



External cephalic version

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INTRODUCTION — External cephalic version (ECV) refers to a procedure in which the fetus is rotated from the breech to the cephalic presentation by manipulation through the mother's abdomen ([figure 1](#)). ECV is typically performed in nonlaboring women at or near term to improve their chances of having a vaginal cephalic birth.

The Royal College of Obstetricians and Gynaecologists recommends that a skilled service for ECV should be available and offered to women with breech presentation at term [[1](#)]. Likewise, the American College of Obstetricians and Gynecologists (ACOG) recommends that all women near term with breech presentation should be offered an attempt at version [[2](#)].

This topic will discuss the procedure for ECV. The causes, diagnosis, management, and outcome of breech presentation are reviewed separately. (See "[Approach to breech presentation](#)".)

EFFECTIVENESS — The effectiveness of ECV for increasing the proportion of fetuses in cephalic presentation at the onset of labor and decreasing the frequency of cesarean delivery was illustrated by a systematic review of five randomized trials of ECV at term [[3](#)]. Compared with women with breech fetuses who had no attempt at ECV, women who attempted ECV had a significant reduction in both noncephalic births (relative risk [RR] 0.38, 95% confidence interval [CI] 0.18-0.80) and cesarean delivery (RR 0.55, 95% CI 0.33-0.91) [[3](#)]. Although ECV decreased the frequency of cesarean delivery compared with no ECV, studies have shown that the cesarean delivery rate after successful ECV remains higher than in the general obstetrical population:

- A meta-analysis reported that women with successful ECV had a cesarean delivery rate of 28 percent, which was significantly higher than the 13 percent in women with cephalic-presenting fetuses and no ECV [[4](#)]. The excess risk of cesarean delivery was due to both dystocia and nonreassuring fetal heart rate patterns.
- The largest case-control study evaluating this subject confirmed these findings, but was published at the same time as the meta-analysis and thus not included in the analysis [[5](#)]. In this study, both nulliparas and multiparas with successful ECV had significantly higher rates of cesarean delivery than term controls from the general obstetrical population matched for parity (nulliparas: cesarean delivery rate 30 percent after ECV versus 16 percent in the general population; multiparas: cesarean delivery rate 20 percent after ECV versus 5 percent in the general population) [[5](#)]. Most of the excess risk of cesarean delivery after ECV was due to dystocia.

There is no clear explanation for the increased frequency of dystocia after successful ECV. One theory is that factors common to both breech presentation and successful ECV, such as an unengaged presenting part or small maternal pelvis, are also risk factors for dystocia. Parity also plays a role in risk of dystocia. Multiparous women are more likely than nulliparas to give birth vaginally after successful ECV [[5,6](#)].

FACTORS ASSOCIATED WITH REDUCED SUCCESS — Factors thought to impede spontaneous version are also those that make ECV less likely to succeed [7]:

- Nulliparity [8-14]
- Anterior placenta [9,12,13,15]
- Lateral or cornual placenta [16]
- Decreased amniotic fluid volume [13,15,17,18]
- Low birthweight [15]
- Descent of the breech into the pelvis [14,17,19]
- Maternal obesity [13,14,17]
- Posteriorly located fetal spine [17,20]
- Firm maternal abdominal muscles [21]
- Frank breech presentation [13,20]
- Ruptured membranes
- Tense uterus [14]
- Fetal head not palpable [14].

On the other hand, rotation of fetuses in oblique or transverse lie is easier than for those in breech presentation since only small degrees of rotation are needed and these lies are inherently unstable, but there is a tendency for the nonlongitudinal lie to recur. For this reason, after successful ECV of a nonlongitudinal lie, some clinicians perform amniotomy to stabilize the lie, and then induce labor, which has been called a 'stabilizing induction.' In meta-analysis, additional predictors of success were posterior placental location (OR 1.9, 95% CI 1.5-2.4), complete breech position (OR 2.3, 95% CI 1.9-2.8) and an amniotic fluid index > 10 (OR 1.8, 95% CI 1.5-2.1) [22].

Black race appears to increase the chance of successful ECV. In the systematic review discussed above [3], the two randomized trials involving only black African women [23,24] reported higher success rates than trials involving primarily white women. One possible explanation for this finding is that descent of the presenting part into the pelvis makes ECV more difficult [17] and descent in late pregnancy is more common in white women than in black women [16].

