

UNIVERSITÉ DE LILLE  
**FACULTÉ DE MÉDECINE HENRI WAREMBOURG**  
**Année : 2020**

THÈSE POUR LE DIPLÔME D'ÉTAT  
DE DOCTEUR EN MÉDECINE

**Est-il raisonnable de proposer un accouchement par voie basse en  
cas de grossesse gémellaire avec le premier jumeau en  
présentation du siège ?**

**Étude rétrospective et revue de la littérature.**

Présentée et soutenue publiquement le 16 octobre à 16 heures  
au Pôle Formation  
par **Julie ROUILLÈS**

---

**JURY**

**Président :**

**Monsieur le Professeur Damien SUBTIL**

**Asseseurs :**

**Madame le Professeur Véronique HOUFFLIN-DEBARGE**

**Madame le Docteur Nadia TILLOUCHE**

**Directeur de thèse :**

**Monsieur le Professeur Charles GARABEDIAN**

---

# AVERTISSEMENT

La faculté n'entend donner aucune approbation aux opinions émises dans les thèses : celles-ci sont propres aux auteurs.

# TABLE DES MATIÈRES

RESUMÉ..... 4

INTRODUCTION (FRANÇAIS)..... 5

INTRODUCTION..... 7

MATERIALS AND METHODS..... 9

RESULTS ..... 13

DISCUSSION..... 22

CONCLUSION..... 25

CONCLUSION (FRANÇAIS) ..... 26

REFERENCES..... 28

# RESUMÉ

**Contexte** : La présentation podalique du premier jumeau concerne 20% des grossesses gémellaires. Or l'impact de la voie d'accouchement sur la morbidité des fœtus en siège reste controversée dans la littérature et peu étudiée pour grossesses gémellaires. Le but de cette étude était d'évaluer le devenir néonatal et maternel en fonction de la voie d'accouchement lorsque le premier jumeau est en siège et de comparer ces résultats dans une revue de la littérature.

**Matériels et méthodes** : Il s'agit d'une étude rétrospective monocentrique (Lille, France), de janvier 2010 à décembre 2017, incluant les grossesses gémellaires dont le premier jumeau est en présentation podalique avec un accouchement après 32 semaines d'aménorrhées. Deux groupes ont été définis : tentative de voie basse (TAVB) et césarienne programmée (CP). Le critère de jugement principal était la morbidité néonatale défini par un score d'APGAR inférieur à 7 à 5 minutes, un pH au cordon inférieur à 7,10 à la naissance, un sepsis et un syndrome de détresse respiratoire aigu.

**Résultats** : Parmi les 184 patientes incluses, 116 ont eu une tentative de voie basse (63%). La morbidité ne différait pas en fonction du mode d'accouchement, pour le premier jumeau (TAVB 10% versus CP 10%,  $p=0,99$ ), le deuxième jumeau (15% versus 10%,  $p=0,31$ ), et pour au moins un des jumeaux (23% versus 16%,  $p=0,25$ ). Le taux d'hémorragie du post-partum était significativement moins élevé dans le groupe TAVB (31% versus 60,3% ;  $p=0,001$ ).

**Conclusion** : La TAVB est envisageable lorsque le premier jumeau est en présentation podalique. La césarienne programmée est associée à un plus haut risque de complication maternelle comme l'hémorragie sévère du post-partum.

# INTRODUCTION

L'incidence des grossesses gémellaires est de 2% et augmente depuis les années 2000 du fait du recours à la procréation médicalement assistée et de l'augmentation de l'âge maternel. Dans les grossesses gémellaires, le premier jumeau est en présentation podalique dans environ 20% des cas (1). Le voie d'accouchement optimale dépend de la présentation des deux jumeaux, de l'expérience de l'équipe médicale et de la demande maternelle (2). En cas de présentation podalique, qu'il s'agisse d'un fœtus singleton ou d'un premier jumeau, la voie d'accouchement est encore discutée dans la littérature. En effet, l'étude d'Hannah et al. a conclu que l'accouchement par voie basse des fœtus singleton en siège augmente le risque d'avoir un score d'APGAR bas et d'importantes complications à court terme, la programmation d'une césarienne avant le travail ne protégerait toutefois pas d'un décès ou d'anomalies neuro-développementales à deux ans selon Whyte et al.(3,4). L'étude PREMODA, regroupant 174 maternités françaises et belges, concluait quant à elle que, sous couvert de conditions standardisées, le devenir néonatal n'était pas meilleur suite à une césarienne programmée versus une tentative d'accouchement par voie basse(5). Les recommandations françaises nationales récentes concernant la présentation du siège pour les fœtus singletons autorisent la tentative d'accouchement par voie basse sous certaines conditions ; la réalisation d'un pelvi-scanner particulièrement après 37 semaines d'aménorrhées, un poids fœtal estimé inférieur à 3800g, un contrôle échographique de l'absence d'hyper-extension de la tête fœtale(6).

