

Predictors of fetal demise in prenatally diagnosed placental chorioangioma: an individual patient data meta-analysis

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Introduction

Placental chorioangiomas (PCAs) are the most common non-trophoblastic placental tumors, occurring in approximately 1% of pregnancies. This study aimed to assess outcomes and identify predictors of fetal demise in cases of prenatally diagnosed PCA, comparing cases with and without tumor vascular intervention.

Methods

A systematic search of four databases was conducted to identify pregnancies with a prenatal diagnosis of PCA. Descriptive statistics and an individual patient data meta-analysis (IPDMA) were performed.
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Outcome	Variable	Expectant management group (n=15)		Intervention group (n=10)	
		N/total N (%)	Odds ratio (95% Credible Intervals)	N/total N (%)	Odds ratio (95% Credible Intervals)
GA at diagnosis	≤24 weeks	4/7 (57.14)	0.86 (0.016 – 29.66)	1/6 (16.67)	1.0540 (0.026 – 49.69)
	≤26 weeks	5/7 (71.43)	1.016 (0.027 – 26.03)	5/6 (83.33)	1.141 (0.035 – 69.27)
	≤28 weeks	6/7 (85.71)	1.12 (.003 – 47.59)	5/6 (83.33)	1.21 (.003 – 98.63)
	≤30 weeks	6/7 (85.71)	1.19 (.004 – 65.77)	6/6 (100)	1.18 (.007 – 141.7)
	≤32 weeks	7/7 (100)	1.27 (.0042 – 81.23)	6/6 (100)	N/A
Largest tumor diameter (cm)	≥ 4	7/7 (100)	1.23 (.004 – 99.17)	10/10 (100)	1.19 (.002 – 141.77)
	≥6	6/7 (85.71)	1.081 (0.036 – 37.52)	10/10 (100)	1.18 (0.036 – 57.00)
	≥8	5/7 (71.43)	0.809 (0.013 – 23.36)	8/10 (80.00)	1.04 (0.03 – 41.46)
	≥10	2/7 (28.57)	0.806 (0.009 – 29.54)	4/10 (40.00)	0.79 (0.01 – 30.16)
Tumor vascularity	Partially vascular	2/4 (50.00)	0.94 (0.021 – 31.25)	1/5 (20.00)	0.83 (0.01 – 28.38)
	Hypervascular	2/4 (50.00)	0.983 (0.024 – 34.28)	4/5 (80.00)	1.23 (0.003 – 85.55)
Polyhydramnios		10/14 (71.43)	0.94 (0.024 – 29.76)	7/9 (77.78)	1.10 (0.03 – 55.78)
Hydrops		5/11 (45.45)	0.803 (0.013 – 29.59)	7/8 (87.50)	0.99 (0.027 – 41.33)
Fetal Anemia		2/11 (18.18)	0.79 (0.014 – 27.09)	4/7 (57.14)	1.17 (0.035 – 57.96)
Fetal Cardiac dysfunction on Echo		3/5 (60.00)	0.78 (0.012 – 25.49)	9/9 (100)	1.21 (.003 – 101.301)
Amnioreduction		1/10 (10.00)	0.829 (0.014 – 33.53)	4/9 (44.44)	1.09 (0.03 – 42.96)
Intrauterine transfusion		0/2 (0)	0.78 (0.01 – 36.93)	7/9 (77.78)	1.08 (0.03 – 42.96)

Results

- We included 41 studies encompassing 165 prenatally diagnosed PCAs, of which 54 underwent prenatal tumor vascular intervention and 111 had expectant management.
- Four intervention techniques were identified: laser therapy (N=30), ultrasound-guided embolization (N=11), ultrasound-guided coils/plug placement (N=7), and radiofrequency ablation (N=4).
- The intervention group had an earlier gestational age at diagnosis (24.5 vs. 26.8 weeks), and a larger maximum tumor diameter (7.8 vs. 6.4 cm).
- Although predictors of fetal demise were analyzed through IPDMA, no significant associations emerged, likely due to small sample sizes.

Conclusion

Fetal intervention should be considered when there is evidence of fetal compromise in the presence of a PCA. Although the location of the PCA appeared to influence the choice of intervention technique, significant variability in management practices across centers underscores the need for prospective multicenter registries to standardize treatment protocols and enhance clinical outcomes.