MA-03 Obstructed labour, breech, twins and cord prolapse: the manoeuvres and the limits

HEALING after the FALL, research library, MA-03

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How to read this report

This report covers the labours that do not go well on their own. Normal birth, the partograph and the attendant are in MA-01. Bleeding after birth and the retained placenta are in MA-02. Fistula repair, catheter treatment and prolapse belong to MA-11, and the newborn who does not breathe belongs to MA-05 (MA-01 points the bag and mask to this report, which is a slip). Surgical capacity and the training of non-physician surgeons are in WO-08, anaesthesia in WO-10, and moxibustion in TR-03.

The manoeuvres are taken from the least invasive to the most. For each the report gives the success rate, the injury rate, the time window and who must never attempt it. Surgical operations (symphysiotomy, destructive operations, caesarean section) are described by their history, their record and their feasibility, with no operative technique. Protocols are given only for what a careful lay attendant can do with hands, a catheter and a clock.

A village of 300 sees roughly 8 to 12 births a year and a district of 3,000 about 80 to 120 (THRIVING library, MA-01). Most of what follows will therefore be rare in any one village and routine only at district level. That is the main argument for training a few people well rather than many people a little.

1. How often labour obstructs, and what happens if nothing is done

1.1 Frequency

The WHO burden-of-disease study for the year 2000 assumed that obstructed labour complicates 3 to 6% of live births, the higher figure in the poorest regions, and that it causes about 8% of maternal deaths (Dolea and AbouZahr 2003). In 1990 it ranked as the most disabling of all maternal conditions because so many survivors were left with fistula (Dolea and AbouZahr 2003). These are model assumptions, not counts, and the authors say so. Where counts exist they are hospital counts and run much higher because obstructed women are the ones who reach hospital: an Ethiopian meta-analysis of 16 hospital studies found obstruction in 12.9% of deliveries (Ayenew 2021).

For a village of 300 the WHO range means one obstructed labour every two to four years. For a district of 3,000 it means three to six a year [VERIFY: own arithmetic from MA-01 birth numbers].

1.2 The untreated course

Obstruction does not behave the same way in every woman. In a first labour the uterus tends to tire and stop, and the woman lingers for days with a dead baby, infection and pressure necrosis. In a woman who has borne several children

the uterus tends to keep contracting until it tears (Neilson 2003). WHO states plainly that rupture of an unscarred uterus is usually caused by obstructed labour (WHO 2017).

The Ethiopian series shows what happens when obstruction reaches hospital late: uterine rupture in 29.8% of obstructed women, maternal death in 17.3% and stillbirth in about 38% (Ayenew 2021). Uterine rupture is rare where labour is watched: about 0.006% of births in an unscarred uterus in a rich country, against a facility median of 0.31% and up to 2.9% in poor settings (Hofmeyr 2005).

The pre-caesarean European record (Loudon) puts maternal death at 25 to 30 per 1,000 births with no trained attendant and about 3 per 1,000 with the best attendants before 1937 (THRIVING library, MA-01). I could not find in this session a figure from that record for obstructed labour alone. The historical answer to obstruction before safe caesarean was the destructive operation (section 9), and the share of maternal deaths it prevented is not something I could quantify [VERIFY].

1.3 Fistula

Wall estimates at least 3 million women living with unrepaired obstetric fistula and 30,000 to 130,000 new cases each year in Africa alone (Wall 2006). In two large fistula series, 80.3% (Hilton, 715 cases) and 73.8% (Danso, Kumasi) followed neglected obstructed labour (cited in Dolea and AbouZahr 2003). The WHO model assumed that 2.15% of neglected obstructions end in fistula, and one West African population study counted 0.12% of rural births (Dolea and AbouZahr 2003).

The mechanism matters for the attendant. Fistula is caused by the length of time the head stays wedged against the bladder and rectum, not by the force of any single push. The tissue loses its blood supply and dies, and the hole appears days later when the dead tissue sloughs (Dolea and AbouZahr 2003). The lesson is that every hour of impaction costs tissue. A catheter left in the bladder after a prolonged obstructed labour may let a small injury heal, and WHO advises leaving one for seven days when bladder injury is suspected (WHO 2017). Repair belongs to MA-11.

