J Gynecol Obstet Hum Reprod xxx (2017) xxx–xxx

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

Original Article

Induced labour at term and breech presentation: Experience of a level IIB French maternity

A. Jarniat [a,*], V. Eluard [a], O. Martz [a], P. Calmelet [b], A. Calmelet [b], P. Dellinger [c], P. Sagot [a]

[a] Gynecology obstetrics center, François-Mitterrand Hospital, 14, rue Paul-Gaffarel, 21000 Dijon, France
[b] Private hospital Brétéché, 3, rue de la Beraudière, 44000 Nantes, France
[c] Maternity, Regional Hospital center, 2, boulevard de Verdun, 89000 Auxerre, France

ARTICLE INFO

Article history:
Received 10 July 2016
Received in revised form 9 April 2017
Accepted 12 April 2017
Available online xxx

Keywords:
Breech presentation
Induction of labour
Cervix maturation
Caesarean
Perinatal morbidity

ABSTRACT

Data from the literature on induction of labour in breech presentation are rare and no conclusions can be drawn for this procedure.

Objectives. – To evaluate obstetrical and neonatal prognosis following induced labour in breech deliveries at term (37 to 42 weeks of gestation).

Methods. – We conducted a single-centre retrospective case-control study in a level IIB maternity unit from 1st January 2012 to 31st December 2015. The inclusion criteria were a singleton pregnancy and a breech presentation.

Results. – A total of 235 patients were included, 178 in the spontaneous labour group (group A), 57 in the induced labour group (whatever the procedure used: oxytocin or prostaglandin) (group B). There was no significant difference concerning the vaginal delivery rate between group A and group B (88.2% versus 91.2%). Both groups were also similar for transfers to neonatal units (10.7% versus 15.8%), pH < 7.0 (1.1% versus 1.8%) and 5-minute Apgar < 4 (1.1% versus 1.7%). There were no neonatal deaths or transfers to neonatal intensive care units.

Conclusion. – Induced labour in breech presentation is feasible with a vaginal delivery rate similar to that in spontaneous labour and the same neonatal outcomes. This therapeutic option must be considered in trained obstetrical teams when vaginal delivery in breech presentations is not contraindicated.

Introduction

In France, there are 4.7% of breech deliveries according to the 2010 French national perinatal survey [1]. Vaginal breech delivery at term is controversial due to the risk of perinatal complications. In a multicentre randomised study in 2000 (“Term Breech Trial”) [2], Hannah et al. recommended systematic planned caesarean section in all breech presentations. This study did have an international impact on obstetrical practices [3,4] even though the complementary study conducted by the same team did not show any differences between planned caesarean section and vaginal delivery for neonatal outcomes at two years [5]. The first study by Hannah et al. was criticized for the methodology used. In response to this, a prospective observational multicentre study, PREMODA, published in 2006 was conducted in France and Belgium [6,7]. It was based on the strict selection of patients according to specific criteria and rigorous obstetrical practices. They concluded that in selected patients and with the close surveillance of labour by a well-trained obstetrical team, vaginal breech delivery does not increase neonatal morbidity and mortality. Hence, planned caesarean section has no positive impact on neonatal prognosis. In the PREMODA intention-to-treat study, 5579 patients underwent planned caesarean section and 2526 had a vaginal breech delivery, of which 1796 (71.1%) were successful. There was no difference between the two modes of delivery for neonatal outcomes with adjusted analysis (odds ratio = 1.40, 95% CI [0.89–2.23]). Following these two major studies, many publications came to the same conclusions [8–10]. Furthermore, it is now well known that caesarean section has a significant impact on maternal and neonatal morbidity [11]. Nevertheless, the management of breech presentations varies from one hospital to another and from one region to another [12].

In France, 22.7% of deliveries are induced by oxytocin or prostaglandin depending on the state of the cervix, whatever the presentation [1]. The French health authorities’ [Haute Autorité de santé (HAS)] recommendations do not forbid labour induction in breech presentations at term [13]. It has been shown that advanced

* Corresponding author.
E-mail address: csmjarniat@hotmail.com (A. Jarniat).

http://dx.doi.org/10.1016/j.jogoh.2017.04.005
2468-7847/

labour in the delivery room for breech presentation was a good prognosis for successful vaginal delivery [14]. There are few data concerning labour induction in breech presentations and there is no consensus on this practice.

We studied the modes of delivery and neonatal outcomes for singleton breech presentations at term following spontaneous and induced labour in a French level IIB maternity unit.

Methods

We conducted a single-centre retrospective case-controlled intention-to-treat study in a level IIB maternity unit from 1st January 2012 to 31st December 2015. This maternity unit performs more than 2100 deliveries per year with 3.9% of breech presentations and 9.4% of caesarean sections (whatever the foetal presentation).

