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# External Cephalic Version and Transverse Lie Presentation

## 1. Successful vaginal delivery after four external cephalic versions: A case report.

**Item Type:** Journal Article

**Authors:** Murphy K. and Avery, K.

**Publication Date:** 2025

**Journal:** International Journal of Clinical Obstetrics and Gynaecology 9(3), pp. 35–36

**Abstract:** This report describes a 31-year-old G3P1 patient with type 2 diabetes and a persistent transverse fetal lie who underwent four External Cephalic Versions (ECVs) at term. Through careful use of terbutaline, continuous fetal monitoring, strategic abdominal counter pressure, and a stabilization technique during amniotomy, spontaneous vaginal delivery was achieved. Avoidance of a primary cesarean section was central to the patient's goals and served as the clinical priority throughout management. This case highlights the feasibility and potential safety of repeated ECVs and introduces a practical strategy for maintaining fetal position during membrane rupture to prevent reversion. Copyright © Gynaecology Journal.



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## 2. External Cephalic Version: A Retrospective Chart Review at a Canadian Tertiary Care Centre.

**Item Type:** Journal Article

**Authors:** Rusnell L.;Blair A.;Cooper S. and Brar, S.

**Publication Date:** 2024

**Journal:** Journal of Obstetrics and Gynaecology Canada 46(11) (pagination), pp. Article Number: 102662. Date of Publication: 01 Nov 2024

**Abstract:** Objectives: The primary objective is to identify our local external cephalic version (ECV) success rate, variables associated with increased likelihood of success, and complication rates. The secondary objective is to allow obstetrical care providers to accurately counsel patients undergoing a trial of ECV. Method(s): We analysed patient charts between January 2018 and December 2022 who underwent ECV. Variables included maternal age, parity, gestational age at the time of ECV attempt, breech type, anesthetic, uterine relaxant, placental location, neonatal birthweight, and provider seniority. Outcomes were ECV success, mode of delivery, emergent cesarean delivery rate due to ECV, and neonatal intensive care unit admission. Appropriate statistical analysis was performed. Result(s): Overall, 258 patients were included. Overall success rate was 31%. Multiparity, transverse presentation, and neonatal birthweight >3.3 kg were associated with significantly increased success rates. Uterine relaxant use was associated with a lower success rate than no relaxant use, which is potentially explained by significantly more frequent relaxant use in non-transverse presentations and a non-significant trend in increased relaxant use in primiparous patients. Other factors including anesthetic use, maternal age, gestational age, placental location, and provider seniority did not significantly impact success. The emergency cesarean delivery rate was 10% and the neonatal intensive care unit admission rate was 8%, both of which were higher than anticipated. Conclusion(s): ECV remains an option for the management of the term breech. Obstetrical providers at our centre and in others may use this study to more accurately counsel patients using local data and optimize the likelihood of success based on patient and peri-procedural factors. Copyright © 2024 The Author

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### 3. External cephalic version: Predictors for success.

**Item Type:** Journal Article

**Authors:** Cillard L.;Verhaeghe C.;Spiers A.;Madzou S.;Descamps P.;Legendre G. and Corroenne, R.

**Publication Date:** 2021

**Journal:** Journal of Gynecology Obstetrics and Human Reproduction 50(9) (pagination), pp. Article Number: 102165. Date of Publication: 01 Nov 2021

