

# Value and pregnancy outcome of external cephalic version

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## قيمة وحصيلة الحمل للتحويل الخارجي للرأس

إبراهيم الهنداوي

**الخلاصة:** أُجريت مقارنة بين 90 امرأة تحمل أجنة مقلد في مركز الملك حسين الطبي، بعد أن أُجريَ لهن تحويل خارجي للرأس مع 102 امرأة في مجموعة شاهدة لم يجرَ لهن تحويل خارجي للرأس، وذلك للتعرف على كفاءة وحصيلة الحمل عند إجراء التحويل الخارجي للرأس في ما بعد الأسبوع السابع والثلاثين من الحمل. وقد أُجريَ التحويل الخارجي للرأس بنجاح في 59 من الأجنة (64%)، في حين أُجريت العمليات القيصرية لدى 39% من الحوامل بعد إجراء التحويل الخارجي للرأس بالمقارنة مع 61% من مجموعات الشواهد. وقد كان التحويل أكثر نجاحاً في عديدات الولادة منه فيمن لم يسبق لهن الولادة. كما كان التحويل الخارجي للرأس فعالاً في تقليل عدد العمليات القيصرية لتصبح ولادات مقلد في مواقع توليدية مختلفة، دون حدوث أية حصائل ضائرة ذات شأن على المواليد.

**ABSTRACT** To determine the efficacy and pregnancy outcome of external cephalic version at  $\geq 37$  weeks gestation, 90 women with a singleton breech fetus in King Hussein Medical Centre who had the procedure were compared with 102 women in a control group in whom the procedure was not attempted. External cephalic version was successfully performed on 59 fetuses (64%). Caesarean section was performed on 39% of patients who underwent the procedure compared to 61% of the control group. Version was more successful in multiparous than nulliparous women. External cephalic version was effective in reducing the number of caesarean deliveries in term breech infant in different obstetric settings, with no major neonatal adverse outcome.

### Valeur de la version céphalique externe et issue de la grossesse

**RÉSUMÉ** Afin de déterminer l'efficacité de la version céphalique externe et l'issue de la grossesse à 37 semaines de grossesse ou plus, on a comparé 90 femmes ayant eu un accouchement unique par le siège au Centre médical Roi Hussein et ayant subi la procédure avec 120 femmes d'un groupe témoin dans lequel la procédure n'a pas été tentée. La version céphalique externe a été menée avec succès sur 59 foetus (64 %). Une césarienne a été pratiquée chez 39 % des patientes qui avaient subi la procédure contre 61 % du groupe témoin. La version a donné de meilleurs résultats chez les multipares que chez les nullipares. La version céphalique externe a été efficace pour réduire le nombre de césariennes pour présentation du siège à terme dans divers établissements obstétricaux, sans effet néonatal indésirable majeur.

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## Introduction

Breech presentation is the most common form of malpresentation, accounting for 3%–4% of all deliveries at term, and is associated with significantly higher perinatal mortality and traumatic morbidity [1,2].

Caesarean section has increasingly been used to deliver breech-presenting babies because of high neonatal mortality and morbidity associated with vaginal delivery [1–3]. In 1991 there were 23 caesarean deliveries per 100 births in the United States, 11.7% of which were done because of breech presentation [4]. This approach has, however, to be balanced against the increased risk of maternal mortality and morbidity associated with caesarean section in both index and subsequent pregnancies [5].

External cephalic version is a procedure in which the position of the fetus is changed from breech to cephalic presentation. It significantly reduces both the incidence of breech presentation at delivery and the caesarean rate if performed after 36 weeks gestation. The reported success rate of term external cephalic version ranges from 41% to 77%, with a very low reversion rate [6–8].

Clinical complications related to term external cephalic version are uncommon; the most commonly reported complication at term is transient fetal bradycardia, which does not appear to be associated with any adverse pregnancy or fetal outcome. Emergency abdominal delivery arising from complications of external cephalic version occurs in < 1% of cases. Nonetheless, clinical complications still occur and include abruptio placenta as well as fetal death caused by severe abruptio placenta [9].

This study was conducted to assess the value of external cephalic version and pregnancy outcome.

## Methods

This was a prospective, randomized, controlled study involving 192 singleton, breech presentations after 37 weeks gestation. In 90 patients, external cephalic version was attempted; the other 102 patients in whom version was not attempted constituted a control group. The study was conducted in King Hussein Medical Centre between January 1999 and December 2001.

