Impact of External Cephalic Version on Breech Outcomes

Successful external cephalic version reduces cesarean section rates while maintaining maternal safety and comparable neonatal outcomes to non-ECV management.

Abstract

Twenty-five studies on term breech presentations reported ECV success rates ranging from approximately 40% to 87%. Papers indicate that a successful ECV is followed by lower cesarean section rates. For instance, one study noted a cesarean rate of 13% after successful ECV versus 98% after failure, and pooled data revealed a relative risk of 0.57 (95% CI: 0.50–0.64) for cesarean delivery in the context of a successful procedure. In several reports, interventions such as tocolysis and regional analgesia improved ECV success rates.

Reports on maternal safety do not describe frequent or severe complications. Most studies recorded either no complications or transient events—such as fetal heart rate decelerations (up to 36%) and maternal hypotension (around 32% with spinal analgesia)—with serious events remaining uncommon. Neonatal outcomes—including 5-minute Apgar scores, admission rates, and perinatal mortality—appeared comparable between ECV and expectant management, with reported differences failing to reach statistical significance in most instances.

These findings suggest that when ECV succeeds, it is associated with lower cesarean section rates while maintaining an acceptable maternal safety profile and yielding neonatal outcomes similar to those seen with non-ECV management.

Paper search

Using your research question ”How does external cephalic version impact cesarean section rates, maternal safety, and neonatal outcomes in breech presentations?”, we searched across over 126 million academic papers from the Semantic Scholar corpus. We retrieved the 500 papers most relevant to the query.

Screening

We screened in papers that met these criteria:

- **Population - Gestational Age**: Does the study include pregnant women at or after 36 weeks gestation?
- **Population - Presentation**: Does the study focus specifically on women with confirmed breech presentation?
- **Population - Fetal Health**: Are fetuses with known congenital abnormalities excluded from the study population?
- **Intervention**: Is external cephalic version (ECV) the primary intervention being studied?
- **Comparator**: Does the study compare ECV to either no intervention, expectant management, or alternative breech management strategies?
- **Outcomes**: Does the study report at least one of these outcomes: cesarean section rates, maternal complications/safety outcomes, or neonatal outcomes?
- **Study Design - Type**: Is the study design either a randomized controlled trial, prospective/retrospective cohort study, or systematic review/meta-analysis?

- **Study Size**: Does the study include 10 or more participants?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Study Design**:

  Identify the type of study design. Look in the methods section for explicit description. Classify as:

- Randomized controlled trial
- Retrospective cohort study
- Prospective cohort study
- Other (specify)

If multiple design elements are present, list all. If unclear, note "design not clearly specified". Prioritize the primary design classification used by the authors.

- **Study Setting and Context**:

  Extract the following details:

- Geographic location (country, specific hospital/institution)
- Type of healthcare facility (e.g., university hospital, community hospital)
- Time period of data collection (exact dates)

If multiple settings were involved, list all. If any details are missing, note "not reported". Be precise about location and dates.

- **Participant Demographics**:

  Extract the following participant characteristics:

- Total number of participants
- Gestational age range
- Breech presentation type (frank, complete, footling)
- Mean/median maternal age
- Parity status

For numeric data, include mean and standard deviation or median and range. If any data is missing, note "not reported". Ensure consistency in reporting units and categories.

- **External Cephalic Version (ECV) Details**:

  Extract the following intervention details:

- Number of ECV attempts
- ECV success rate
- Techniques used (e.g., tocolysis, specific manipulation methods)
- Timing of ECV (gestational week)

If multiple techniques or variations exist, describe all. If specific details are unclear or missing, note "not specified". Prioritize precise numeric data.

- **Cesarean Section Outcomes**:

  Extract cesarean section-related data:

- Total cesarean section rate
- Cesarean section rate in ECV vs. non-ECV groups
- Reasons for cesarean sections
- Comparative statistical analysis (p-values, confidence intervals)

Ensure you capture both absolute numbers and percentages. If statistical significance is reported, include the exact p-value and confidence interval. If data is incomplete, note "insufficient reporting".

- **Neonatal Outcomes**:

  Extract neonatal outcome measures:

- Apgar scores (1-minute and 5-minute)
- Neonatal admission rates
- Perinatal mortality
- Umbilical cord pH levels
- Any reported neonatal complications

Report numeric data with appropriate statistical measures. If comparisons between groups are made, include statistical significance. For missing data, use "not reported" or "insufficient data".

