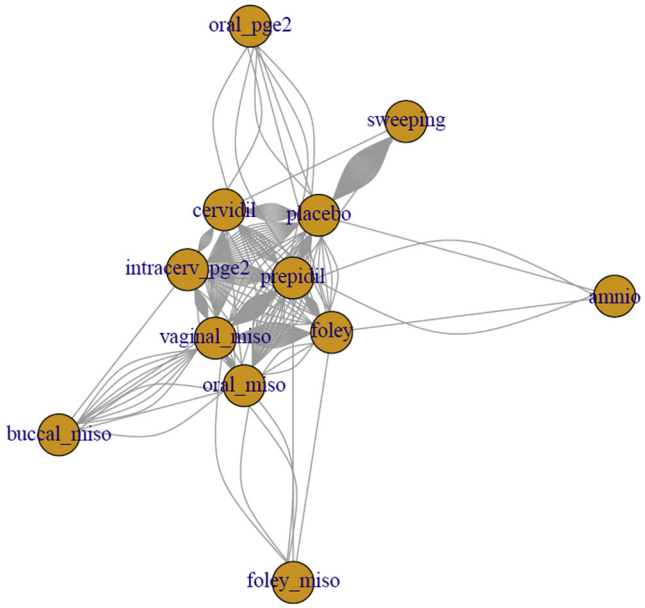

387 Neonatal morbidity of cephalic second twins according to the obstetrical strategy adopted at delivery

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OBJECTIVE: To assess neonatal mortality and morbidity of cephalic second twins according to the obstetrical strategy adopted after vaginal birth of the first twin, either internal version followed by total breech extraction, as recommended by the French College of Gynecologists and Obstetricians, or pushing efforts.

STUDY DESIGN: In this planned secondary analysis of the JUMODA cohort, a national prospective population-based study of twin deliveries conducted from 02/2014 to 03/2015 in 176 hospitals performing more than 1,500 annual deliveries in France, we included cephalic second twins after vaginal birth of the first twin at 32 weeks and more. Intrauterine fetal deaths, fetal malformations, twin-to-twin transfusion syndromes, monoamniotic pregnancies, and unknown presentations and managements of second twins were excluded. The primary outcome was a composite of neonatal mortality and morbidity. To control for potential confounders, we used multivariate Poisson regression models.

RESULTS: Of 2261 cephalic second twins included in the study, 494 (21.8%) were born in breech presentation after internal version and total breech extraction and 1767 (78.2%) in cephalic presentation after pushing efforts. The mean inter-twin delivery interval was shorter in the internal version group compared to the pushing efforts group (6.6 ± 5.9 versus 10.0 ± 13.0, p<0.01). Neither rates of cesarean for the second twin (10/494 (2.0%) versus 61/1767 (3.2%), p=0.1) nor rates of composite neonatal mortality and morbidity (17/494 (3.4%) versus 36/1767 (2.2%); aRR 1.4, 95% CI 0.8-2.4) differed significantly between the two groups.

CONCLUSION: Compared with pushing efforts after vaginal birth of the first twin, internal version followed by total breech extraction of cephalic second twins is associated with shorter inter-twin delivery intervals but not with improved neonatal outcomes.

Table: Neonatal mortality and morbidity of cephalic second twins according to the obstetrical strategy adopted after vaginal birth of the first twin

	Internal version N=494	Pushing efforts N=1767	aRR*[IC95%]
Composite primary outcome	17 [3.4]	36 [2.2]	1.4 [0.8-2.4]
Death			
Intrauterine	0	0	
Neonatal	0	1 [<0.1]	
Apgar score <4 à 5min	1 [0.2]	6 [0.3]	
Neonatal trauma	3 [0.6]	1 [<0.1]	
Long bone fracture	2 [0.4]	1 [<0.1]	
Brachial plexus palsy	1 [0.2]	0	
Skull fracture	0	0	
Spinal cord injury	0	0	
Phrenic or facial nerve injury	0	0	
Subdural hemorrhage	0	0	
Encephalopathy	1 [0.2]	4 [0.5]	
≥2 seizures within 72 h after birth	0	1 [<0.1]	
Endotracheal tube for >24h within 72 h after birth	7 [1.4]	13 [0.6]	
Proven neonatal sepsis	5 [1.0]	15 [0.9]	
Bronchopulmonary dysplasia	1 [0.2]	4 [0.5]	
Intraventricular hemorrhage			
Grade I-II**	2 [0.4]	6 [0.3]	
Grade III-IV	1 [0.2]	0	
Periventricular leukomalacia	0	1 [<0.1]	
Stage 2 and 3 necrotizing enterocolitis	1 [0.2]	1 [<0.1]	

aRR, adjusted Relative Risk; CI, confidence interval
*Adjusted for twin cell, center per center per year, twin type, gestational age at birth, intra-uterine growth restriction, and previous cesarean section
**All variables were included in the primary outcome except grade III intraventricular hemorrhage

388 The relationship between short inter-pregnancy interval and abnormal placental cord insertion

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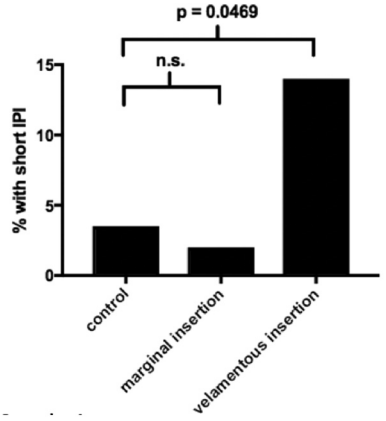
OBJECTIVE: Abnormal placental cord insertion (PCI) includes marginal insertion (cord insertion less than 2 cm from placental edge), and velamentous insertion (cord insertion into the fetal membranes before traversing to the placental edge). The etiology of abnormal

PCI is undetermined. Numerous studies have demonstrated that abnormal PCI can result in adverse outcomes for both mother and baby. A short inter-pregnancy time interval between the birth of one child and the conception of the next child has also been shown to result in subsequent adverse outcomes. This study was designed to determine the association between short inter-pregnancy interval and abnormal PCI.