In a retrospective study, neither ultrasound-estimated fetal weight, nor birthweight when birth occurred within a week of the procedure, was found to be associated with ECV success rate [25].

RISKS — A systematic review of studies of ECV performed after 36 weeks (84 studies and 12,955 women) concluded that serious adverse maternal and fetal outcomes after ECV were infrequent (table 1) [26]:

- The pooled complication rate was 6.1 percent (95% CI 4.7-7.8) and included stillbirth, abruption, emergency cesarean delivery, cord prolapse, transient abnormal fetal heart rate changes, vaginal bleeding, rupture of membranes, and fetomaternal transfusion.
- Serious complications (stillbirth [12 cases], abruption [11 cases]) occurred in 23 cases: pooled risk 0.24 percent (95% CI 0.17-0.34).

The pooled risk of fetal death was 0.19 percent (95% CI 0.12-0.27). Only 2 of the 12 deaths were attributed to the procedure; the remainder were unrelated or unexplained. The procedure-related risk of fetal death is about 1 per 5000 attempts at ECV.

The pooled risk of abruption was 0.18 percent (95% CI 0.12-0.26) or 1 in 1200 ECVs.

- Emergency cesarean delivery was performed in 49 cases: pooled risk 0.35 percent (95% CI 0.26-0.47) or 1 in 286 ECVs.

- There was no definite correlation between the risk of complications and whether or not the ECV was successful.

There were several limitations to this analysis. As an example, there were significant differences among studies in design, patient populations, ECV techniques, and ascertainment/definition of outcomes. Since many studies did not determine relevant outcomes among women with breech presentation who did not have an ECV, a reliable comparison of the risk of ECV versus expectant management could not be performed. In addition, there was no assessment of maternal satisfaction, including degree of discomfort and, possibly, negative psychological effects in the event of failure [26-29]. However, the results were comparable to those in the largest single study, a series of 805 consecutive version attempts [30].

Randomized trials have been too small to determine whether the overall risk of perinatal mortality is significantly increased or decreased after ECV compared with other approaches. In a systematic review of randomized trials, perinatal death occurred in 1 of 303 babies in the attempted ECV group and 3 of 309 babies in the group of breeches that did not undergo ECV [3].

In conclusion, the small risk of the procedure-related complications must be weighed against the risk associated with persistent breech presentation, including cord prolapse, probable cesarean delivery, and complications of breech birth (whether vaginal or cesarean). Cesarean delivery is associated with well-described maternal risks, but also risks to the baby, such as transient tachypnea of the newborn and trauma during delivery [31]. Even with scheduled cesarean delivery, complications may result from precipitate labor, leading to vaginal breech birth. (See "[Cesarean delivery: Postoperative issues](#)".)

ALTERNATIVES — There are a number of alternatives to ECV. These include expectant management, postural maneuvers to facilitate spontaneous version, moxibustion and acupuncture.

Expectant management — Options include expectant management and cesarean delivery (scheduled or unscheduled) of a persistently breech fetus or expectant management and trial of labor of a persistently breech fetus. (See "[Approach to breech presentation](#)".) In one study, the rate of spontaneous cephalic version following a failed ECV attempt was 6.6 percent [13]. For this reason, a case can be made for delaying cesarean delivery until late pregnancy or early labor. Risks associated with delaying cesarean delivery include complications of persistent breech presentation, such as cord prolapse or precipitate labor. There are insufficient data to weigh these potential benefits and risks.

Postural maneuvers to facilitate spontaneous version — There is no high quality evidence that maternal postural changes facilitate spontaneous version, but data are limited. A systematic review including five randomized and quasi-randomized trials involving a total of 392 women found that, compared with no intervention, pelvic elevation had no effect on the rate of noncephalic births, either for the subgroup in which no ECV was attempted or for the group overall (RR 0.95, 95% CI 0.81-1.11) [32]. Pelvic elevation involved either a knee-chest position with or without a full bladder [33,34] or a supine head-down position with the pelvis supported by a wedge-shaped cushion [35].

