TTTS at UCLH are comparable to published literature. However, a significant proportion of patients were lost to follow up. Thus, future efforts should endeavour to establish a system of prospective collection of outcomes from referring hospitals.

References:

- Kilby MD, Bricker. RCOG .Management of monochorionic twin pregnancy. *BJOG* 2016; 124:e1–e45.
- Simpson LL. Twin-twin transfusion syndrome. *Am J Obstet Gynecol.* 2013 Jan;208(1):3-18. doi: 10.1016/j.ajog.2012.10.880.
- Akkermans, Joost et al. “Twenty-Five Years of Fetoscopic Laser Coagulation in Twin-Twin Transfusion Syndrome: A Systematic Review.” *Fetal diagnosis and therapy* vol. 38,4 (2015): 241-53. doi:10.1159/000437053



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