- **Maternal and Fetal Safety**:

  Document:

- Reported complications during ECV
- Maternal adverse events
- Fetal distress incidents
- Premature membrane rupture rates
- Cord prolapse occurrences

Provide precise numeric data with percentages. If no complications were reported, explicitly state "no complications noted". Ensure comprehensive reporting of safety-related information.

Results

Characteristics of Included Studies

Study	Study Design	Sample Size	Population Characteristics	Primary Outcomes Measured	Full text retrieved
"Heterotopic Pregnancy and External Cephalic Version (ECV) Outcomes"	Retrospective cohort study	249	Singleton breech pregnancies 37 weeks	ECV success rate, cesarean section rate	No
Ben-Arie et al., 1995	Retrospective cohort study	249	Singleton breech pregnancies >36 weeks	ECV success rate, cesarean section rate	No
Carlan et al., 1994	Retrospective cohort study	61	Singleton breech pregnancies >36 weeks	ECV success rate with and without epidural anesthesia	Yes
Chan et al., 2003	Retrospective cohort study	279	Singleton pregnancies 36 weeks with successful ECV	Labor outcomes, obstetric interventions	No
Dorsten et al., 1981	Randomized controlled trial	51	Low-risk breech pregnancies 37-39 weeks	ECV success rate, cesarean section rate	No
Ducarme, 2019	Systematic review/guideline development	Not reported in abstract	Breech pregnancies at term	ECV success rate, cesarean section rate, safety outcomes	No
Han et al., 2023	Retrospective cohort study	158	Singleton breech pregnancies at 36 weeks	ECV success rate, cesarean section rate, neonatal outcomes	No
Hofmeyr and Kulier, 2012	Systematic review and meta-analysis	184,704	Breech pregnancies 36 weeks	ECV success rate, cesarean section rate, neonatal outcomes	Yes
Hruban et al., 2019	Retrospective cohort study	638	Singleton breech pregnancies >36 weeks	ECV success rate, cesarean section rate, safety outcomes	No

Study	Study Design	Sample Size	Population Characteristics	Primary Outcomes Measured	Full text retrieved
James et al., 2001	Prospective cohort study	176	Singleton breech pregnancies 37 weeks	Cost analysis of ECV vs. non-ECV management	Yes
Laros et al., 1995	Retrospective cohort study	464	Singleton breech pregnancies >36 weeks	ECV success rate, cesarean section rate	No
Lauterbach et al., 2021	Retrospective cohort study	1,271	Singleton breech pregnancies 37 weeks	ECV success rate, cesarean section rate	No
Nassar et al., 2006	Systematic review	2,503	Breech pregnancies 36 weeks	Adverse outcomes of ECV and persistent breech presentation	No
Patel et al., 2019	Retrospective cohort study	10,016,394	Singleton breech pregnancies 36-42 weeks	Characteristics associated with ECV attempt	No
Pay et al., 2020	Systematic review and meta-analysis	184,704	Breech pregnancies 36 weeks	ECV success rate, cesarean section rate, neonatal outcomes	Yes
Rosman et al., 2016	Prospective cohort study	1,613	Singleton breech pregnancies 36 weeks	Mode of childbirth after ECV, neonatal outcomes	No
Skupski et al., 2003	Retrospective cohort study	289	Singleton breech pregnancies 36 weeks	ECV success rate, cesarean section rate, safety outcomes	No
Son et al., 2018	Retrospective cohort study	4,117	Singleton breech pregnancies 37 weeks	Perinatal morbidity and mortality, cesarean section rate	Yes

Study	Study Design	Sample Size	Population Characteristics	Primary Outcomes Measured	Full text retrieved
Sultana and Khurshid, 2012	Randomized controlled trial	60	Singleton breech pregnancies >37 weeks	ECV success rate, cesarean section rate	No
Tan, 2009	Randomized controlled trial	114	Singleton breech pregnancies at term	ECV success rate with and without tocolysis, cesarean section rate	No
Wallace et al., 1984	Randomized controlled trial	113	Singleton breech pregnancies >37 weeks	ECV success rate, cesarean section rate, safety outcomes	No
Wax et al., 2000	Retrospective cohort study	152	Singleton breech pregnancies 37 weeks	Labor and delivery outcomes after successful ECV	No
Weiniger et al., 2007	Randomized controlled trial	70	Nulliparous women with breech presentation at term	ECV success rate with and without spinal analgesia	No
Weiniger et al., 2010a	Randomized controlled trial	64	Multiparous women with breech presentation at term	ECV success rate with and without spinal analgesia	No
Weiniger et al., 2010b	Randomized controlled trial	64	Multiparous women with breech presentation at term	ECV success rate with and without spinal analgesia	No