**Abstract:** Objectives: The objective of this study was to identify the factors predictive of the success of external cephalic version (ECV). Method(s): A single-centre retrospective observational study was performed in the maternity ward of the Angers University Hospital, France, between January 2010 and May 2020. The study included all patients (n = 613) for whom an ECV was performed for a breech or transverse foetus. The primary endpoint was measured by the success of the ECV, defined by the visualisation, using pelvic ultrasound, of the foetus in cephalic presentation immediately after the manoeuvre. Following to the ECV, the cohort was separated into two groups; ECV Success and ECV Failure. In order to determine the predictive factors of success, a logistic regression model was performed, including the parameters of: parity, foetal presentation during ECV, the side of the foetal back, placental location, type of operator and maternal age. The results are presented as (odds ratio [confidence intervals]; p-value). The significance threshold was defined by a p-value Method(s): A single-centre retrospective observational study was performed in the maternity ward of the Angers University Hospital, France, between January 2010 and May 2020. The study included all patients (n = 613) for whom an ECV was performed for a breech or transverse foetus. The primary endpoint was measured by the success of the ECV, defined by the visualisation, using pelvic ultrasound, of the foetus in cephalic presentation immediately after the manoeuvre. Following to the ECV, the cohort was separated into two groups; ECV Success and ECV Failure. In order to determine the predictive factors of success, a logistic regression model was performed, including the parameters of: parity, foetal presentation during ECV, the side of the foetal back, placental location, type of operator and maternal age. The results are presented as (odds ratio [confidence intervals]; p-value). The significance threshold was defined by a p-value Result(s): The ECV success rate was 21.4% (131/613). The factors predictive of the success of ECV were: transverse foetal presentation (2.7 [1.3-5.6]; pResult(s): The ECV success rate was 21.4% (131/613). The factors predictive of the success of ECV were: transverse foetal presentation (2.7 [1.3-5.6]; pConclusion(s): The study shows that transverse foetal presentation, a senior physician operator, multiparity, as well as a non-anterior placental location are factors predictive of the success of ECV. Knowledge of these factors can improve the information given to patients. Copyright © 2021 Elsevier Masson SAS

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#### 4. External cephalic version: Predictors of success and influence on caesarean rates.

**Item Type:** Journal Article

**Authors:** Correia Costa S.;Raposo M.I.;Machado A.P.;Ramalho C.;AyresdeCampos D. and Montenegro, N.

**Publication Date:** 2021

**Journal:** European Journal of Obstetrics and Gynecology and Reproductive Biology 256, pp. 211–214

**Abstract:** Objective: To evaluate the success rate of external cephalic version, predictive factors for success of this maneuver and to examine how it affects mode of delivery, pregnancy and neonatal outcome rates. Study design: Retrospective cross-sectional study performed in a tertiary care university hospital between January 2002 and June 2018. A total of 324 ECVs were performed in 321 pregnancies. Maternal and ultrasound data, procedure-related factors, birth characteristics and neonatal data were collected. Absolute and relative frequencies were used for descriptive analysis and the chi-square test for comparative analysis. Odds ratios with 95 % confidence intervals were calculated. Result(s): The overall success rate of the procedure was 33,3%. Multiparity, transverse lie, unengaged breech presentation, low body mass index, soft uterus and palpable fetal head were independent risk factors for success. No statistically significant association was found with other variables. Routine use of ECV allowed a reduction in cesarean delivery rates for breech presentation, with no increase in maternal or neonatal morbidity. Operative delivery rates after successful ECV were similar to those of the general population. Discussion and conclusion: Despite a relatively low overall success rate, routine use of ECV can result in reduced cesarean delivery rates with similar perinatal outcomes. Conveyed information on the success rate of ECV can be adapted to individual patient characteristics. Copyright © 2020 Elsevier B.V.

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## 5. A Multivariable Predictive Model for Success of External Cephalic Version.

**Item Type:** Journal Article

**Authors:** Dahl, Carly M.;Zhang, Yue;Ong, Janice X.;Yeh, Chen;Son, Moeun;Miller, Emily S.;Roy, Archana and Grobman, William A.

