

Cord Insertion Site Proximity in First versus Second Trimester of Pregnancy in Monochorionic Diamniotic (MCDA) Twin Pregnancies: A Retrospective Cohort Study at the University of Michigan EP13.06

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BACKGROUND

- MCDA twin pregnancies are at risk for complications such as selective fetal growth restriction and twin-twin transfusion syndrome.
- Closely spaced cord insertions can limit eligibility for laser ablation of placental vessels.
- This study examines how inter-cord distance changes from the first to second trimester, aiming to improve risk stratification and guide intervention planning.

This retrospective cohort study evaluates cord insertion (CI) site proximity in MCDA pregnancies to better inform counseling in early pregnancy.

METHODS

- Retrospective cohort of MCDA twin pregnancies from January 1, 2022–December 31, 2023.
- Data from electronic health records and GE Viewpoint were reviewed.
- Inter-cord distance (mm) was measured by MFM physicians from ultrasound images obtained by obstetric sonographers.
- Calculated the proportion of pregnancies with increasing distance and those remaining proximate (<30 mm).
- Demographics and outcomes were summarized using descriptive statistics.

Participant Number (n=18)	Early Gestation Scan CI (mm)	Mid Gestation Scan CI (mm)	Increase in Cord Insertion Distance (mm)	Percent Increase
2	59.1	61.2	2.1	3.4%
9	20.4	23.6	3.2	13.6%
5	72	77	5	6.5%
6	27.1	33	5.9	17.9%
12	4.5	13.5	9	66.7%
18	10.3	25.1	14.8	59.0%
10	17.8	33	15.2	46.1%
14	18	36.8	18.8	51.1%
1	21.3	40.4	19.1	47.3%
7	47	71	24	33.8%
13	42.8	76	33.2	43.7%
15	45.3	79	33.7	42.7%
8	36.2	71.3	35.1	49.2%
17	46.5	85	38.5	45.3%
3	47.3	92.1	44.8	48.6%
16	54.9	101	46.1	45.6%
4	65.2	123	57.8	47.0%
11	40	117.5	77.5	66.0%

Participant Number	Selective Growth Restriction Present	TTTS Present	Delivery Mode	Gestational Age at Delivery (weeks)	Perinatal Weight Baby A (grams)	Perinatal Weight Baby B (grams)
1	Yes	No	Cesarean	29	0.82	1.42
2	Yes	No	Cesarean	34	2.55	2.16
3	No	Yes	Termination	21	-	-
4	No	No	Vaginal	20	0.32	0.34
5	No	No	Cesarean	35	1.79	1.71
6	Yes	No	Cesarean	34	2.23	2.10
7	Yes	No	Vaginal	35.5	2.15	2.46
8	No	No	Cesarean	32	1.84	1.86
9	Yes	No	Cesarean	29	1.32	0.93
10	No	No	Cesarean	36	2.43	2.80
11	No	No	Cesarean	35	2.43	2.77
12	Yes	No	Cesarean	32	1.43	1.63
13	Yes	No	Vaginal	35	2.23	2.10
14	Yes	No	Vaginal	33	1.78	1.71
15	No	No	Cesarean	23	0.49	0.32
16	No	No	Cesarean	29.57	1.45	1.41
17	Yes	No	Cesarean	33	1.79	1.82
18	Yes	No	Cesarean	27	1.06	0.75

RESULTS

- 178** MCDA pregnancies identified; **146** excluded for inadequate ultrasounds, **3** for pregnancy loss.
- 18** pregnancies with measurable CI distance on 1T and 2T scan.
- 11–14 weeks:** mean CI distance **38.1 mm** (range 4.5–72.0).
- 17–22 weeks:** mean CI distance **63.6 mm** (range 13.5–123.0).
- Mean increase in CI distance: **+26.9 mm**.
- CI distance increased in **100%** of pregnancies that began with proximate (<30mm) CI distances (avg +12.2 mm).
- Proportion remaining proximate at second-trimester scan:
 - <40 mm:** 75.0%
 - <35 mm:** 71.4%
 - <30 mm:** 42.9%



CONCLUSION

- CI distance in MCDA twins increases from early to mid-pregnancy.
- Over half of pregnancies starting with proximate CIs do not have proximate CIs at mid-pregnancy, increasing the likelihood for safe therapeutic intervention if clinically indicated.
- This highlights the importance of serial evaluation of CIs during MCDA twin surveillance.



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