Pendant les deux dernières décennies, plusieurs auteurs ont essayé de définir la voie d'accouchement optimale des grossesses gémellaires mais principalement lorsque le premier jumeau est en présentation céphalique (7–10). Des études récentes, aux effectifs importants (Twin Birth Study et JUMODA) ont conclu que la césarienne programmée n'augmentait ou ne diminuait pas significativement le risque de décès ou la survenue d'importantes complications

néonatales en comparaison à la tentative d'accouchement par voie basse(7,11). Concernant la présentation en siège du premier jumeau, seules quelques études ont évalué l'impact du choix de la voie d'accouchement sur le devenir maternel et néonatal (1,2,9,12–14). Elles concluent que la tentative de voie basse et la césarienne programmée sont toutes les deux des options possibles. Mais nombre de ces études présentaient des effectifs limités et une proportion importante de césarienne programmée.

Par conséquent, le but de notre étude était d'évaluer le devenir néonatal et maternel en fonction de la voie d'accouchement dans les grossesses gémellaires lorsque le premier jumeau est en siège puis de comparer nos résultats dans une revue de la littérature.

# INTRODUCTION

The incidence of twin pregnancies is about 2%, increasing since 2000 because of the recourses for assisted reproductive technology and advanced maternal age. In twin pregnancies, first breech twins represents above 20% (1). Safer mode of delivery mainly depends on the both twins's presentation, team experience, and maternal request (2). In case of breech presentation, singleton or twin, the mode of delivery is still discussed in the literature. Indeed, Hannah et al. involved that planned vaginal singleton breech birth increases the risk of low Apgar scores and serious short-term complications, but planned cesarean delivery (PCD) do not provide from death or neurodevelopmental abnormalities at 2 years according to Whyte et al. (3,4). On the other hand, PREMODA study including 174 maternity units in France and Belgium concluded that under the standard practice conditions, neonatal outcome was not significantly poorer among infants with planned vaginal than with planned cesarean deliveries (5). Recent national French guidelines on singleton breech presentation allowed vaginal birth under conditions: scano-pelvimetric especially under 37 weeks, estimated fetal weight under 3800g, no hyperextension of fetal head verified by ultrasound (5,6).

Over the past two decades, several authors have attempted to find the optimal mode of delivery for twins pregnancies but mainly in cephalic first twin presentation (7–10). Recent studies, with important sample (Twin Birth Study and JUMODA), concluded that PCD did not significantly decrease or increase the risk of fetal or neonatal death or serious neonatal morbidity, as compared with planned vaginal delivery (PVD) (7)(11). Regarding the breech first twin situation, only few studies investigated the impact of planned delivery mode on neonatal and maternal outcome (1,2,9,12–14). They concluded that cesarean section and PVD are both a safe option. Most of those studies were with limited samples and an important proportion of cesarean planned delivery mode.

Therefore, the aim of this study was first to evaluate the maternal and neonatal outcome according to the planned mode of delivery of breech first twin in our center with a policy of vaginal delivery, and then to compare our results with previous studies in a systematic review.



# MATERIALS AND METHODS

## *Retrospective study*

### *Population*

It was a retrospective single institution study (Lille, France) of all breech first twin pregnancies from January 2010 to December 2017. Were excluded twin pregnancies between 24 and 32 weeks because of the specific management and outcome of very preterm infants, mono-annionicity, a major structural abnormality or fetal aneuploidy (either suspected or confirmed) in either twin, embryonic reduction, stillbirths before labor, termination of pregnancy, twin-to-twin transfusion syndrome (TTTS) and/or twin anemia–polycythemia sequence in monochorionic and planned cesarean for maternal reasons such as severe pre-eclampsia, HELLP syndrome and placenta previa.

### *Birth Protocol*

All twin pregnancies were monitored according to the French guidelines (15). Uncomplicated mono-chorionic pregnancies were delivered around 38 weeks and di-chorionic 39 weeks (16,17).

The decision of the planned mode of delivery was done according to our protocol previously published and to the choice of the patient (18). To plan a vaginal delivery for singletons in breech presentation, as well as for twin pregnancy with a first twin in breech presentation, it was recommended that the following criteria be met: comparison of fetal biparietal diameter with the results of the pelvic measurements (obstetric conjugate– biparietal diameter  $\geq 15$  mm; median transverse diameter– biparietal diameter  $\geq 25$  mm; and interspinous diameter– biparietal diameter  $\geq 0$ mm), no hyperextension of the fetal head (checked by ultrasonography), estimated fetal weight of less than 3,800 g (twin 1 or twin 2) in nulliparous and the woman's

informed consent after explanations about benefits and risks of both planned modes of delivery. In case of twin pregnancies, we perform pelvimetric measurement if the first breech twin is over 2500g. Finally, the type of breech presentation (complete or frank), the chorionicity, the history of one previous cesarean and the presentation of the second twin were not taken into account in the decision of the planned mode of delivery in our center (19).

In case of PVD management included continuous electronic fetal heart rate monitoring. Epidural analgesia was at the discretion of the patient. During the second phase of labor, a junior obstetrician in training, a senior obstetrician, senior anesthesiologist, senior pediatrician and two midwives were present in the delivery room.

### *Study group*

Two study groups were defined according to intention of delivery mode: planned vaginal delivery (PVD) group and planned cesarean delivery (PCD) group. The PVD group included effective vaginal delivery and cesarean delivery during labor.