Moxibustion and acupuncture — Moxibustion refers to a type of Chinese medicine in which an herb is burnt close to the skin of the acupuncture point Bladder 67 (BL67) (Chinese name Zhiyin), located at the tip of the fifth toe. It has been proposed as a means of correcting breech presentation and has been used alone and with acupuncture. The procedure is performed for 20 to 60 minutes, once or twice per day, from twice per week to daily for one to two weeks.

A systematic review including six randomized and quasi-randomized trials (n = 1087 subjects) of moxibustion versus observation or postural maneuvers for version of the noncephalic fetus reported a higher rate of successful version in the moxibustion group (72.5 and 53.2 percent, respectively; RR 1.36, 95% CI 1.17-1.58) [36]. Moxibustion was used alone or in combination with acupuncture or postural maneuvers and was as safe for the mother and baby as the other approaches. Given the significant

heterogeneity among the studies and that no study used a sham moxibustion control, we feel there are insufficient data to recommend for or against use of moxibustion for version of the nonvertex fetus.

COST-EFFECTIVENESS — ECV has been reported to be cost-effective in studies from the United States and United Kingdom [2].

INDICATIONS AND CONTRAINDICATIONS — As discussed above, ECV is offered to women with a noncephalic fetal lie to improve their chances of having a vaginal cephalic birth.

ECV is contraindicated in the following settings, which are associated with a low likelihood of successful version or increased risk of fetal harm from the procedure:

- Indications for cesarean delivery irrespective of fetal presentation (eg, placenta previa)
- Ruptured membranes
- Nonreassuring fetal monitoring test results
- Hyperextended fetal head
- Significant fetal or uterine anomaly
- Abruptio placentae
- Multiple gestation is a contraindication to antepartum ECV, but may be considered for the second twin after delivery of the first twin. (See "[Delivery of twin gestations](#)", section on 'Vertex-nonvertex twins'.)

Relative contraindications include previous cesarean delivery [37,38], maternal hypertension, maternal obesity, impaired fetal growth (estimated fetal weight less than 10th percentile), and decreased amniotic fluid volume.

The risk of uterine rupture in patients with previous cesarean delivery has not been determined [2]. In two small series, successful ECV was reported in 46 of 56 women [37] and 11 of 11 women with previous cesarean deliveries [39]. A series of 42 women and a review of 124 women from previous reports gave an overall success rate of 76 percent [40]. Larger trials are needed to establish the safety of ECV following cesarean delivery.

Although there is a theoretical risk of maternal to fetal HIV transmission in HIV-infected women who undergo ECV, the risk is likely to be very small and compare favorably against the risk of vaginal breech delivery (if cesarean delivery is unavailable) [41].

PREPROCEDURE REQUISITES — Prior to performing ECV, an ultrasound examination should be performed to confirm fetal and placental position (placenta previa is a contraindication to vaginal delivery) and to exclude oligohydramnios and fetal or uterine anomalies (which can reduce the likelihood of success).

There should also be documentation of fetal well-being (eg, reactive fetal heart rate pattern or satisfactory biophysical profile score) before exposing the fetus to a potentially stressful procedure.

In addition to a description of the procedure, some of the elements of informed consent include a discussion of:

- Why the procedure is being performed
- Procedure related discomfort
- Risks of any medications that may be administered (tocolytics, anti-D immune globulin)
- Success (failure) rates (eg, pooled success rate from a systematic review: 58 percent [26])

- The small risk the fetus will spontaneously revert to breech
- Management plans if the procedure is successful or unsuccessful (eg, amniotomy and induction, scheduled cesarean delivery, second attempt at ECV)
- Risks (eg, abruption, vaginal bleeding, fetomaternal hemorrhage, umbilical cord entanglement/compression, rupture of fetal membranes, onset of labor, nonreassuring fetal status necessitating urgent cesarean delivery)
- Benefits (if ECV is successful, the patient is likely to avoid cesarean delivery performed because of breech presentation)
- Alternatives to ECV (eg, expectant management, scheduled cesarean delivery, vaginal breech birth)

Counseling is more effective and patient satisfaction is higher if a structured decision aid for women with breech presentation is used [42,43].