The characteristics of the included studies can be summarized as follows:

- Study Design : The included studies comprised 12 retrospective cohort studies, 7 randomized controlled trials, 4 systematic reviews, and 2 prospective cohort studies.
- Sample Size : The sample sizes varied widely across studies:
  - 6 studies had <100 participants

  - 5 studies had 100-199 participants
  - 4 studies had 200-299 participants
  - 3 studies had >10,000 participants
  - The remaining studies had sample sizes ranging from 400 to 4,999 participants
  - 1 study did not report sample size

- Population Characteristics :
  - 5 studies specifically examined singleton breech pregnancies 37 weeks
  - 4 studies focused on singleton breech >36 weeks
  - 3 studies each examined singleton breech 36 weeks and breech 36 weeks
  - Other populations included breech at term, nulliparous or multiparous women with breech presentation at term, and specific gestational age ranges

- Primary Outcomes :
  - ECV success rate was measured in 18 out of 25 studies
  - Cesarean section rate was measured in 15 out of 25 studies
  - Other outcomes included neonatal outcomes (4 studies), safety outcomes (4 studies), and labor/delivery outcomes (2 studies)
  - Individual studies also measured cost analysis, perinatal morbidity/mortality, ECV attempt characteristics, adverse outcomes, obstetric interventions, and mode of childbirth

Effects of External Cephalic Version

Impact on Cesarean Section Rates

Study	ECV Success Rate	Cesarean Section Rate Post-ECV	Control Group Cesarean Section Rate	Key Factors
"Heterotopic Pregnancy and ECV Outcomes"	80%	13% (successful ECV), 98% (unsuccessful ECV)	No mention found	Parity (nulliparous 58%, multiparous 85%)
Ben-Arie et al., 1995	78.7%	No mention found	No mention found	Parity, birthweight, amniotic fluid volume
Carlan et al., 1994	59% (with epidural), 24% (without epidural)	No mention found	No mention found	Use of epidural anesthesia
Chan et al., 2003	No mention found	32% (after successful ECV)	15% (all term vertex)	No mention found
Dorsten et al., 1981	68%	75% (failed ECV)	85% (breech in labor)	Nulliparity, maternal obesity, engagement of breech
Ducarme, 2019	No mention found	Reduced (no specific rate)	No mention found	Multiparity, absence of maternal obesity

Study	ECV Success Rate	Cesarean Section Rate Post-ECV	Control Group Cesarean Section Rate	Key Factors
Han et al., 2023	66.7% (28/42)	42.9% (18/42)	86.2% (100/116)	No mention found
Hofmeyr and Kulier, 2012	58% (pooled)	Relative Risk 0.57 (95% Confidence Interval: 0.50-0.64)	No mention found	No mention found
Hruban et al., 2019	47.8%	No mention found	No mention found	No mention found
James et al., 2001	~50%	No mention found	No mention found	No mention found
Laros et al., 1995	51%	31% (successful ECV)	No mention found	No mention found
Lauterbach et al., 2021	61.5%	43% (persistent breech), 7% (non-persistent)	No mention found	Persistent vs non-persistent breech
Nassar et al., 2006	No mention found	No mention found	No mention found	No mention found
Patel et al., 2019	55.3%	No mention found	No mention found	Maternal race, marital status, education, age, insurance
Pay et al., 2020	58%	Relative Risk 0.57 (95% Confidence Interval: 0.50–0.64)	No mention found	No mention found
Rosman et al., 2016	No mention found	57%	87%	No mention found
Skupski et al., 2003	51%	64% (ECV group), 32% (successful ECV)	96% (no ECV)	No mention found
Son et al., 2018	40%	66.4%	99.2%	No mention found
Sultana and Khurshid, 2012	80%	20%	73.3%	No mention found
Tan, 2009	70.2% (with tocolysis), 36.8% (without)	31.6% (tocolysis), 63.2% (control)	No mention found	Use of tocolysis
Wallace et al., 1984	77%	25% (successful ECV), 87% (failed ECV)	88% (control and failed ECV)	No mention found
Wax et al., 2000	No mention found	No significant difference	No mention found	No mention found
Weiniger et al., 2007	66.7% (with spinal), 32.4% (without)	No mention found	No mention found	Use of spinal analgesia
Weiniger et al., 2010a	87.1% (with spinal), 57.5% (without)	No mention found	No mention found	Use of spinal analgesia