Cesareans during labor were classified as abnormal fetal rate for at least one of the twins with or without cervical dystocia, cervical dystocia and abnormal presentation checked by ultrasound before pushing efforts such as fetal head hyperextension or high risk of interlocking twins. Planned cesarean were classified as maternal request, history of previous cesarean section and materno-fetal disproportion after pelvimetric.

### *Endpoint*

The primary endpoint was the neonatal outcome of both twins:

- Neonatal mortality was defined as death during the first 28 days of life in a liveborn baby.

- Neonatal morbidity was assessed by a composite criteria as described by Sentilhes et al. considering Apgar score lower than 7 at 5minutes, umbilical artery pH with a cutoff of 7.10, and neonatal mortality in the first 28 days of life (1). We also added the proven neonatal sepsis during neonatal hospitalization, defined by a positive blood culture or cerebrospinal fluid culture, and the occurrence of a respiratory distress syndrome. Unlike Sentilhes et al. we treated the admission to neonatal intensive care unit criteria separately. Indeed, it might overestimate neonatal outcome due to indications of transfer: fetal weight under 2500g whatever the neonatal adaptation and transferring one twin to follow the other one.
- The secondary endpoint was maternal outcome. Postpartum hemorrhage (PPH) was defined as blood loss >500 mL, severe PPH >1000mL. Sepsis, emergency surgery in addition to the childbirth procedure and admission to adult intensive care unit were also evaluated.

### *Statistics*

Qualitative variables are expressed as number and percentage and continuous variables by mean and standard deviation. Normality of distributions was assessed using histograms and Shapiro-Wilk test. Population characteristics, neonatal and maternal outcomes were compared between PVD and PCD using Chi-squared test for qualitative variable and Student t test for continuous variables. All statistical tests were done at the two-tailed  $\alpha$  level of 0.05 using SAS software, release 9.4 (SAS Institute, Cary, NC).

### *Ethics*

The study was approved by the ethics committee for research in obstetrics and gynecology (OBS CEROG 2014-04-02).