TIMING — ACOG recommends offering ECV to women with breech fetuses who have completed 36 weeks of gestation and have no contraindications to the procedure [2]. The advantages of ECV at or near term are: (1) it is usually successful, (2) the fetus is likely to remain cephalic after successful ECV (ie, the procedure is effective), (3) the fetus is mature or nearly mature in the event of complications necessitating urgent cesarean delivery [44,45]. There are no specific contraindications to attempting ECV after the estimated date of delivery, although data are sparse. There are also insufficient data on risks and benefits of ECV attempts before 36 weeks when preterm birth is anticipated or indicated. Data from the ongoing large early ECV trial should provide more evidence on this issue (see below).

With the established effectiveness of ECV at term, an important remaining question is whether attempting ECV before term (and repeating the procedure until delivery, if necessary) has any benefit over ECV at term. The largest trial to address this issue was the Early External Cephalic Version Trial, which randomly assigned 233 women with a singleton breech fetus to ECV by experienced practitioners at 34 to 36 weeks of gestation or at 37 to 38 weeks of gestation [46]. Repeated ECV attempts were permitted, as was use of tocolytics and epidural analgesia. The major findings from this study were:

- Early ECV was slightly more effective than late ECV: early ECV was associated with a lower rate of noncephalic presentation at delivery than late ECV (noncephalic presentation at delivery 57 versus 66 percent), although the absolute difference was relatively small and not statistically significant (RR 0.86, 95% CI 0.7-1.05). It could not be determined whether the lack of statistical significance represented a true lack of benefit or whether too few subjects were enrolled to detect this relatively small improvement in outcome.
- After successful version, reversion to breech in the early and term version groups occurred in 4 of 34 (12 percent) and 1 of 18 (6 percent) fetuses, respectively; this difference was not statistically significant, but the number of events was very small.
- Complications were rare in both groups; the number of events and subjects in the study was too small to form conclusions about the safety of early ECV.

Based on the above data, as well as smaller trials [47,48], it appears that ECV at 34 to 35 weeks is more likely than ECV at 37 to 38 weeks to decrease the rate of noncephalic presentation at the time of delivery [49]. However, further trials are needed to confirm both this finding and the safety of the procedure (eg, whether early ECV is associated with increased rates of preterm birth or other adverse perinatal outcomes). A large Canadian-sponsored multicentre trial is in progress [50].

Version during labor — ECV appears to be a safe option for women who present in labor with breech

presentation, intact membranes, and no contraindications. Two small series that included women in labor reported successful ECV using tocolysis as long as the fetal membranes were intact [17,37]. Theoretical advantages of delaying ECV until labor begins are that the maximum time for spontaneous version has been provided, the fetal condition can be monitored continuously from beginning of ECV to delivery, cesarean delivery can be performed expeditiously since the patient is already on the labor unit, and administration of anti-D immunoglobulin can be delayed until the neonate's blood type is known (and thus avoided if the neonate is Rh(D)-negative).

The disadvantages of intrapartum ECV are that the opportunity to perform ECV may be lost due to ruptured membranes or rapid labor.

PROCEDURE — The procedure should be performed by an experienced operator in a facility with ready access to emergency cesarean delivery [2]. A videorecorded teaching program on ECV technique is included in the World Health Organization (WHO) Reproductive Health Library (www.rhlibrary.com; CD available from <http://RHL@who.int/en/>) and a model abdomen for training has been developed [51]. Modifications of this technique have been reported [52].

Ancillary measures to enhance success — Several ancillary measures have been evaluated to look for ways to improve the success rate of ECV. Tocolysis appears to be effective and is the best studied intervention. There is insufficient evidence to recommend for or against other interventions (vibroacoustic fetal stimulation, regional anesthesia, amnioinfusion, maternal hydration).

Tocolysis — A systematic review of six randomized trials of ECV with or without tocolysis concluded tocolysis was associated with reduced risk of failed ECV in both nulliparous and multiparous women (RR 0.74, 95% CI 0.64-0.87) [53]. Cesarean delivery rates (reported according to group allocation in only three studies) were also reduced with tocolysis (RR 0.85, 95% CI 0.72-0.99). Beta-adrenergic agonists (eg, salbutamide, ritodrine, [terbutaline](#), or hexoprenaline) were the most commonly administered tocolytics and are the preferred drugs for facilitation of ECV. Subsequent randomized trials have reported efficacy for salbutamol 0.1 mg by intravenous bolus every five minutes as needed compared with placebo [54] and a slight benefit of subcutaneous terbutaline over oral [nifedipine](#) [55].