Study	ECV Success Rate	Cesarean Section Rate Post-ECV	Control Group Cesarean Section Rate	Key Factors
Weiniger et al., 2010b	87.1% (with spinal), 57.5% (without)	No mention found	No mention found	Use of spinal analgesia

The impact of External Cephalic Version (ECV) on cesarean section rates can be summarized as follows:

- ECV Success Rate :
  - 20 out of 25 studies reported ECV success rates
  - 9 studies reported success rates below 60%
  - 4 studies reported success rates between 60-69%
  - 3 studies reported success rates between 70-79%
  - 4 studies reported success rates between 80-89%
  - 5 studies provided comparisons of success rates with and without interventions (e.g., anesthesia, tocolysis)
- Cesarean Section Rate :
  - 16 out of 25 studies provided information on cesarean section rates
  - Cesarean section rates varied widely, ranging from 13% to 98% depending on ECV success and other factors
  - 9 studies did not report cesarean section rates
- Key Factors Affecting ECV Success :
  - 11 out of 25 studies provided information on key factors
  - Parity was mentioned as a key factor in 4 studies
  - Anesthesia or analgesia use was mentioned in 4 studies
  - Fetal position (e.g., persistent vs. non-persistent breech) was mentioned in 2 studies
  - Maternal obesity was mentioned in 2 studies
  - Other factors mentioned in single studies included birthweight, amniotic fluid volume, tocolysis use, and maternal demographics
  - 14 studies did not provide information on key factors

The studies generally reported lower cesarean section rates following successful ECV compared to unsuccessful ECV or no ECV attempt. However, the variability in success rates and outcomes across studies suggests that multiple factors may influence the effectiveness of ECV in reducing cesarean section rates.

Maternal Safety Outcomes

Study	Complication Type	Frequency	Severity	Contributing Factors
”Heterotopic Pregnancy and ECV Outcomes”	No complications noted	No mention found	No mention found	No mention found
Ben-Arie et al., 1995	No complications noted	No mention found	No mention found	No mention found
Carlan et al., 1994	No significant increase in complications	No mention found	No mention found	No mention found
Chan et al., 2003	No complications noted	No mention found	No mention found	No mention found
Dorsten et al., 1981	Transient fetal heart rate deceleration	36% of attempts	Transient	No mention found
Ducarme, 2019	Transient fetal heart rate abnormalities	No mention found	Transient	No mention found
Han et al., 2023	Premature rupture of membrane	7.14% (ECV group)	No mention found	No mention found
Hofmeyr and Kulier, 2012	No specific complications reported	Rare	No mention found	No mention found
Hruban et al., 2019	Emergency cesarean deliveries	6 cases (<0.9%)	Serious	Placental abruption, abnormal cardiotocography
James et al., 2001	No complications noted	No mention found	No mention found	No mention found
Laros et al., 1995	No complications noted	No mention found	No mention found	No mention found
Lauterbach et al., 2021	No mention found	No mention found	No mention found	No mention found
Nassar et al., 2006	No increased risk of adverse outcomes	Rare	No mention found	No mention found
Patel et al., 2019	No complications noted	No mention found	No mention found	No mention found
Pay et al., 2020	No specific complications reported	Rare	No mention found	No mention found
Rosman et al., 2016	No mention found	No mention found	No mention found	No mention found

Study	Complication Type	Frequency	Severity	Contributing Factors
Skupski et al., 2003	Occult cord prolapse, nonreassuring fetal heart patterns, placental abruption	4 cases total	Serious	No mention found
Son et al., 2018	Non-reassuring fetal status	1.8% of ECV attempts	No mention found	No mention found
Sultana and Khurshid, 2012	No complications noted	No mention found	No mention found	No mention found
Tan, 2009	No mention found	No mention found	No mention found	No mention found
Wallace et al., 1984	Transient fetal bradycardia, fetomaternal bleeding	36% (bradycardia), 2% (bleeding)	Transient	No mention found
Wax et al., 2000	No complications noted	No mention found	No mention found	No mention found
Weiniger et al., 2007	No complications noted	No mention found	No mention found	No mention found
Weiniger et al., 2010a	Maternal hypotension	32% (spinal analgesia group)	Easily treated	Spinal analgesia
Weiniger et al., 2010b	Maternal hypotension	32% (spinal analgesia group)	Easily treated	Spinal analgesia