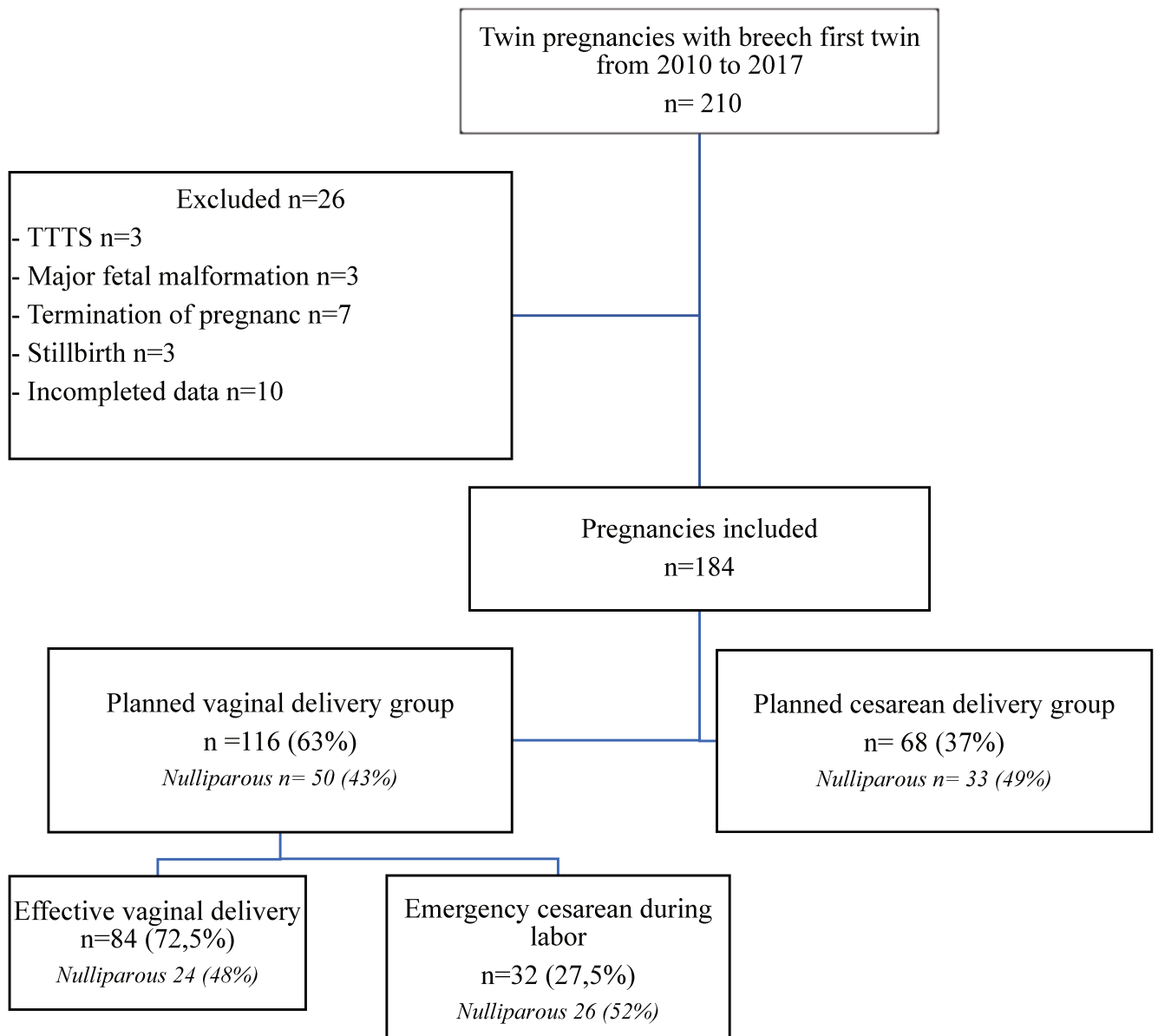
### *Systematic review*

A computerized PubMed search of articles published between January 1996 and May 2020 was performed to identify all observational studies that investigated the neonatal outcome of both twins according to the planned mode of delivery on breech first twin pregnancies. We used the search terms « breech first twin » AND « twin pregnancies » AND « mode of delivery ». Searches were restricted to studies published in English and conducted in humans. One author (J.R.) selected potentially relevant articles based on the title and abstract and obtained the full text for detailed review. We also searched the reference lists of retrieved articles and published review articles for additional studies. Studies were selected using the following criteria: (1) involving twin pregnancies, (2) birth after 32 weeks, (3) with first twin in breech presentation, (4) which reported a statistical analysis to explore data on neonatal outcome for both twins according the planned mode of delivery.

## RESULTS

For seven years, a total of 210 twin pregnancies with breech first twin after 32 weeks gave birth. After exclusion, 184 twin pregnancies were included, 116 were planned for vaginal delivery (63%) and 68 were planned to cesarean delivery (37%) (figure 1).

Figure 1: Flow chart



TTTS: twin-to-twin transfusion syndrome.

Table 1 presents the characteristics of the population according to planned mode of delivery. The two groups did not differ significantly except for previous cesarean which was lower in the PVD group (8% vs 21%, p= 0.009). In the planned cesarean group, four patients ever had 2 or more cesarean section before this pregnancy.

Table 1. Population characteristics according to the planned mode of delivery

	Planned vaginal delivery n=116	Planned cesarean delivery n=68	p
Maternal age at delivery	30,5 +/- 4,6	31 +/-4,5	0,42
Body mass index (kg/m2)	24,2 +/-5.7	24,8 +/- 5,1	0,51
Tobacco	15 (12)	6 (9)	0,42
Nulliparity	50 (43)	33 (48)	0,48
Previous cesarean	9 (8)	14 (21)	0,009
• Two or more previous cesarean	0 (0)	4 (6)	
Intra uterine growth restriction Twin 1	38 (33)	17 (25)	0,28
Intra uterine growth restriction Twin 2	47 (40)	26 (39)	0,78
Gestational diabetes	20 (19)	14 (21)	0,72
Assisted reproduction	40 (34)	18 (26)	0.26
Dichorionic diamniotic	102 (89)	58 (85)	0.50

Results are presented as numbers (percentages) or mean +/- standard derivation

Concerning the 116 patients in the PVD group, 32 (28%) had a cesarean section during labor, mainly for cervical dystocia (56%) or for abnormal fetal heart rate (31%), 19 of those were nulliparous (59%). For the 84 patients who delivered vaginally (72,5%), partial breech extraction was needed in 64% for the first twin. The second twin was mainly in cephalic presentation (45%) and version by internal operation was performed on 49 second fetuses (50,5%). The intertwin delivery interval was under 5 minutes (table 2).

Table 2. Mode of delivery in case of Planned Vaginal Delivery (n=116)

<u>Labor induction</u>	40(34,5)
Emergency cesarean	32 (28)
<u>Cause of emergency cesarean</u>	10/32 (31)
Abnormal fetal heart rate	18/32 (56)
Cervical dystocia	4/32 (13)
<u>Abnormal presentation</u>	
<u>Effective vaginal delivery</u>	84(72)
<u>Twin 1</u>	
Complete breech	22/84 (44)
Franck breech	27/84 (54)
Footling breech	1/84 (2)
Fetal weight at birth (g)	2403 ± 477.8
Breech procedure (Lovset, Bracht)	66/84 (64)
Forceps to aftercoming head	4/84 (4)
<u>Twin 2</u>	
Cephalic presentation	53/84 (45,7)
Breech presentation	32/84 (26,7)
Transverse presentation	32/84 (27,6)
Fetal weight at birth (g)	2387 ± 440.9
Instrumental birth	6/84 (8,1)
Version by internal operation	49/84 (50,5)
Second twin cesarean	0/84
Forceps to aftercoming head	4/84 (4,3)
Intertwin delivery interval (min)	4,6 +/- 4,1

Results are presented as numbers (percentages) or mean +/- standard derivation.



The neonatal mortality or morbidity did not differ according to the planned mode of delivery, for the first twin (10% in PVD group versus 10% in PCD group,  $p=0,99$ ), the second twin (15% in PVD versus 10% in PCD,  $p=0,31$ ), and at least one of the twins (23% in PVD group versus 16% in PCD group,  $p=0,25$ ). None neonatal death occurred. At least one of the twins was transferred in ICU in 30% on the PVD group versus 22% in the PCD group (table 3). complications seem to be less frequent according to gestational age whatever the planned mode of delivery (table 4).