STUDY DESIGN: In this retrospective case-control study of pregnancies between 03-26-2009 to 08-01-2016, the inter-pregnancy time interval preceding delivery was calculated for women with abnormal PCI – both marginal (n=49) and velamentous cord insertions (n=57), as determined at pathology exam of the placenta. Inter-pregnancy interval was likewise calculated for control multiparous women with normal PCI (n=57). The proportion of pregnancies preceded by a shortened inter-pregnancy interval of 6 months or less was compared between the three groups and analyzed using the Fisher's exact test.

RESULTS: The proportion of pregnancies preceded by a shortened inter-pregnancy interval of 6 months or less was significantly different (p=0.047) in patients with velamentous cord insertion compared with patients in the control group with normal placental cord insertions. No difference in this proportion was found between normal PCI and marginal cord insertion (P=0.557).

CONCLUSION: These findings may suggest an etiologic relationship, but more importantly, the findings emphasize the importance of providing patient counseling regarding the spacing of pregnancies to avoid adverse outcomes resulting from abnormal placental cord insertion, and provide further justification for enhancing access to inter-pregnancy healthcare education, family planning and reproductive health services.



- 163 charts analyzed (57 velamentous, 49 marginal, 57 controls)
- 8/57 velamentous cases had short IPI (14%)
- 1/49 marginal cases had short IPI (2%)
- 2/57 control patients had short IPI (3.5%)

389 The yield of Chromosomal microarray analysis in cases of pregnancy termination due to fetal malformations

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OBJECTIVE: Chromosomal Microarray (CMA) is the method of choice for genetic work-up in cases of fetal malformations detected prenatally. We assessed the detection rate of CMA in cases of pregnancy termination due to abnormal ultrasound findings.

STUDY DESIGN: 71 pregnancies terminated due to abnormal ultrasound findings were included. CMA testing was performed using DNA extracted from fetal tissue (mainly skin) or from the placenta. Data regarding the clinical and family background, outcome of the workup performed during pregnancy and the findings detected by CMA were analyzed.

RESULTS: CMA analysis was successful in all cases, with no technical failures.

CMA was abnormal in 17 cases (23.9%): 5 trisomy 21, 4 trisomy 18, 3 trisomy 13, 1 unbalanced translocation of maternal inheritance, 1 mosaic triploidy and 3 cases of microdeletions/microduplications. Variants of Uncertain Significance (VUS) were detected in 6 cases.

Pathological CMA results were more likely in cases with maternal age >40 or Elevated risk for Down syndrome according to biochemical aneuploidy screening tests (P= 0.03 and 0.02, respectively). There was no correlation between abnormal CMA results and elevated NT, multiple anomalies, or gestational age at diagnosis.

CONCLUSION: The yield of CMA in cases of pregnancy termination was 23.9%. Analysis can be performed with fetal tissue or placental samples. Although most chromosomal abnormalities are detectable by karyotype, CMA does not require viable dividing cells; hence, it is more practical for TOP work-up. In most cases, diagnosis was followed by practical recommendations for testing in the subsequent pregnancy.

Table 1: Clinical manifestations and CMA results

Characteristic	Mean±SD
Maternal age (years)	31.6± 5.3
Gravidity	2.4±1.54
Parity	0.9±1.1
Average gestational age at diagnosis (weeks)	8.9±5.3
Average gestational age at termination of pregnancy (weeks)	21.7±6.3
Average interval between diagnosis and TOP (days)	19.9±23.1
	N(%)
Positive CMA finding	17/71 (23.9)
Family history of malformations or a genetic syndrome	11/71 (15.5)
Elevated Nuchal Translucency* (≥3 mm)	10/63 (15.9)
Elevated risk for Down syndrome according to aneuploidy screening tests[b&c]	9/47 (19.1)
Multiple organ malformations	39/71 (54.9)
Isolated organ malformation	32/71 (65.1)
Brain	15/32 (46.8)
Cardiovascular	4/32 (12.5)
Musculoskeletal	3/32 (9.3)
Cystic hygroma	3/32 (9.3)
Diaphragmatic hernia	2/32 (6.2)
Other[d]	5/32 (15.6)
Method of TOP	
D&C	29/71 (40.8)
Labor	42/71 (59.2)
Type of tissue analyzed	
Placenta	37/71 (52.1)
Fetal skin	34/71 (47.9)

* elevated Nuchal translucency≥3 mm
[b] Of the total number of cases in which testing was performed and for which we had relevant data
[c] Elevated risk for Down syndrome according to aneuploidy screening tests was defined as≥ 1:350
[d] Other malformations included: severe IUGR, early oligohydramnios, situs invertus, cleft lip, prune belly