The maternal safety outcomes associated with External Cephalic Version (ECV) can be summarized as follows:

- Reporting of Complications :
  - 22 out of 25 studies provided information on complications
  - 3 studies did not mention complications
- Types of Complications :
  - 9 studies reported no complications
  - 3 studies reported fetal heart rate issues
  - 2 studies reported maternal hypotension
  - 2 studies reported multiple complications
  - 1 study each reported premature rupture of membrane, emergency cesarean, no significant increase in complications, and no increased risk of adverse outcomes
  - 2 studies reported no specific complications
- Frequency of Complications :
  - 11 studies provided frequency information
    * 8 reported specific frequencies of complications

    - * 3 described complications as ”rare”
  - 14 studies did not provide frequency information

- Severity of Complications :
  - 7 studies provided severity information
    - * 3 reported transient complications
    - * 2 reported serious complications
    - * 2 reported easily treated complications
  - 18 studies did not provide severity information

- Contributing Factors :
  - 3 studies reported contributing factors, all related to spinal analgesia
  - 22 studies did not provide information on contributing factors

The studies generally reported low rates of serious maternal complications associated with ECV. The most commonly reported complications were transient fetal heart rate abnormalities and maternal hypotension associated with analgesia techniques. However, the lack of comprehensive reporting on complication severity and contributing factors in many studies limits the ability to draw firm conclusions about the overall safety profile of ECV.

Neonatal Outcomes

Study	Apgar Scores	Neonatal Admission Rates	Perinatal Mortality	Umbilical Cord pH	Other Complications
”Heterotopic Pregnancy and ECV Outcomes”	No mention found	No mention found	No mention found	No mention found	No mention found
Ben-Arie et al., 1995	No mention found	No mention found	No mention found	No mention found	No mention found
Carlan et al., 1994	Similar between groups	No mention found	No mention found	Similar between groups	No adverse outcomes reported
Chan et al., 2003	No mention found	No mention found	No mention found	No mention found	No mention found
Dorsten et al., 1981	No mention found	No mention found	No mention found	No mention found	No significant complications
Han et al., 2023	Apgar <7: 1/42 (ECV) vs 3/116 (control)	No mention found	No mention found	No mention found	No mention found
Hofmeyr and Kulier, 2012	5-min: Relative Risk 1.29 (95% Confidence Interval: 1.10-1.52)	Relative Risk 0.36 (95% Confidence Interval: 0.04-3.24)	Relative Risk 0.34 (95% Confidence Interval: 0.05-2.12)	Relative Risk 0.65 (95% Confidence Interval: 0.17-2.44)	Insufficient data

Study	Apgar Scores	Neonatal Admission Rates	Perinatal Mortality	Umbilical Cord pH	Other Complications
Hruban et al., 2019	5-min <5: 1 case each in successful and unsuccessful groups	No mention found	None reported	<7.00: 2 cases (successful), 9 cases (unsuccessful)	No mention found
James et al., 2001	No mention found	No mention found	No mention found	No mention found	No mention found
Laros et al., 1995	No mention found	No mention found	No mention found	No mention found	No mention found
Lauterbach et al., 2021	No mention found	No mention found	No mention found	No mention found	No mention found
Nassar et al., 2006	No mention found	No mention found	No mention found	No mention found	No mention found
Patel et al., 2019	No mention found	No mention found	No mention found	No mention found	No mention found
Pay et al., 2020	5-min: Relative Risk 1.29 (95% Confidence Interval: 1.10–1.52)	No mention found	No mention found	No mention found	No mention found
Rosman et al., 2016	No mention found	No mention found	No mention found	No mention found	No mention found
Skupski et al., 2003	No mention found	No mention found	No mention found	No mention found	No mention found
Son et al., 2018	5-min <7: 0.4% (ECV) vs 0.3% (control), p=0.54	3.6% (ECV) vs 3.3% (control), p=0.53	Stillbirth: 0.1% in both groups; No neonatal deaths	<7.0: 1.8% (ECV) vs 1.2% (control), p=0.14	Therapeutic hypothermia: 0.2% (ECV) vs 0.1% (control), p=0.89
Sultana and Khurshid, 2012	No mention found	No mention found	No mention found	No mention found	No mention found
Tan, 2009	No mention found	No mention found	No mention found	No mention found	No mention found
Wallace et al., 1984	No mention found	No mention found	1 fetal demise	No mention found	No mention found
Wax et al., 2000	No significant difference	No significant difference	No mention found	No mention found	No mention found
Weiniger et al., 2007	No mention found	No mention found	No mention found	No mention found	No mention found
Weiniger et al., 2010a	No mention found	No mention found	No mention found	No mention found	No mention found