1.4 Recognising obstruction, and the action line

The partograph and its alert and action lines are set out in MA-01, which recommends the WHO 2018 alert line as a triage tool where there is no referral (THRIVING library, MA-01). This report adds the signs that turn slow labour into obstruction. WHO lists them as secondary arrest of the cervix despite good contractions, a large swelling of the scalp (caput), third-degree moulding of the skull bones, an oedematous cervix, a ballooning lower segment, a retraction band (a ridge across the belly between the upper and lower uterus), and a mother and baby both in distress (WHO 2017). Good contractions are three or more in ten minutes, each over 40 seconds. If contractions are good and progress has stopped, the cause is disproportion or obstruction, and oxytocin must not be given. Every woman who has borne children must be checked for disproportion before any oxytocin (WHO 2017). Hesperian, written for lay midwives, uses two simple clocks: after 30 minutes of strong pushing the genitals should bulge, and after one hour of good pushing with no descent the mother needs help, with no more than one hour of waiting far from a centre (Klein 2024).

2. Before labour: turning the breech

2.1 External cephalic version

External cephalic version (ECV) is turning the baby head-down by pushing through the mother's belly. It is the least invasive manoeuvre in this report and the one with the best evidence. A Cochrane review of eight trials and 1,308 women found that ECV at term reduced non-cephalic birth (RR 0.42, 95% CI 0.29 to 0.61) and caesarean section (RR 0.57, 0.40 to 0.82). Perinatal death fell, but not significantly (RR 0.39, 0.09 to 1.64) (Hofmeyr 2015). Success is about 50%, and few babies turn back (Royal Hospital Oman 2024, after RCOG 2017). Starting earlier, at 34 to 35 weeks, turned slightly more babies but raised preterm birth from 4.3% to 6.6% (Hutton 2015).

The safety record comes from 84 studies and 12,955 attempts. Any complication occurred in 6.1%, mostly passing heart-rate changes. Serious complications such as placental abruption or stillbirth occurred in 0.24%, and emergency caesarean was needed in 0.35% (Grootscholten 2008).

Guidelines allow no more than four attempts and ten minutes in all (Royal Hospital Oman 2024, citing RANZCOG). They forbid ECV in multiple pregnancy except for a second twin after the first is born, with bleeding in the past week, ruptured membranes, placenta praevia, abruption, severe pre-eclampsia or an abnormal fetal heart (Royal Hospital Oman 2024). WHO allows it from 37 weeks and only where emergency caesarean is available (WHO 2017). Hesperian teaches it to lay midwives two to three weeks before the due date, only if trained and with caesarean reachable. It names the dangers as placental separation and a torn uterus, and instructs the midwife to check the heart after every move and never to force (Klein 2024).

The difficulty after the Fall is that every guideline makes ECV conditional on the caesarean that will not exist. Against this, the alternative is an unturned breech born vaginally with whatever hands are present. With serious complications in about 1 in 400 attempts and a halving of breech births, a gentle attempt by a trained attendant at 37 weeks is probably the better bet when there is no caesarean either way [VERIFY: own inference, untested]. Whether to offer ECV without backup is an owner's decision [OWNER].

2.2 Moxibustion

In Chinese medicine, burning moxa (aged dried leaf of mugwort, *Artemisia vulgaris* L.) beside the acupuncture point Zhiyin (BL67), at the outer corner of the little toenail, warms and moves the channel and stirs the baby to turn. TR-03 covers the practice, the plant and its preparation in full. The protocol there is 15 minutes on each foot daily from 33 to 35 weeks for seven days, repeated once if the baby has not turned (THRIVING library, TR-03).

The latest Cochrane review (13 studies, 2,181 women) found fewer non-cephalic births with moxibustion than with usual care (RR 0.87, 0.78 to 0.99) and than with sham (RR 0.74, 0.58 to 0.95). It found no clear fall in caesarean section (RR 0.94, 0.83 to 1.05). Adverse events, mostly unpleasant smell, throat irritation and nausea, occurred in 27 of 65 treated women and none of 57 controls (Coyle 2023). The certainty is low.

TR-03 states that one breech is avoided per 200 women treated. That figure appears to be calculated over all pregnant women. Among women who actually have a breech at 33 to 35 weeks, if half to two-thirds of untreated babies would stay breech, a 13% relative reduction means one breech avoided for roughly every 11 to 15 women treated [VERIFY: own arithmetic]. I disagree with TR-03 on this point: moxibustion is a weak but real effect for the women who need it, not a near-useless one. It costs a herb, fire and patience, and it can precede ECV.