Table 3. Principal endpoint ie composite criteria of neonatal morbidity outcome according to the planned mode of delivery

	First twin			Second twin			At least one of the twins		
	PVD n= 116	PCD n= 68	p	PVD n= 116	PCD n= 68	p	PVD n= 116	PCD n= 68	p
Composite criteria of neonatal morbidity outcome	12 (10)	7 (10)	0,99	18 (15)	7 (10)	0,31	27 (23)	11 (16)	0,25
Death	0	0		0	0		0	0	
APGAR score <7 at 5 minutes	4(3)	2(3)		5(4,3)	1(1,5)		8(7)	2(3)	
pH < 7,10	6(6)	3(5)		6(5,9)	4(7,5)		11(10)	6(11)	
Neonatal sepsis within 72 h after birth	2(1,7)	1(1,5)	-	0	0		2(1,7)	1(1,5)	
Respiratory distress syndrome	3(2,6)	5(7,5)		12(10,4)	3(4,5)		6(9)	15(13)	
ICU Admission	28(24)	14(20)		29(25)	13(19)		35(30)	15(22)	

Results are presented as numbers (percentages), the gestational age stratification results are presented as numbers of positive events /group effective (percentage).

Significative p value < 0,05

PVD: Planned vaginal delivery, PCD : Planned Cesarean Delivery, ICU : Intensive care unit.

Table 4. Neonatal outcome according to the term of birth

	First twin		Second twin		Both twins	
	PVD n= 116	PCD n= 68	PVD n= 116	PCD n= 68	PVD n= 116	PCD n= 68
32 – 34+6 weeks n=39	3/28 (10)	4/11 (36)	10/28 (35)	2/11 (18)	11/28 (39)	4/11 (36)
35-36+6 weeks n= 51	5/39 (12)	0/12 (0)	5/39 (12)	1/12 (8)	9 /39 (23)	1 /12 (8)
>37 weeks n= 93	4/49 (8)	2/44 (4)	3/49 (6)	4/44 (9)	7/49 (14)	5/44 (11)

The stratification analysis results are presented as numbers of positive events /group effective (percentage). Statistical analysis was not performed due to small samples.

The maternal morbidity outcome was significantly higher in the PCD group, due to the occurrence of PPH in 41 patients (60.3%). Moreover, PCD significantly leads to higher rates of severe PPH > 1L (8% in PVD versus 25% in PCD, p=0.002) (table 5).

Table 5. Maternal outcome ie composite criteria according to the planned mode of delivery

	Planned vaginal delivery n=116	Planned cesarean delivery n=68	<i>p</i> value
- Death	0	0	0.0001
- Post-partum hemorrhage >500 mL	36 (31.0)	41 (60.3)	
- Post-partum infection	0	0	
- Emergency surgery in addition to the childbirth procedure	2 (3.4)	0 (0.0)	
Severe post-partum hemorrhage >1L	10(8)	17(25)	0,002

Results are presented as numbers (percentages), significative *p* value < 0,05.

Table 6. Neonatal outcomes for both twins according to delivery mode in case of breech presentation > 32 weeks.

Authors	Study	n twin (PVD/PCD)	% PVD	%VD/PVD	% PH<7 (PVD/PCD)	% Apgar score<7 at 5min (PVD/PCD)	% Neonatal mortality (PVD/PCD)	% Neonatal unit and ICU (PVD/PCD)	% Respiratory failure (PVD/PCD)
Rouillès et al 2020	Single center	232 / 136	63	72	5/ 3	2.1/ 1.4	0 / 0	18.5/ 18.3	6/ 5.8
Korb et al 2020	National Cohort JUMODA	596 / 2338	20.3	62.1		0.3/ 0.1*	1 / 0.08		1.1/ 1.0
Pascalet et al 2018 †	Single center	82 / 186	30.6	95	2.4 / 1		2.4 / 0.5	30.4 / 28.4	
Boukerrou et al 2011	Two centers	96 / 4	4	4		3 / 0	0 / 0	16.6 / 0	
Sentilhes et al 2007	Two centers	248 / 142	63	47,6	1,2 / 0,7	0.8 / 3	0.4/ 0.6	24.5 / 26	
Grisaru et al 2000	Single center	66/76	46	54	0/0				
Abu-Heija et al 1998	Single center	146/112	56	57			2.7/1.7		

PVD Planned Vaginal Delivery, PCD Planned Caesarean Delivery, VD Vaginal Delivery, ICU Intensive care unit. \* defined as 5-min Apgar score<4; † data available for the first twin only.

# DISCUSSION

## *Main findings*

This retrospective study shows that when first twins are in breech presentation, planned vaginal delivery, in a center with carefully selected patients and a high rate of PVD, is not associated with a higher risk of neonatal mortality and morbidity for either first or second twins than planned cesarean delivery, but with less maternal complications .

## *Interpretation*

As shown on table 6, the rate of planned vaginal delivery was low and varies between 4% to 56% in five studies (1,9,20–23). The influence of Term Breech Trial for breech singleton and the lack of solid evidence in guidelines on the management of first twin breech have led to increase cesarean delivery (4,9,20,22) and reinforce, as on breech singletons deliveries, a loss of expertise in the delivery of twin pregnancies (11). In our center, 63% of patients underwent planned vaginal delivery such as Sentilhes et al. Among them, 72% delivered vaginally which is a high rate of success (4% to 62% in the other studies) (1).