We included singleton pregnancies with a breech presentation at term [$\geq$ 37 weeks of gestation (WG)], in which vaginal breech birth was authorized by an obstetrician. Criteria for inclusion in this trial concerning vaginal breech birth were the following [15]:

- normal foetal biometry according to non-customized birth-weight curves from the Burgundy perinatal network [16] with a biparietal diameter $<$ 98 mm;
- normal pelvimetry by scanner imaging with a "Magnin" score $\geq$ 23, and with normal obstetrical conjugate and transverse diameter of the pelvic inlet;
- no evidence of hyperextension of the foetal head assessed by ultrasound;
- mother's agreement and motivation to actively participate in vaginal breech birth.

We excluded: premature labour ($<$ 37 WG), foetal malformation needing neonatal care (neonatal transfer or intensive care) or genetic or chromosomal anomalies.

Uteri with a single scar were not systematically excluded. Likewise, a complete breech presentation, nulliparous women and amniotic fluid abnormalities (colour or quantity) were not taken into account in decisions concerning the mode of delivery.

The decision to induce labour by prostaglandin or oxytocin was discussed whatever the foetal presentation. It was based solely on the Bishop score [13]:

- $<$ 4: dinoproston pessary (Propess®) was inserted for 24 hours. Following this, if cervical conditions were still unsatisfactory (Bishop $<$ 6) a therapeutic break of 24 hours was taken before inserting a second pessary, if needed;
- between 4–6: 2 mg dinoproston gel (Prostines®) was applied every 6 hours;
- $>$ 6: oxytocin perfusion was given.

During labour, amniotic membranes were kept intact for as long as possible. Artificial rupture of membranes was performed in women who failed to progress to the first or second stage of labour. Epidural analgesia was recommended. Oxytocin perfusion was initiated in women with uterine hypotonia or a lack of progress in the second stage of labour. Criteria leading to caesarean section during labour were a lack of progress to cervical dilatation of more than 5 cm after 2 hours, or a lack of foetal engagement at full dilatation of the cervix for 1 hour. Episiotomy was performed if necessary.

Group A was composed of patients with spontaneous labour whereas group B included induced labour, whatever the procedure used (oxytocin or prostaglandin). Groups were constituted on an "intention-to-treat" basis whatever the mode of delivery.

The main criterion was vaginal delivery or caesarean delivery.

Secondary endpoints were chosen in order to assess neonatal wellbeing:

- 5-minute Apgar score ($<$ 4);
- arterial cord blood pH ($\leq$ 7.0);
- umbilical cord lactates ($\geq$ 11 mmol/L);
- transfer to a neonatal care unit;
- transfer to a neonatal intensive care unit (level III);
- neonatal death.

The two first criteria correspond to neonatal asphyxia defined according to the American Congress of Obstetricians and Gynecologists (ACOG 1994).

Data were anonymously collected and analyses were performed using Excel tables. Yates' Chi^2 test and Fisher's exact test were used for the statistical analyses. Results were considered statistically significant with $P < 0.05$.

Results

We collected 284 breech deliveries at term. Forty-nine (17.3%) patients were excluded for planned caesarean section.

The reasons for the planned caesarean sections were the following:

- 10 pelvic disproportions;
- 14 single-scarred uteri;
- 2 double-scarred uteri;
- 8 pelvic disproportions with single-scarred uteri;
- 5 hyperextended foetal necks;
- 7 macrosomia or biparietal diameter $>$ 98 mm;
- 1 permanent cervical cerclage;
- 1 foetal growth restriction.

Altogether, 235 patients agreed to take part in the vaginal breech delivery study. Labour was spontaneous for 178 patients (group A) and induced for 57 patients (group B).

Both groups were comparable in terms of maternal age, parity, birth-weight and type of breech presentation (complete, incomplete or frank). Group B had significantly higher rates of prolonged pregnancy (43.9% versus 13%, $P < 0.01$) and small for gestational age (SGA) infants (19.3% versus 9.5%, $P = 0.05$) (Table 1).

No difference was observed between the two groups in terms of delivery mode with 88.2% of vaginal breech deliveries for group A (157 of 178) and 91.2% for group B (52 of 57) ($P = 0.53$).

Neonatal outcomes were identical for both groups in terms of 5-minute Apgar score $<$ 4, arterial cord blood pH $\leq$ 7.0 and the number of neonatal hospitalizations. There were no neonatal deaths or transfers to neonatal intensive care units (Table 2).

Difficulties for head delivery were encountered in 14 cases (5.9%) and obstetric forceps or spatulas were needed, although the proportion of such difficulties was similar for group B and A [9 (4.8%) versus 5 (8.8%)].

Five patients (8.8%) of group B underwent caesarean section during labour. This was due to lack of progression in the first stage of labour for two and lack of engagement at full dilatation of the cervix for three. No caesarean sections were performed for foetal heart rhythm abnormalities.

The vaginal breech delivery success rate was independent of the procedure used to induce labour:

- prostaglandin pessary: 94.7% (18 of 19 patients gave birth vaginally);
- dinoproston gel: 89.5% (17 of 19 patients gave birth vaginally);
- oxytocin: 94.7% (18 of 19 patients gave birth vaginally).

Please cite this article in press as: Jarniat A, et al. Induced labour at term and breech presentation: Experience of a level IIB French maternity. J Gynecol Obstet Hum Reprod (2017), http://dx.doi.org/10.1016/j.jogoh.2017.04.005