**Publication Date:** 2021

**Journal:** Obstetrics & Gynecology 138(3), pp. 426–433

**Abstract:** OBJECTIVE: To create a prediction model for external cephalic version (ECV) success using objective patient characteristics. METHODS: This retrospective study included pregnant individuals of at least 18 years of age with a nonanomalous, singleton gestation who underwent an ECV attempt between 2006 and 2016 at a single quaternary care hospital. Variables assessed included maternal age, height, weight, body mass index (BMI), parity, fetal sex, gestational age, estimated fetal weight, type of fetal malpresentation, placental location, and amniotic fluid volume. Univariable and multivariable logistic regression models were used to determine the association of patient characteristics with ECV success. Estimated odds ratios and corresponding 95% CIs were calculated for each variable, and backward elimination and bootstrapping were used to find a parsimonious model for ECV success with the highest discriminatory capacity (as determined by the area under the receiver operating characteristic curve [AUC]). This model was evaluated with a calibration curve across deciles of success. RESULTS: A total of 1,138 individuals underwent an ECV attempt and were included in this analysis. The overall ECV success frequency was 40.6%. Factors significantly associated with ECV success were maternal age, parity, placental location, estimated fetal weight, and type of fetal malpresentation. A final model with BMI, parity, placental location, and type of fetal malpresentation had the highest AUC (0.667 [95% CI 0.634-0.701]), resulted in good calibration, and is represented by the following equation:  $1/[1+e^{-x}]$  where  $x=1.1726-0.0314(\text{BMI})-0.9299(\text{nulliparity})+1.0218(\text{transverse or oblique presentation at ECV})-0.5113(\text{anterior placenta})$ . An interactive version of this equation was created and can be accessed at [www.ecvcalculator.com](http://www.ecvcalculator.com). CONCLUSION: A prediction model that estimates the probability of ECV success was created and internally validated. This model incorporates easily obtainable and objective patient factors known before ECV and may be used in decision making and patient counseling about ECV. Copyright © 2021 by the American College of Obstetricians and Gynecologists. Published by Wolters Kluwer Health, Inc. All rights reserved.

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## 6. External Cephalic Version: A Dying Art Worth Reviving.

**Item Type:** Journal Article

**Authors:** Nalam R.L.;Chinnachamy P. and Emmanuel, P.

**Publication Date:** 2018

**Journal:** Journal of Obstetrics and Gynecology of India 68(6), pp. 493–497

**Abstract:** Purpose: Breech presentation is the most common abnormal presentation occurring in 3-4% of all deliveries. Incidence of caesarean section for breech presentation has increased markedly in the last few decades. Attempting external cephalic version (ECV) reduces the chance of non-cephalic presentation at term, thus reducing the rate of caesarean sections. Method(s): Prospective study was conducted in secondary healthcare centre, in rural set-up from August 2013 to August 2015. A total of 52 patients were enrolled into the study. Result(s): ECV was successful in 32 out of 52 patients with overall success of 61.5%. Out of the 32 successful ECVs, 24 patients delivered vaginally (75%) (p value 0.00), 6 patients delivered by caesarean section, and 2 patients were lost to follow-up. Transverse lie had 100% success rate for ECV (p value 0.005). Gravity, placental position, gestational age and use of tocolytics did not influence the success rate of ECV. Most common problem observed during the procedure was abdominal discomfort. Conclusion(s): ECV is a safe procedure with high percentage of patients delivering vaginally after successful version. Hence, acquiring skills in ECV should be considered mandatory in the postgraduate training of future obstetricians. Copyright © 2018, Federation of Obstetric & Gynecological Societies of India.

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## 7. Factors associated with the success of external cephalic version for breech presentation at term

**Item Type:** Conference Proceeding

**Authors:** Rasul S., Damodaram M. and Ranjan, G.

**Publication Date:** 2018

**Publication Details:** International Journal of Gynecology and Obstetrics. Conference: 22nd FIGO World Congress of Gynecology and Obstetrics. Rio de Janeiro Brazil.

143(Supplement 3) (pp 666-667); John Wiley and Sons Ltd.,

**Abstract:** Objectives: Breech presentation complicates approximately 3-4% of all term deliveries. External Cephalic version (ECV) is designed to reduce the incidence of breech presentation at term as well as the associated risks. Various clinical and ultrasonographic variables, including gestation, parity, placental location, estimated fetal weight, position of the fetal spine, amniotic fluid volume and the type of breech have been reported to be predictive of a successful ECV. These risk factors, in particular the BMI of women was studied in successful versus non-successful cases and whether this had impacted upon their outcome. Method(s): A retrospective study on all ECV's was carried out from 1st January to 31st August 2017 at the Lister Hospital, Stevenage and was compared to the set standard by the Royal College of Obstetricians and Gynaecologists (RCOG). 31 sets of notes were reviewed for documentation standards. Details of individual cases were collected from the Birth Register as well as individual case notes requested for further information. Result(s): The success rate was 27%. However there was an unusually high re-version rate of 25%. The gestation at which ECV was carried out ranged between 36+1-38+5 (mean=37+5). BMI ranged between 19 and 40, with an average BMI of 23 in successful cases and 27.9 in non-successful cases. 29% of patients in whom the ECV was successful were nulliparous. In comparison, 80% of patients in whom the ECV was not successful were nulliparous. Of the re-versions, one case was found to have a BMI of 29, multiparous with a flexed breech. The second case had a BMI of 23, nulliparous with a transverse lie. Conclusion(s): Overall, the success rate of ECV was below the standard set by the RCOG. In this study, it appeared that the success rates were influenced by parity and BMI. Our practice is to offer ECV to all women with no absolute contraindications to the procedure and it is likely that more careful case selection would improve success rates. A small minority of our patients opt for vaginal breech delivery following a failed ECV and other measures to improve patient care include a dedicated breech presentation clinic with access to a dedicated ECV service and improved training in ECV as well as in vaginal breech delivery.