No regimen is clearly superior to another; one simple regimen is [terbutaline](#) 0.25 mg subcutaneously 15 to 30 minutes prior to the procedure.

Use of tocolysis also increases the success rate of repeat ECV in women with a breech presentation at term who have undergone a previous unsuccessful attempt at ECV [56].

There are limited data regarding other tocolytics, and no evidence that any of these drugs are more effective than beta-adrenergic agonists:

- Atosiban — In a small retrospective study, the rates of successful ECV with atosiban and ritodrine were 28 and 41 percent, respectively. The number of events was too small for meaningful comparison [57].
- Glyceryl trinitrate — Intravenous nitroglycerine [58,59], or sublingual glyceryl trinitrate spray [60-62], have been suggested as alternative uterine relaxants that might have fewer side effects than the beta-adrenergic agonists. (See "[Inhibition of acute preterm labor](#)", section on '[Beta-adrenergic receptor agonists](#)'.)

A systematic review of randomized trials evaluating [nitroglycerin](#) for uterine relaxation found it was not more effective than placebo for relaxing the uterus for ECV [63]. In addition, a randomized trial of sublingual nitroglycerin (0.8 mg) versus intravenous ritodrine (111 mcg/min) prior to ECV found that nitroglycerin was associated with more side effects (headache, fall in blood pressure) than the

beta-adrenergic agonist, as well as fewer successful versions, 9 of 36 patients receiving nitroglycerin versus 17 of 38 patients receiving ritodrine [61]. However, another group suggested that parity should be taken into account; in their placebo controlled trial, use of intravenous nitroglycerin appeared to increase ECV success in nulliparous, but not multiparous, women [64].

- Nifedipine — In a randomized placebo controlled trial, [nifedipine](#) 10 mg at 30 and 15 minutes prior to ECV did not increase the rate of successful version or lower the rate of cesarean delivery [65].

Vibroacoustic stimulation — Fetal vibroacoustic stimulation has been used to stimulate the fetus in midline spine position to shift to a spine lateral position, which facilitates manipulating the fetus into a forward or backward roll. One small crossover trial reported successful version occurred in 19 of 22 patients exposed to vibroacoustic stimulation versus 1 of 12 unexposed patients; the rate of failed ECV was significantly reduced (RR 0.17, 95% CI 0.05-0.60) with this intervention [66]. More data are needed to prove the efficacy of this approach, but a trial of vibroacoustic stimulation is reasonable since it is inexpensive, well-tolerated, and harmless.

Epidural or spinal analgesia — Systematic reviews of randomized trials of regional anesthesia versus no anesthesia to facilitate ECV have suggested ECV under regional anesthesia reduces ECV failure, noncephalic births, and cesarean deliveries, but differences in study designs and patient populations preclude a definitive conclusion [53,67]. Although such results are promising, more large trials evaluating safety, efficacy, and cost-effectiveness of this intervention need to be done before use of regional analgesia for facilitating external cephalic version can be recommended.

- In one systematic review, use of epidural or spinal analgesia was associated with a reduction in external cephalic version failure, non-cephalic births, and cesarean deliveries in two trials, but not in the other; the overall differences among the trials were not statistically significant, although regional anesthesia was associated with a strong trend toward a reduced failure rate (RR 0.79, 95% CI 0.63-1.00) [53].

- A subsequent systematic review reported a higher rate of successful ECV with regional anesthesia than without it (50 percent (119/238) versus 34 percent (82/242); RR 1.5 95% CI 1.12-1.98) [67]. Similar results were reported in a subsequent randomized trial [68].

Amnioinfusion — To our knowledge, no randomized trials have been performed to determine the effectiveness of amnioinfusion for enhancing ECV success. (See "[Amnioinfusion: Technique](#)".) Two small uncontrolled studies reported discordant results. In one, six women with failed ECV had a successful repeat attempt following transabdominal amnioinfusion with 700 to 900 mL warmed saline [69]. In the other, however, none of seven cases was successful [70].

Maternal hydration — Drinking water during the few hours prior to the procedure may increase amniotic fluid volume [71]; however, the impact of this strategy on ECV success has not been evaluated.

Technique — Various techniques have been reported, but have not been compared in randomized trials [72]. Our technique is described in the following paragraphs ([figure 1](#)) [23].