The main study, specially designed to assess the management of twin births, was a national cohort between 2014 and 2015 named JUMODA (*JUmeaux MODE d'Accouchement*) (11). With the same inclusion criteria, the authors collected birth information's (with no randomization) about 1467 first breech first twin pregnancies with no contraindication for vaginal delivery according to French guidelines. They observed that 20,3 % pregnancies were planned for vaginal delivery (62,1% actually gave birth vaginally) and 79,7% were planned for cesarean delivery. To assess neonatal outcome, they used a composite criteria defined as one or more of the following: 5-minute Apgar score of less than 4; birth trauma ; encephalopathy; endotracheal ventilation; proven neonatal sepsis; bronchopulmonary dysplasia,; grade III and IV intraventricular hemorrhage or cystic periventricular leukomalacia; and stage II and III

necrotizing enterocolitis(2,10,11). After adjustment, they found that planned vaginal delivery was not associated with an increased risk of neonatal mortality and morbidity compared with planned cesarean delivery (adjusted RR 0.71, 95% CI 0.27–1.86) (11). Besides a large population study, the occurrence of such events was very low. For example, APGAR Score under 4 at 5 minutes were only observed in 0.3% in PVD and 0.1% in PCD, and respiratory distress syndrome in 1.1% PVD versus 1.0 % in PCD. We also found no significant difference according the planned mode of delivery for both twins but in our population planned vaginal delivery was significantly higher (63% versus 20,3% in JUMODA)(21).

Because of a similar repartition of planned delivery mode and neonatal criteria our results are more comparable to Sentilhes et al. (21). The authors did a retrospective study in two centers about 195 twin first breech pregnancies after 35 weeks (9,21–23). 71 women (36.4%) were planned for cesarean delivery, 124 (63.6%) were candidates for planned vaginal delivery with a success rate about 47%. The authors evaluated neonatal mortality and severe morbidity, as defined by one or more of the following: death before discharge, admission to neonatal intensive care unit (NICU), 5-minute Apgar score < 7, cord blood pH < 7.10, or birth trauma.

They did not find that attempted vaginal delivery for breech first twin pregnancies at a term of at least 35 weeks was associated with greater neonatal mortality and morbidity than planned cesarean delivery. They also concluded that attempted vaginal delivery is a reasonable option for twin deliveries with the first twin in breech presentation under conditions such as careful intrapartum protocol, experienced obstetrician, midwife, and anesthesiologist (1).

Regarding maternal outcome, it was evaluated in only two studies/ five (1,20). Sentilhes et al. only found that the occurrence of deep vein thrombosis was significantly higher un PCD group (PVD 0% versus PCD 4,2%;  $p < 0,005$ ). Rates of PPH were no significant (PVD 12,1% versus PCD 9,9%;  $p > 0,005$ ). Those results differ from Pascalet et al. where PPH is significantly higher in PCD (PCD 45,2% versus PVD 12,2%;  $p < 0,05$ ) and ours for PPH (PVD 36% versus

PCD41%;  $p < 0,0001$ ) and severe PPH (PVD 10% versus PCD 17%;  $p < 0,002$ ). The fact that PPH, severe PPH and deep venous thrombosis are current surgical procedure complications might explain why they are significantly more observed in PCD groups.

### *Strength and limitations*

The strength of our study was the high proportion of planned vaginal delivery. The absence of neonatal benefits associated with PCD give to practitioners solid information to make a shared decision with women about the planned mode of delivery. Moreover, the cases that involved pregnancy-associated complications requiring cesarean delivery were excluded, the risks of selection bias were limited. There are limitations of our study. The first one is the external validity. Our center has a policy of vaginal delivery for breech singleton, vertex or breech first twin pregnancies explaining why we found high rates of PVD and successful vaginal deliveries (18,19). In many centers the Term Breech Trial has led to a loss of expertise in vaginal delivery in twin pregnancies and in breech singleton (4). Last, we aimed to do a meta-analysis of the different studies but heterogeneous neonatal criteria and small samples in all studies did not allow a fair statistical analysis.



## CONCLUSION

Planned vaginal delivery is not associated with higher neonatal mortality and morbidity for either twin in twin pregnancies in which the first twin was in breech presentation. Our results have implications for clinical practice and may be useful in choosing the planned mode of delivery.

## CONCLUSION

Cette étude mono-centrique rétrospective sur sept ans a permis de conclure que, dans une population de grossesses gémellaires dont le premier jumeau est en siège, la tentative de voie basse n'est pas significativement associée à plus de complications néonatales que la césarienne programmée. Par contre, cette dernière est significativement associée à plus de complications maternelles telles que l'hémorragie du post-partum sévère ou non.