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## 8. External cephalic version to reduce caesarean sections

**Item Type:** Conference Proceeding

**Authors:** Lovsin B., Mrkajic M., Zver Skomina J., Deisinger D., Cetin Lovsin I., JevticDordevic I. and Catic, D.

**Publication Date:** 2017

**Publication Details:** Journal of Perinatal Medicine. Conference: 13th World Congress of Perinatal Medicine, WCPM 2017. Belgrade Serbia. 45(Supplement 2) (pp 429); Walter de Gruyter GmbH,

**Abstract:** Objectives: Almost all babies in breech presentation at term are delivered by caesarean section. Professional guidelines recommend an attempt of external cephalic version to reduce breech presentations at birth and thus the proportion of caesareans. Our aim was to analyze the clinical and ultrasound factors to predict the outcome of version and check the hypothesis if the implementation of the external cephalic version helps to reduce the number of caesareans. Method(s): The study included all attempts of external cephalic version after 36 weeks of pregnancy at the Department of Obstetrics and Gynaecology in Izola General Hospital, Slovenia from 2002 to 2010. Result(s): 68 out of 143 (47.6 %) external cephalic versions were successful. The success of intervention was mostly affected by a greater amount of amniotic fluid, higher fetal position in the pelvis and transverse or oblique lye of the fetus. With 100 attempts of external cephalic version 32 caesareans were avoided or one caesarean with 3.1 attempt. Conclusion(s): The study confirmed that performing external cephalic version the number of caesareans can be reduced. The proportion of successful versions was comparable to studies in the literature despite minimal use of uterine muscle relaxants. We strongly suggest to attempt external cephalic version in case of a greater amount of amniotic fluid, higher fetal position in the pelvis and transverse or oblique lye of the fetus because a very high rate of success.

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## 9. Predictors of success of external cephalic version: Bi-center study.

**Item Type:** Journal Article

**Authors:** Dochez V.;Delbos L.;Esbelin J.;Volteau C.;Winer N. and Sentilhes, L.

**Publication Date:** 2016

**Journal:** Journal De Gynecologie Obstetrique Et Biologie De La Reproduction 45(5), pp. 509–515

**Abstract:** Objectives In the literature, success rate of external cephalic version (ECV) is 39 to 65%. This study aims to identify potential predictors of a successful ECV. Materials and methods Retrospective bi-center study performed from January 2011 through December 2012 at Angers University Hospital and Nantes University Hospital from January 2011 through December 2011. Were identified the demographic and ultrasonography characteristics of patients and the data of the process. Results One hundred and seventy-eight patients were included, 88 in Angers and 90 in Nantes; 16.3% of ECV were successful. Multiparity (OR 28.45;  $P < 0.01$ ) and transverse position (OR 0.63;  $P < 0.01$ ) are the two significant predictors. There is no significant difference found for center, operator, position of the placenta, amniotic fluid or presence of a uterine scar. Conclusion The success rate in our two French university centers is much lower than that reported in the literature. Parity and transverse position are the only 2 significant predictors of ECV success. Copyright © 2015 Elsevier Masson SAS

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10. **Predictors of successful external cephalic version and assessment of success for vaginal delivery.**