All patients gave informed consent to participate. Patients were admitted as outpatients and fasted for 6 hours before the procedure. A reactive cardiotocogram (defined as the presence  $\geq 2$  accelerations of  $\geq 15$  beats/minute lasting  $\geq 15$  seconds over a period of 15 minutes) and associated fetal movement over 40 minutes and known rhesus blood group (women who were Rh-negative would need anti-D gamma globulin) were prerequisites for external cephalic version.

The obstetric history was reviewed and an ultrasonographic scan was performed for all participants before the procedure to exclude any contraindications [fetal abnormality, intrauterine growth retardation, placenta praevia, established labour, ruptured membrane, abnormal cardiotocogram, gestational diabetes requiring insulin, proteinuric hypertension disorders, previous caesarean section, oligohydramnios (amniotic fluid index < 5 cm), polyhydramnios (amniotic fluid index > 25 cm)].

Infusion of ritodrine (0.3 mg/minute for 30 minutes) was given as a tocolytic to prevent uterine contraction, unless contraindicated. During and after the administration of tocolytics, vital signs were monitored every 2 minutes until they returned to normal. External cephalic version was performed only by, or under close supervision of, physicians who were experienced in the

procedure. No anaesthesia, analgesia or sedation was used during the procedure.

Ultrasonographic examination was performed immediately after the procedure to confirm successful version, to exclude fetal bradycardia and to exclude the presence of fetal extremities below the fetal head after successful version. The cardiotocogram was then repeated; patients were discharged if there were no complications and if the cardiotocogram showed a reactive pattern.

All clinical details concerning the pregnancy, external cephalic version and delivery were recorded and reviewed.

## Results

There was no statistically significant difference between the study group and the control group for age, parity, gestational age and height. Mean birth weight in the study group was 3350 g [standard deviation (SD) 520 g] and in the control group was 3120 g (SD 510 g) (Table 1).

During the 2-year study period external cephalic version was performed for 90 patients. The age of patients ranged from 19 years to 42 years, with a mean of 27.2 years. There were 41 nulliparous and 49 multiparous women. Gestational age at the time of external cephalic version ranged from 37 to 41 weeks. All patients were rhesus positive.

Reversion to breech presentation after successful external cephalic version occurred in 1 nullipara and 7 multiparas (8.9%); 2 of the multiparas had a further external cephalic version and both were successful. Of the remaining 6 patients, 4 were delivered by caesarean section, and 2 by breech vaginal delivery.

There was no fetal or maternal death after external cephalic version. Transient fetal bradycardia occurred after 6 of the 92 procedures, most lasting for < 1 minute.

There was 1 case of abruptio placenta after external cephalic version in a nulliparous woman. The placenta was situated on the posterior uterine wall, and fetal brady-

Table 1 Patient characteristics

Characteristic	ECV group (n = 90)	Control group (n = 102)	Significance at P < 0.05
Maternal age (years), mean (SD)	27.2 (6.2)	28.9 (6.8)	NS
Nullipara, No. (%)	41 (46)	49 (48)	NS
Multipara, No. (%)	49 (54)	53 (52)	NS
Gestational age at version (weeks), mean (SD)	37.8 (1.0)	38 (3.0)	NS
Gestational age at delivery (weeks), mean (SD)	39.3 (1.2)	39.4 (1.4)	NS
Height (cm), mean (SD)	161 (6.5)	160 (6.8)	NS
Fetal weight (g), mean (SD)	3350 (520)	3120 (510)	

SD = Standard deviation.

NS = not significant.

ECV = external cephalic version.

cardia was detected immediately after the procedure. The baby was delivered by emergency caesarean section; Apgar scores were 8 at 1 minute, and 10 at 5 minutes.

There were no maternal or neonatal complications among the 90 patients.

External cephalic version was successfully performed for 20 of 41 nulliparous women and 39 of 51 multiparous women, a total of 59 fetuses (64%). The distribution of mode of delivery in successful and failed external cephalic version in both primiparous and multiparous women is shown in Table 2.

Caesarean section was performed on 39% of women who underwent external cephalic version compared to 61% of

women in whom external cephalic version was not performed ( $P < 0.01$ ) (Tables 3 and 4).

## Discussion

The rising caesarean delivery rate is a major public health issue that has attracted attention from health providers and patients alike. Breech presentation at term is seen in approximately 3%–4% of pregnancies [10]. In 1959, Wright recommended caesarean delivery for the fetus with a breech presentation [11]. This recommendation, along with others, led to a major change in the management of breech presentation [11].