3. Vaginal breech

3.1 The Term Breech Trial and its critics

The Term Breech Trial randomised 2,088 women with a term breech in 121 centres in 26 countries to planned caesarean or planned vaginal birth (Hannah 2000). Every vaginal birth was meant to be attended by an experienced clinician. In the caesarean arm 90.4% had a caesarean, and in the vaginal arm 56.7% delivered vaginally. Perinatal or neonatal death or serious neonatal morbidity occurred in 17 of 1,039 (1.6%) planned caesareans and 52 of 1,039 (5.0%) planned vaginal births (RR 0.33, 0.19 to 0.56). Serious maternal complications did not differ. On these numbers about 29 planned caesareans prevent one bad outcome [VERIFY: own arithmetic]. Practice in many countries switched to routine caesarean for breech soon afterwards [VERIFY].

The follow-up told another story. At two years, death or neurodevelopmental delay was found in 3.1% of children in the caesarean arm and 2.8% in the vaginal arm (RR 1.09, 0.52 to 2.30, 923 children) (Whyte 2004). Mothers' outcomes at two years did not differ except for more constipation after caesarean (Hannah 2004).

Glezerman, the trial's sharpest critic, argued that inclusion criteria were not kept, that standards of care differed widely between centres, that fetal assessment was poor, that many women were recruited in active labour, and that many vaginal births had no truly experienced attendant. He called for the recommendations to be withdrawn (Glezerman 2006). The trial's authors replied in the same journal (Hofmeyr and Hannah 2006, title only read).

3.2 PREMODA and later reviews

PREMODA was an observational study of 8,105 term breeches in 138 French and 36 Belgian units where vaginal breech was still routine (Goffinet 2006). Of the 2,526 women (31.2%) who planned vaginal birth, 1,796 (71.0%) delivered vaginally. Death or serious morbidity occurred in 1.60% of the planned vaginal group and 1.59% overall (unadjusted OR 1.10, 0.75 to 1.61, adjusted OR 1.40, 0.89 to 2.23). Selection, protocol and practised hands made planned vaginal breech nearly as safe as planned caesarean.

Later meta-analyses still find a mortality advantage for planned caesarean. Across 32 studies and 530,604 women, perinatal death was lower with planned caesarean in the one trial (RR 0.27, 0.08 to 0.97) and in 21 cohorts (RR 0.36, 0.25 to 0.51), and between 16% and 51% of planned vaginal breeches ended in emergency caesarean (Wängberg Nordborg 2022). A second review of 94,285 births gave a perinatal mortality RR of 5.48 (2.61 to 11.51) for vaginal breech (Fernández-Carrasco 2022). The RCOG puts it in absolute terms. With careful selection and skilled hands, perinatal death is 0.8 to 1.7 per 1,000 for planned vaginal breech against 0 to 0.8 per 1,000 for planned caesarean, and cerebral palsy occurs in about 1.5 per 1,000 breech births whatever the mode (Royal Hospital Oman 2024, after RCOG 2017).

After the Fall the comparison is not with caesarean. It is between a breech born to practised hands and one born to frightened ones. Every series above was made in hospitals with anaesthesia, forceps and theatre. None tells us the outcome of a vaginal breech with nothing behind it.

3.3 Hands off, upright, and the rescue manoeuvres

The core rule is the same in every source: do not pull. Traction on the body lets the arms rise above the head and the chin lift off the chest, which traps the head. The RCOG forbids traction and allows manipulation only once the baby has been born spontaneously to the umbilicus (Royal Hospital Oman 2024). WHO says to let the buttocks and legs deliver until the shoulder blades are seen, to hold the baby by the hips and never the abdomen, and to deliver the head with the Mauriceau-Smellie-Veit manoeuvre helped by pressure above the pubic bone (WHO 2017). Hesperian tells lay midwives to press on the pubic bone, not the belly, and to bring the head slowly (Klein 2024).

The Frankfurt group made the case for the upright breech. In 750 term breeches between 2004 and 2011, women who gave birth on all fours or kneeling needed fewer manoeuvres (OR 0.45) and their babies had fewer injuries (OR 0.08) than those on their backs. The second stage was shorter (1.02 against 1.77 hours) and forceps were never needed (Louwen 2017). Seven newly trained doctors attended 140 upright breech births with no worse outcomes than the experienced team (Jennewein 2021). This is one centre's cohort, but it matches the hands-off principle and it needs no equipment.