**Item Type:** Journal Article

**Authors:** Salzer L.;Nagar R.;Melamed N.;Wiznitzer A.;Peled Y. and Yogev, Y.

**Publication Date:** 2015

**Journal:** Journal of Maternal-Fetal and Neonatal Medicine 28(1), pp. 49–54

**Abstract:** Objective: To identify predictors of successful external cephalic version (ECV) and to compare delivery outcome between women who had a successful ECV and women with spontaneous vertex presentation. Method(s): A retrospective cohort study of all women who underwent ECV in a single tertiary medical center between 2007 and 2011. Delivery outcome was compared between women who underwent a trial of vaginal delivery following successful ECV with that of a control group in a 2:1 ratio. Multivariate analysis was used to identify predictors of successful ECV. Result(s): Overall 287 were eligible for the study group. Of these 130 (45.3%) had a successful ECV. Polyhydramnios was the strongest factor associated with successful ECV (OR =3.1, 95%-CI 1.4-7.2), followed by transverse lie (versus breech presentation, OR=2.6, 95%-CI 1.2-6.7) and a posterior placenta (OR=1.7, 95%-CI 1.1-3.9), while nulliparity was associated with a lower likelihood of successful ECV (OR=0.4, 95%-CI 0.2-0.6). Women who had a successful ECV and underwent a trial of labor were more likely to deliver by operative vaginal delivery (OVD) (OR=1.8, 95%-CI 1.2-3.6), mainly due to a higher rate of prolonged 2nd, but were not at an increased risk for CS (OR=0.9, 95%-CI 0.4-2.4). Conclusion(s): Counselling to women prior to ECV should address the likelihood of success based on the predicting factors described above, as well as the increased risk for OVD in the case of successful ECV. Copyright © 2015 Informa UK Ltd. All rights reserved: reproduction in whole or part not permitted.

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## 11. Management of Fetal Malpresentation

**Item Type:** Journal Article

**Authors:** Sharshiner, Rita and Silver, Robert M.

**Publication Date:** 2015

**Journal:** Clinical Obstetrics & Gynecology 58(2), pp. 246–255

**Abstract:** Fetal malpresentation is an important cause of the high cesarean delivery rate in the United States and around the world. This includes breech, face, brow, and compound presentations as well as transverse lie. Risk factors include multiparity, previously affected pregnancy, polyhydramnios, and fetal and uterine anomalies. Appropriate management can reduce the need for cesarean delivery in some cases. This review discusses management options and focuses specifically on external cephalic version and vaginal breech delivery.

**Access or request full text:** <https://libkey.io/10.1097/GRF.000000000000103>

## 12. External cephalic version of non-cephalic presentation; Is it worthwhile?.

**Item Type:** Journal Article

**Authors:** Gottvall T. and Ginstman, C.

**Publication Date:** 2011

**Journal:** Acta Obstetrica Et Gynecologica Scandinavica 90(12), pp. 1443–1445

**Abstract:** A retrospective study of 186 consecutive external cephalic versions (ECV) late in the third trimester was done. Logistic regression analysis of background factors leading to a successful ECV showed that multiparity, a larger amount of amniotic fluid, measured as amniotic fluid index, and a transverse fetal position were each significantly correlated with a successful version. The total success rate was 62%, and after a successful ECV 84% of the fetuses were delivered vaginally. No severe complications were registered during the ECVs, and all babies had normal Apgar scores at delivery. Attempting ECV at least once or even twice seems to be appropriate because a successful ECV can decrease the rate of cesarean section in this group of patients and by so doing may also decrease the risk of cesarean section in future pregnancies. © 2011 Nordic Federation of Societies of Obstetrics and Gynecology.

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### 13. Transverse lie in Northern Jordan: Risk factors, obstetric and perinatal outcome.