We explain each step of the procedure to the patient as we perform the ECV. She is asked to keep her abdominal muscles relaxed and inform the operator if she feels any discomfort. Good rapport with the patient is essential to help her relax and keep her from tensing her muscles, which makes it harder to manipulate the fetus.

The patient is positioned on a narrow, firm examination couch with the fetal back towards the operator. For the fetus in the left sacrolateral position with planned backward somersault, the operator stands on the woman's left side. A wedge or cushion can be used to tilt the uterus towards the operator and

minimize aortocaval compression.

We administer a beta-adrenergic receptor agonist (eg, salbutamol or [terbutaline](#)) to relax the uterus; however, if clinical assessment suggests that ECV is likely to be achieved easily, an attempt without tocolysis may be made. We apply powder (eg, cornstarch) over the patient's abdomen to help the operator's hands slide over the skin while manipulating the fetus. Alternatively, ultrasound coupling gel is used if the procedure is to be monitored by ultrasound.

The breech is disengaged from the pelvis by slowly inserting the fingertips of both hands deeply behind the symphysis pubis to scoop the breech from the pelvis to a position above the sacral promontory. If the woman is steeply tilted on her side against a wall, the operator may sit and steady his or her left elbow on the examination couch during the rest of the procedure.

The breech is held with the edge of the left palm, and pushed towards the woman's right flank and upwards. If version is not completed by this maneuver, the head is gently manipulated towards the woman's left flank and downward with the edge of the right hand, taking care to apply most pressure to the breech so that a flexed posture is maintained. Slight back-and-forth movement between the two hands may help promote fetal movement, but generally, pressure on the fetus should be slow and steady, rather than repeated pushing.

For a forward somersault, the operator is positioned on the side of the woman opposite to the fetal back. The procedure is similar to that described above, except that once the breech has been disengaged from the pelvis, more pressure is applied to the head than the breech, to maintain flexion of the baby.

The fetal heart rate is auscultated every two minutes, with interruption of the procedure if bradycardia occurs. In one large series, a nonreassuring fetal heart rate leading to discontinuation of the ECV occurred in about 5 percent of cases [\[46\]](#).

If ECV is unsuccessful after five minutes of attempts, we stop and let the woman rest on her side for two minutes before making another attempt, if the woman agrees to it. We avoid making more than four attempts at one sitting.

Postprocedure — After the ECV, fetal well-being is evaluated by a nonstress test. The fetal heart rate should be monitored until it is stable and reassuring. It is common for fetal heart rate tracings to be nonreactive for 20 to 40 minutes after ECV. These changes probably reflect the fetal response to a transient period of stress caused by decreased uteroplacental blood flow during the procedure [\[73\]](#).

Fetomaternal hemorrhage is almost always less than 30 mL. This was best illustrated by a prospective observational study that performed Kleihauer-Betke tests before and after external cephalic version in over 1000 women [\[74\]](#). Both tests were negative in 1214 women; 30 women (2.4 percent) converted from negative to positive: 20 of these women had only rare fetal erythrocytes on the Kleihauer-Betke smear, 10 had an estimated bleed greater than 1 mL, and 1 had an estimated bleed of 80 mL. Risk factors for fetomaternal bleeding could not be identified. Others have also reported rare cases of massive fetomaternal hemorrhage [\[75,76\]](#).

Most experts recommend administering anti-D immune globulin to Rh(D)-negative women who undergo ECV; given the extremely low risk of a large fetomaternal bleed, performing Kleihauer-Betke or similar tests to quantitate fetomaternal bleeding appears to be unnecessary before administration. (See ["Prevention of Rh\(D\) alloimmunization"](#), section on 'Additional indications'.)

ACOG does not recommend immediate induction (ie, stabilizing induction) to minimize the chance of reversion to breech [\[2\]](#). The rate of reversion is small, while elective induction can increase the risk of cesarean delivery and iatrogenic prematurity, and can be costly.

If the procedure is unsuccessful or the fetus reverts to breech, a retrial of version may be attempted [2]. One study noted that, after unsuccessful ECV, multiparous women were more likely than nulliparas to have spontaneous version to cephalic presentation (12.5 versus 2.3 percent) [77].