Weiniger et al., 2010b	No mention found	No mention found	No mention found	No mention found	No mention found

The neonatal outcomes associated with External Cephalic Version (ECV) can be summarized as follows:

- Apgar Scores :
  - 7 out of 25 studies provided data on Apgar scores
    - 5 studies reported specific Apgar score data
    - 1 study reported scores were similar between groups
    - 1 study reported no significant difference
  - 18 studies did not provide Apgar score data
- Neonatal Admission Rates :
  - 3 out of 25 studies provided data on neonatal admission rates
    - 2 studies reported specific admission rate data
    - 1 study reported no significant difference
  - 22 studies did not provide neonatal admission rate data
- Perinatal Mortality :
  - 3 out of 25 studies provided data on perinatal mortality
  - 22 studies did not provide perinatal mortality data
- Umbilical Cord pH :
  - 4 out of 25 studies provided data on umbilical cord pH
    - 3 studies reported specific cord pH data
    - 1 study reported pH was similar between groups
  - 21 studies did not provide umbilical cord pH data
- Other Complications :
  - 2 studies reported on other complications:
    - 1 study reported no adverse outcomes
    - 1 study reported no significant complications
  - 23 studies did not report on other complications

The studies generally reported similar neonatal outcomes between ECV and expectant management groups. However, the lack of comprehensive reporting on neonatal outcomes in many studies limits the ability to draw firm conclusions about the overall impact of ECV on neonatal health.

Factors Influencing ECV Success

Maternal Characteristics

- Parity :
  - Multiple studies found that multiparity was associated with higher ECV success rates
  - "Heterotopic Pregnancy and ECV Outcomes" reported success rates of 58% for nulliparous women compared to 85% for multiparous women

  - Ducarme (2019) identified multiparity as a factor contributing to higher ECV success rates

- Maternal Obesity :
  - Absence of maternal obesity was identified as a factor contributing to higher ECV success rates (Ducarme, 2019)
  - Dorsten et al. (1981) noted maternal obesity as a factor prejudicing ECV success

- Maternal Age :
  - Patel et al. (2019) found that maternal age <24 years was associated with a lower likelihood of ECV attempt

- Other Maternal Factors :- Patel et al. (2019) identified maternal race, marital status, education, and insurance as factors associated withECV attempt

Fetal Factors

- Birthweight :
  - Ben-Arie et al. (1995) identified fetal birthweight as a factor influencing ECV success

- Amniotic Fluid Volume :
  - Adequate amniotic fluid volume was associated with higher success rates (Ben-Arie et al., 1995)

- Engagement of the Breech :
  - Dorsten et al. (1981) noted that engagement of the breech prejudiced ECV success

- Persistent Breech Presentation :
  - Lauterbach et al. (2021) found that persistent breech presentation was associated with lower ECV success rates compared to non-persistent breech (19.6% vs 82.0%)

Procedural Techniques

- Use of Tocolysis :
  - Tan (2009) reported higher success rates with the use of intravenous salbutamol tocolysis (70.2%) compared to no tocolysis (36.8%)

- Analgesia :
  - Several studies by Weiniger et al. (2007, 2010a, 2010b) demonstrated improved success rates with the use of spinal analgesia
  - Carlan et al. (1994) reported higher success rates with epidural anesthesia (59%) compared to without (24%)

- Timing of ECV :
  - Most studies performed ECV at or after 36 weeks gestation, but the optimal timing was not explicitly addressed in the included studies

The studies identified various factors that may influence the success rate of ECV, including maternal characteristics, fetal factors, and procedural techniques. However, the relative importance of these factors varied across studies, and not all studies examined the same set of factors.

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