**Item Type:** Journal Article

**Authors:** ElJallad M.F.;AlRimawi H.S.;Amarin Z.O. and Zayed, F.

**Publication Date:** 2004

**Journal:** Emirates Medical Journal 22(3), pp. 221–223

**Abstract:** This study describes the incidence, risk factors, obstetric and perinatal outcome of transverse lie in singleton pregnancies at term at the Princess Badeea Teaching Hospital in Northern Jordan. A retrospective study was undertaken for women who delivered over a 5-year period from January 1997 to January 2002. There were 164 cases of term transverse lie out of 45,763 deliveries during the study period. The incidence of transverse lie at term was 0.36%. This occurred more commonly in grandmultiparous (79.3%) in comparison to low parous (14.6%) and primigravid (6.1%) women. The most common risk factors associated with transverse lie were placenta praevia (7.3%), polyhydramnios (4.9%), uterine anomalies (3.7%) and contracted pelvis (3%). The antenatal and intrapartum complications associated with this condition were premature rupture of membranes (10.4%), antepartum haemorrhage (6.1%), cord prolapse (3%) and uterine rupture (0.6%). The majority of women were delivered by emergency caesarean section (73.8%) and 18.9% of women were delivered by elective caesarean section. External cephalic version and successful vaginal delivery were achieved in 7.3% of women. The perinatal mortality was 42.7 per 1000 births. There were 7 cases of perinatal deaths; 3 stillbirths and 4 early neonatal deaths. Better antenatal care and the use of ultrasonography will lead to early diagnosis of transverse lie. Elective admission and delivery, whether by caesarean section or vaginally after external cephalic version of such cases will minimize, if not completely eliminate, the major hazards associated with transverse lie in labour.

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14. **Introducing routine external cephalic version for the management of the malpresenting fetus near term.**

**Item Type:** Journal Article

**Authors:** Devendra, K.

**Publication Date:** 2002

**Journal:** Medical Journal of Malaysia 57(4), pp. 454–459

**Abstract:** Background: The aim of this study was to assess the efficacy and safety of external cephalic version (ECV) when its use was introduced in the routine management of breech presentation and transverse lie after 36 weeks by obstetricians with limited prior experience with the procedure. The influence of various factors on the outcome of ECV was also studied. Method(s): Retrospective study of 44 consecutive cases of ECV which were analysed with respect to outcome, parity, type of breech, placental site and birth weight. Result(s): ECV was successful in 45% of women. 80% of women with successful ECV delivered vaginally while 10% underwent spontaneous reversion to a non-cephalic presentation. In contrast, only 15% of women with failed ECV delivered vaginally. Parity, type of breech presentation and placental location did not significantly affect the outcome of ECV although there was a trend towards better success rate of ECV with multiparity, flexed breech presentation transverse lie and posteriorly-located placentae. The mean birth weight of fetuses of women with successful ECV was significantly heavier than those of women who failed ECV (pConclusion(s): ECV is a safe and effective procedure that is useful in the management of breech presentation and transverse lie near term. The lack of prior experience with the procedure does not appear to influence the success rate or morbidity.

**URL:** <https://libkey.io/libraries/2828/openurl?genre=article&sid=OVID:embase&id=pmid:12733170&id=doi:&issn=0300-5283&isbn=&volume=57&issue=4&spage=454&pages=454-459&date=2002&title=Medical+Journal+of+Malaysia&atitle=Introducing+routine+external+cephalic+version+for+the+management+of+the+malpresenting+fetus+near+term&aulast=Devendra&pid=%3Cauthor%3EDevendra+K.%3C%2Fauthor%3E%3CAN%3E36717272%3C%2FAN%3E%3CDT%3EArticle%3C%2FDT%3E>



15. **Prolapsed cord after external cephalic version in a patient with premature rupture of membranes and transverse lie.**

**Item Type:** Journal Article

**Authors:** Berghella, V.

**Publication Date:** Dec 01 ,2001

**Journal:** European Journal of Obstetrics, Gynecology, & Reproductive Biology 99(2), pp. 274–275

**Abstract:** A 29-year-old G6 P3023 woman presented at 37 weeks' gestation with rupture of membranes and oligohydramnios. After informed consent was obtained, a successful external cephalic version (ECV) was performed. The patient went into spontaneous labor, but about 2h after the ECV, the umbilical cord prolapsed, necessitating cesarean section. Umbilical cord prolapse is a possible complication of ECV in patients with rupture of membranes and oligohydramnios.