SUMMARY AND RECOMMENDATIONS

- For women with breech presentation, we recommend external cephalic version (ECV) rather than expectant management or other interventions (**Grade 1A**). ECV increases the proportion of fetuses in cephalic presentation at the onset of labor and decreases the frequency of cesarean delivery. However, these patients have an increased frequency of dystocia in labor compared with the general obstetrical population. (See '[Effectiveness](#)' above.)
- We suggest avoiding ECV in settings associated with a low likelihood of successful version or increased risk of fetal harm from the procedure (**Grade 2C**). (See '[Indications and contraindications](#)' above.)
- We suggest performing ECV at 36 weeks of gestation rather than earlier in pregnancy (**Grade 2C**). ECV has been proven to have a high degree of safety and success at this gestational age; the safety of ECV performed before 36 weeks is less well-established. (See '[Timing](#)' above.)
- To enhance success rates, we recommend administering a tocolytic prior to the procedure (**Grade 1A**). We suggest using a beta-adrenergic agonist (**Grade 2C**). One option is [terbutaline](#) 0.25 mg subcutaneously 15 to 30 minutes prior to the procedure. (See '[Tocolysis](#)' above.)

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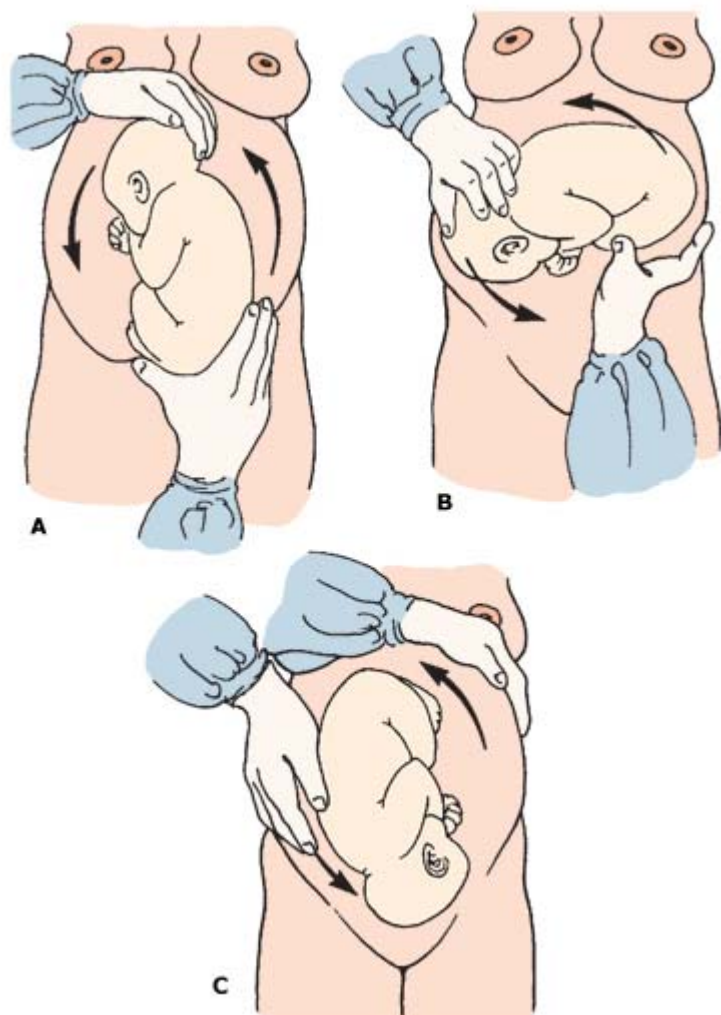
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GRAPHICS

External cephalic version



Fetus is converted from breech to vertex presentation in (A-C).
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Risks of external cephalic version, pooled risk

Outcome	Percent
Overall risk of complications	6.1
Transient fetal heart rate changes	4.7
Fetomaternal transfusion	0.9
Emergency cesarean delivery	0.4
Vaginal bleeding	0.3
Ruptured membranes	0.2
Fetal death	0.2
Placental abruption	0.2
Cord prolapse	0.2

Data from: Grootscholten, K, Kok, M, Oei, SG, et al. External cephalic version-related risks. A Meta-analysis. *Obstet Gynecol* 2008; 112: 1143.

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