Les différentes séries, françaises pour la plupart, révèlent une grande hétérogénéité des pratiques concernant le choix de la voie d'accouchement. La force de cette étude réside en la proportion de tentative de voie basse qui est de 63% avec un taux de succès qui avoisine les 72%, bien au-delà des chiffres retrouvés en majorité dans la littérature. Ceci peut s'expliquer par une volonté lilloise de promouvoir l'accouchement par voie basse du siège et la sélection stricte des candidates à la voie basse conformément aux recommandations nationales et à un protocole de service permettant d'évaluer l'adéquation materno-fœtale individuelle. De plus il n'y a pas eu de changement de pratique durant la durée de l'étude car ce protocole est appliqué par tous les praticiens depuis 2004. Dans ce contexte, nos résultats confirment ceux de la littérature où la césarienne programmée représente pourtant la voie d'accouchement majoritaire. Cependant une comparaison statistique entre les différentes études sur le sujet n'a pas pu être réalisée. En effet, les critères d'évaluation néonataux étaient trop hétérogènes et les événements trop peu nombreux, en dehors de l'hospitalisation en service de néonatalogie. Celle-ci peut s'expliquer par le fait que les jumeaux, dans notre centre sont transférés en présence de complications néonatales mais aussi en deçà de 2500g et le plus souvent par 2 pour éviter les séparations des enfants. Nous avons donc dû faire le choix de le retirer du critère composite néonatal.

En ce qui concerne les complications maternelles, les données de la littérature sont plus maigres. Dans les différentes séries, comme dans celle-ci, la césarienne semble être plus pourvoyeuse de complications à type de thromboses veineuses profondes, hémorragie du post-partum sévère ou non. La tentative de voie basse semble être une option raisonnable pour les grossesses gémellaires dont le premier jumeau est en présentation du siège chez des candidates soigneusement sélectionnées et en présence de praticiens entraînés.

## REFERENCES

1. Sentilhes L, Goffinet F, Talbot A, Diguët A, Verspyck E, Cabrol D, et al. Attempted vaginal versus planned cesarean delivery in 195 breech first twin pregnancies. *Acta Obstet Gynecol Scand.* 2007;86(1):55-60.
2. Schmitz T, Korb D, Azria E, Deruelle P, Kayem G, Rozenberg P, et al. Neonatal Morbidity After Management of Vaginal Noncephalic Second-Twin Delivery by Residents. *Obstet Gynecol.* 2018;132(6):1377-85.
3. Whyte H, Hannah ME, Saigal S, Hannah WJ, Hewson S, Amankwah K, et al. Outcomes of children at 2 years after planned cesarean birth versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial. *Am J Obstet Gynecol.* 1 sept 2004;191(3):864-71.
4. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *The Lancet.* 21 oct 2000;356(9239):1375-83.
5. Goffinet F, Carayol M, Foidart J-M, Alexander S, Uzan S, Subtil D, et al. Is planned vaginal delivery for breech presentation at term still an option? Results of an observational prospective survey in France and Belgium. *Am J Obstet Gynecol.* avr 2006;194(4):1002-11.
6. Sentilhes L, Schmitz T, Azria E, Gallot D, Ducarme G, Korb D, et al. Breech presentation: Clinical practice guidelines from the French College of Gynaecologists and Obstetricians (CNGOF). *Eur J Obstet Gynecol Reprod Biol.* sept 2020;252:599-604.
7. Barrett JFR, Hannah ME, Hutton EK, Willan AR, Allen AC, Armson BA, et al. A randomized trial of planned cesarean or vaginal delivery for twin pregnancy. *N Engl J Med.* 3 oct 2013;369(14):1295-305.
8. Vendittelli F, Rivière O, Crenn-Hébert C, Riethmuller D, Schaal J-P, Dreyfus M, et al. Is a planned cesarean necessary in twin pregnancies? *Acta Obstet Gynecol Scand.* oct 2011;90(10):1147-56.
9. Abu-Heija AT, Ziadeh S, Obeidat A. Mode of delivery and perinatal results of the breech first twin. *J Obstet Gynaecol J Inst Obstet Gynaecol.* janv 1998;18(1):47-9.
10. Schmitz T, Carnavalet C de C, Azria E, Lopez E, Cabrol D, Goffinet F. Neonatal outcomes of twin pregnancy according to the planned mode of delivery. *Obstet Gynecol.* mars

2008;111(3):695-703.