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16. **Determining the clinical efficacy and cost savings of successful external cephalic version.**

**Item Type:** Journal Article

**Authors:** Mauldin J.G.;Mauldin P.D.;Feng T.I.;Adams E.K. and Durkalski, V. L.

**Publication Date:** 1996

**Journal:** American Journal of Obstetrics and Gynecology 175(6), pp. 1639–1644

**Abstract:** OBJECTIVE: The aim of this study was to determine predictors of successful external cephalic version and to calculate the associated cost savings achieved with success. STUDY DESIGN: A retrospective study of 203 women with singleton gestations who underwent external cephalic version was performed. Descriptive, univariate, and multivariate analyses were performed on patient-specific risk data to predict successful version. National claims data were used for the cost simulation. RESULT(S): Higher parity ( $p = 0.02$ ), transverse-oblique presentation ( $p = 0.001$ ), posterior placenta ( $p = 0.001$ ), and a longer duration of pregnancy ( $p = 0.001$ ) significantly increased the likelihood of a successful version. Heavier maternal weight was negatively associated with successful version ( $p = 0.05$ ). The cost simulation revealed an average savings of \$2462 for each successful version. CONCLUSION(S): This study identifies clinical variables associated with an increased external cephalic version success rate. If, in fact, successful external cephalic version reduces both maternal and fetal morbidity associated with cesarean delivery and, as demonstrated in this analysis, the costs associated with the delivery, then greater effort should be made to maximize the success rate of external cephalic version.

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## 17. Transverse lie.

**Item Type:** Journal Article

**Authors:** Hankins G.D.V.;Hammond T.L.;Snyder R.R. and Gilstrap III, L. C.

**Publication Date:** 1990

**Journal:** American Journal of Perinatology 7(1), pp. 66–70

**Abstract:** To assess the impact of transverse lie on fetal and neonatal outcome, 14 mother and infant pairs with transverse lie were matched to 28 pairs with a vertex and 28 with a breech presentation. The control groups were matched for gestational age, route of delivery, type of anesthesia, and presence of labor. Infants in transverse lie were found to have a lower absolute arterial pH (7.21 versus 7.27,  $p < 0.05$ ) as well as more frequent severe acidosis (pH  $< 7.1$ , 3 of 14 versus 0 of 56,  $p < 0.04$ ). Their birthweight was also less (2798 gm versus 3251 gm,  $p < 0.05$ ) and they sustained more birth trauma and long-term residual effects than either the breech (5 of 14 versus 1 of 28,  $p = 0.01$ ) or vertex control groups (5 of 14 versus 2 of 28,  $p = 0.03$ ). Based on these results, we recommend active intervention at 38 weeks' gestational age, via external version followed by labor induction, or failing this, cesarean delivery.

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## 18. The nonlaboring transverse lie. A management dilemma.

**Item Type:** Journal Article

**Authors:** Phelan, J. P.;Boucher, M.;Mueller, E.;McCart, D.;Horenstein, J. and Clark, S. L.

**Publication Date:** Mar ,1986

**Journal:** Journal of Reproductive Medicine 31(3), pp. 184–186

**Abstract:** During a one-year period, 29 patients at 37 weeks' gestation or later were referred to the breech version clinic at Los Angeles County/University of Southern California Medical Center and found to have sonographic evidence of a transverse lie. Because of the relative instability of the lie and the high probability of spontaneous conversion, the patients were not considered candidates for version and were returned to their referral agencies for subsequent prenatal care. The subsequent outcomes in these patients were reviewed. Twenty-four (83%) spontaneously converted to a longitudinal lie and presented in labor with either a vertex (15 [52%]) or breech (9 [31%]) presentation. The five (17%) remaining patients presented in labor with a persistent transverse lie. Overall, the cesarean section rate was 13 of 29, or 45%. The indications for cesarean section were breech presentation, eight (62%), and transverse lie, five (38%). Major complications included two prolapsed cords, one spontaneous uterine rupture and one neonatal death. Based on a review of our experience, it appears reasonable to consider external version in any patient with a



persistent transverse lie around 39 weeks. The high rate of subsequent cesarean section and major morbidity associated with expectant management of these patients suggests that if version is unsuccessful, strong consideration should be given to elective cesarean section.