Table 2 Mode of delivery for successful and failed external cephalic version (ECV) in nullipara and multipara women

Mode of delivery	Nullipara (n = 41)				Multipara (n = 49)			
	Failed ECV (n = 21)		Successful ECV (n = 20)		Failed ECV (n = 12)		Successful ECV (n = 39)	
	No.	%	No.	%	No.	%	No.	%
Elective caesarean section	16	76	1	5	3	25	1	3
Emergency caesarean section	4	19	3	15	4	33	3	8
Vaginal delivery (cephalic)	–	–	16	80	–	–	33	89
Vaginal delivery (breech)	1	5	–	–	5	42	–	–

Table 3 Mode of delivery for women who had external cephalic version (ECV) and women in the control group

Mode of delivery	ECV group (n = 90)		Control group (n = 102)		$\chi^2$ (P)
	No.	%	No.	%	
Normal vertex	49	54	9	9	60.90 (< 0.001)
Assisted breech	7	8	31	30	
Caesarean section (breech)	27	30	61	60	
Caesarean section (cephalic)	8	9	1	1	

Table 4 Caesarean section for breech presentation for women who had external cephalic version (ECV) and women in the control group

Caesarean section	ECV group (n = 90)		Control group (n = 102)		$\chi^2$ (P)
	No.	%	No.	%	
Elective	21	23	51	50	4.69 (< 0.05)
Emergency	14	16	11	11	
Total	35	39	62	61	

In the United States of America, the caesarean delivery rate in breech rose from 15% in 1970 to 84% in 1989 [11]. Breech presentation is the third most important cause of the rise in caesarean delivery rate during the past 20 years [12]. The performance of caesarean delivery for breech presentation not only increases the primary caesarean delivery rate but also has an impact on the total caesarean delivery rate for the future because many women may have repeated caesarean deliveries in subsequent pregnancies.

Our overall success rate of 64% compares favourably with that of previous reports [13–15], although in 1 study a success rate of 77% was reported for external cephalic version at term [16]. The majority of the larger series had lower figures, ranging from 51% [6] to 58% [17]. The rate of reversion to breech after successful external cephalic version at term is low; the incidence in our study (8.97%) was similar to that seen in other studies [18]. External cephalic version was more successful in multiparas (76%) than in nulliparas.

This study supports the findings of other reports that external cephalic version is effective in reducing the number of caesarean deliveries in term breech fetuses in different obstetric settings, with no major neonatal and maternal adverse outcome

[19,20]. In this study the breech presentation rate at delivery fell by 64%. After external cephalic version, caesarean section for breech presentation in the study group was 39% compared to 61% in the control group (Table 4).

There were no perinatal losses in this study, but a major complication in the form of abruptio placentae occurred in 1 patient. There was no identifiable risk factor that might have contributed to this complication.

Transient fetal bradycardia is the most common complication after external cephalic version, occurring in up to 36% of cases [13,21]. Incidence in this study was only 6.5%, (6/92). Although perinatal morbidity has not been reported after an episode of transient bradycardia associated with external cephalic version, it would be unwise to conclude that these abnormalities are benign.

## Conclusion

The use of external cephalic version in breech presentation certainly reduces the incidence of caesarean section, especially in those units where vaginal breech delivery is not a common practice, so it is an effective and safe procedure and should be included in the routine management of breech presentation.

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### Making pregnancy safer

Noting with concern the unacceptably high levels of maternal mortality in some countries of the Region, which prevent the achievement of the Millennium Development Goals and impede the human and socioeconomic development of these countries, the Regional Office presented a technical discussion paper entitled: "Moving towards the Millennium Development Goals: investing in maternal and child health", to the fifty-first session of the Regional Committee for the Eastern Mediterranean. The paper presented the current situation, achievements and challenges of improving maternal health and suggested future strategic directions for overcoming the present obstacles and build upon existing successful interventions in the Region. The Committee adopted resolution EM/ RC51/R.4 which outlined the main strategic directions required for improving maternal health in the Region. Increased attention was addressed to upgrading the technical know-how of the health workers of making pregnancy safer services, and hence improving the quality and management of these services in countries of the Region.

*Source:* The work of WHO in the Eastern Mediterranean Region. Annual Report of the Regional Director 1 January–31 December 2004