11. Korb D, Goffinet F, Bretelle F, Parant O, Riethmuller D, Sentilhes L, et al. First Twin in Breech Presentation and Neonatal Mortality and Morbidity According to Planned Mode of Delivery. *Obstet Gynecol.* mai 2020;135(5):1015-23.
12. Bourtembourg A, Ramanah R, Jolly M, Gannard-Pechin E, Becher P, Cossa S, et al. [Twin delivery with the first twin in breech position. A study of 137 continuous cases]. *J Gynecol Obstet Biol Reprod (Paris).* avr 2012;41(2):174-81.
13. Steins Bisschop CN, Vogelvang TE, May AM, Schuitemaker NWE. Mode of delivery in non-cephalic presenting twins: a systematic review. *Arch Gynecol Obstet.* juill 2012;286(1):237-47.
14. Armson B, O'Connell C, Persad V, Joseph K, Young D, Baskett T. Determinants of Perinatal Mortality and Serious Neonatal Morbidity in the Second Twin. *Obstet Gynecol.* 1 oct 2006;108:556-64.
15. Vayssière C, Benoist G, Blondel B, Deruelle P, Favre R, Gallot D, et al. Twin pregnancies: guidelines for clinical practice from the French College of Gynaecologists and Obstetricians (CNGOF). *Eur J Obstet Gynecol Reprod Biol.* mai 2011;156(1):12-7.
16. Salomon LJ, Stirnemann J, Bernard J-P, Essaoui M, Chalouhi G, El Sabbagh A, et al. [Prenatal management of uncomplicated monochorionic diamniotic pregnancies]. *J Gynecol Obstet Biol Reprod (Paris).* déc 2009;38(8 Suppl):S45-50.
17. Picone O. [Management of uncomplicated dichorionic twin pregnancy]. *J Gynecol Obstet Biol Reprod (Paris).* déc 2009;38(8 Suppl):S51-55.
18. Michel S, Drain A, Closset E, Deruelle P, Ego A, Subtil D, et al. Evaluation of a decision protocol for type of delivery of infants in breech presentation at term. *Eur J Obstet Gynecol Reprod Biol.* oct 2011;158(2):194-8.
19. Garabedian C, Poulain C, Duhamel A, Subtil D, Houfflin-Debarge V, Deruelle P. Intrapartum management of twin pregnancies: are uncomplicated monochorionic pregnancies more at risk of complications than dichorionic pregnancies? *Acta Obstet Gynecol Scand.* mars 2015;94(3):301-7.
20. Pascalet M, Fourel M, Bourtembourg A, Toubin C, Coppola C, Becher P, et al. Mode of delivery of twin pregnancies with the first twin in breech position after the introduction of a policy of planned caesarean delivery for nulliparous women. *Eur J Obstet Gynecol Reprod Biol.*

mars 2019;234:58-62.

21. Korb D, Schmitz T, Alexander S, Subtil D, Verspyck E, Deneux-Tharaux C, et al. Association between planned mode of delivery and severe maternal morbidity in women with breech presentations: A secondary analysis of the PREMODA prospective general population study. *J Gynecol Obstet Hum Reprod.* févr 2020;49(2):101662.
22. Grisaru D, Fuchs S, Kupferminc MJ, Har-Toov J, Niv J, Lessing JB. Outcome of 306 twin deliveries according to first twin presentation and method of delivery. *Am J Perinatol.* 2000;17(6):303-7.
23. Boukerrou M, Robillard P-Y, Gérardin P, Heisert M, Kauffmann E, Laffitte A, et al. [Modes of deliveries of twins as a function of their presentation. A study of 371 pregnancies]. *Gynecol Obstet Fertil.* févr 2011;39(2):76-80.

**AUTEUR : Nom : ROUILLÈS**

**Prénom : Julie**

**Date de soutenance : 16/10/2020**

**Titre de la thèse :** Est-il raisonnable de proposer un accouchement par voie basse en cas de grossesse gémellaire avec le premier jumeau en présentation du siège ? Étude rétrospective et revue de la littérature.

**Thèse - Médecine - Lille 2020**

**Cadre de classement : Gynécologie Obstétrique**

**DES + spécialité : Gynécologie obstétrique**

**Mots-clés : Grossesses gémellaires, voie d'accouchement, premier jumeau en siège, devenir néonatal et maternel.**

**Contexte :** La présentation podalique du premier jumeau concerne 20% des grossesses gémellaires. Or l'impact de la voie d'accouchement sur la morbidité des fœtus en siège reste controversée dans la littérature et peu étudiée pour grossesses gémellaires. Le but de cette étude était d'évaluer le devenir néonatal et maternel en fonction de la voie d'accouchement lorsque le premier jumeau est en siège et de comparer ces résultats dans une revue de la littérature.

**Matériels et méthodes :** Il s'agit d'une étude rétrospective monocentrique (Lille, France), de janvier 2010 à décembre 2017, incluant les grossesses gémellaires dont le premier jumeau est en présentation podalique accouchées après 32 semaines d'aménorrhées. Deux groupes ont été définis : tentative de voie basse (TAVB) et césarienne programmée (CP). Le critère de jugement principal était la morbidité néonatale défini par un score d'APGAR inférieur à 7 à 5 minutes, un pH au cordon inférieur à 7,10 à la naissance, un sepsis et un syndrome de détresse respiratoire aigu.

**Résultats :** Parmi les 184 patientes incluses, 116 ont eu une tentative de voie basse (63%). La morbidité ne différait pas en fonction du mode d'accouchement, pour le premier jumeau (TAVB 10% versus CP 10%,  $p=0,99$ ), le deuxième jumeau (15% versus 10%,  $p=0,31$ ), et pour au moins un des jumeaux (23% versus 16%,  $p=0,25$ ). Le taux d'hémorragie du post-partum était significativement moins élevé dans le groupe TAVB (31% versus 60,3% ;  $p=0,001$ ).

**Conclusion :** La TAVB est envisageable lorsque le premier jumeau est en présentation podalique. La césarienne programmée est associée à un plus haut risque de complication maternelle comme l'hémorragie sévère du post-partum.

**Composition du Jury :**

**Président : Pr Damien SUBTIL**

**Assesseurs : Pr Véronique HOUFFLIN-DEBARGE, Dr Nadia TILLOUCHE**

**Directeur de thèse : Pr Charles GARABEDIAN**