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19. **The role of external version in the intrapartum management of the transverse lie presentation.**

**Item Type:** Journal Article

**Authors:** Phelan J.P.; Stine L.E. and Edwards, N. B.

**Publication Date:** 1985

**Journal:** American Journal of Obstetrics and Gynecology 151(6), pp. 724–726

**Abstract:** External version under tocolysis was applied and studied prospectively as an alternative to routine cesarean delivery in the laboring patient with a transverse lie presentation. After sonographic confirmation and signing of informed consent, 12 patients with a transverse lie presentation and intact membranes agreed to participate in the current investigation. For these 12 patients, 10 (83%) presentations were successfully converted to a longitudinal lie (nine cephalic, one breech) and two (17%) remained transverse. Of the 10 patients with successful conversions, six (60%) delivered vaginally while four required cesarean delivery. In two (20%) patients external version was unsuccessful and both patients were delivered by cesarean. With the exception of one infant with congenital anomalies, neonatal outcome was excellent in the study population. Overall, the use of external version in the laboring patient with a transverse lie presentation was associated with a 50% reduction in the cesarean section rate. While these results are encouraging, further experience is still needed to more clearly define the maternal and fetal risks associated with this procedure.

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## 20. Intrapartum external version of the second twin.

**Item Type:** Journal Article

**Authors:** Chervenak F.A.; Johnson R.E.; Berkowitz R.L. and Hobbins, J. C.

**Publication Date:** 1983

**Journal:** Obstetrics and Gynecology 62(2), pp. 160–165

**Abstract:** Twenty-five external cephalic versions were attempted on 14 transverse and 11 breech malpositioned second twins. In ten of 14 (71%) transverse presentations and eight of 11 (73%) breech presentations, version was successful and resulted in subsequent vertex vaginal delivery. Successful version was not associated with parity, gestational age, or birth weight but was associated with mode of anesthesia and disparity in twin size. Among the 25 attempted versions, seven (28%) had one-minute and two (8%) had five-minute Apgar scores below 7. Analysis by birth weight and mode of delivery is presented. Time interval between delivery of twins had no association with outcome. One neonatal death occurred in a 28-week, 1100-g infant. The authors believe that external version is useful in the management of the second twin who has an abnormal presentation, and that routine cesarean section is not always necessary. Further investigation, especially at lower birth weights, is necessary to confirm the safety and efficacy of this method of management.

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## 21. Successful external cephalic version in a massively obese patient.

**Item Type:** Journal Article

**Authors:** Chervenak, F. A. and Berkowitz, R. L.

**Publication Date:** Sep ,1983

**Journal:** Obstetrics & Gynecology 62(3 Suppl), pp. 8s–9s

**Abstract:** A massively obese patient (199 kg) presented at term with a fetus in the transverse lie. External cephalic version with sonographic guidance was successful, and subsequent vertex vaginal delivery occurred. External cephalic version in the massively obese gravid patient is a therapeutic possibility, and the dangers of cesarean section may be avoided using this procedure.

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## Search Strategy

### Ovid MEDLINE(R) ALL <1946 to August 27, 2025>

1	exp Version, Fetal/	960	
2	External Cephalic Version*.tw,kw.	800	
3	ECV.tw,kw.	3172	
4	1 or 2 or 3	3962	
5	(transverse or trans-verse).tw,kw.	89550	
6	4 and 5	80	
7	limit 6 to english language	70	
8	from 7 keep 2,4,13,15-16,19,24,28,32,35-36,42-43,47,49-50,66-68	19	
9	external version*.tw,kw.	142	
10	5 and 9	13	

### Embase <1974 to 2025 August 26>

1	exp external cephalic version/	713	
2	external cephalic version*.tw,kw.	1145	
3	external version*.tw,kw.	164	
4	ECV.tw,kw.	6743	
5	1 or 2 or 3 or 4	7470	
6	(transverse or trans-verse or sideways).tw,kw.	111723	
7	5 and 6	85	
8	limit 7 to english language	77	
9	from 8 keep 3-4,7,15,17,23-24,31,33,35,51,58,60,68,73-75,77	18	



## CINAHL

#	Query	Results
S1	(MH "Version, Fetal")	454
S2	XB (external cephalic version or ECV or external version)	1,040
S3	S1 OR S2	1,204
S4	XB (transverse or trans verse or sideways)	11,155
S5	S3 AND S4	33
S6	S3 AND S4	31