When the arms are stuck above the head, Lovset's manoeuvre rotates the baby half a turn, back kept uppermost, so that the posterior shoulder comes under the pubic bone and the arm can be swept down, then turns back the other way for the second arm (WHO 2017). For the head, the Mauriceau-Smellie-Veit manoeuvre lays the baby along the attendant's forearm with a finger on the cheekbones to keep the chin down, while the other hand flexes the back of the head and an assistant presses above the pubic bone (WHO 2017). Piper forceps for the head, and cutting the cervix when a preterm head is caught in an incompletely dilated cervix (Royal Hospital Oman 2024), are infirmary skills.

Who must not attempt vaginal breech by choice: guidelines exclude an estimated weight over 3.8 kg or below the 10th centile, a footling breech, and a hyperextended neck (Royal Hospital Oman 2024). A footling breech usually

needs caesarean (WHO 2017), and Hesperian advises knee-chest and help (Klein 2024). Oxytocin to hurry a breech is avoided, because good progress on its own is the best evidence that the pelvis is big enough (Royal Hospital Oman 2024).

4. Twins and the second twin

Twins are more than three times as likely to die as single babies, and Hesperian asks for two skilled midwives at every twin birth (Klein 2024). Most of the risk lies with the second twin, after the first is born and the uterus has room for the second to lie across.

When the first twin is head-down, planned vaginal birth is safe. The Twin Birth Study randomised 2,804 women between 32 and 38 weeks: death or serious morbidity occurred in 2.2% of planned caesareans and 1.9% of planned vaginal births (OR 1.16, 0.77 to 1.74), although 43.8% of the vaginal group still ended in caesarean (Barrett 2013).

WHO's sequence after the first birth is as follows. Feel the belly for the lie of the second baby. If it lies across, try to turn it to head or breech by ECV. Do a vaginal examination to confirm the presentation and check for a prolapsed cord. Leave a clamp on the maternal end of the first cord and do not deliver the placenta until the last baby is born. If the second twin is not born within two hours of good contractions, do a caesarean. Internal podalic version, a hand inside the uterus to grasp a foot and bring the baby out as a breech, is only for the trained, with intact membranes and an unscarred uterus. Oxytocin is given only after the last baby (WHO 2017). Turning a non-vertex second twin by ECV succeeded in 64.4% of 289 attempts in a recent review (Dymon 2025).

Hesperian expects the second twin within 15 to 20 minutes. If contractions have not returned by two hours, it suggests breastfeeding the first twin or nipple stimulation, breaking the waters if the head or breech is down, and no medicines. Bleeding before the second twin is born means the placenta may be separating, and the second baby must come out fast (Klein 2024). MA-02 adds the rule that matters most at the hearth: a uterotonic given before a second twin can rupture the womb, so feel the belly for another baby before giving any (THRIVING library, MA-02).

Internal version has an old pedigree. The Brandenburg court midwife Justine Siegemund described turning babies by hand in her 1690 manual and claimed about 6,200 births (THRIVING library, TR-14). It remains an expert skill, graded B as history and not for lay use.

5. Cord prolapse

Cord prolapse is the cord slipping below the baby after the membranes break, where the baby's own head or bottom presses on it and cuts off the blood. It occurs in 0.1 to 0.6% of births and slightly over 1% of breeches. Perinatal mortality was 91 per 1,000 in one large study, and it rises more than tenfold when the prolapse happens outside hospital (RCOG 2008). In Nigeria the record is far worse: perinatal mortality of 403 per 1,000 at Ibadan, 463 per 1,000 among women without antenatal care (Enakpene 2010), and 67.6% at Kaduna, where every baby died when the cervix was 8 cm or more at diagnosis and all 19 babies born vaginally died (Onwuhafua 2007). Incidence at Abakaliki was 0.46% (Kalu 2011).

The rescue is to take the baby's weight off the cord until birth. The RCOG guideline recommends lifting the presenting part by hand or by filling the bladder, with the mother in the knee-chest position or lying on her left side head-down, and handling the loops of cord as little as possible to avoid spasm of the vessels. Pushing the cord back up above the baby is not recommended, since only 8 cases have been reported, 5 of them successful (RCOG 2008). Manual lifting was studied in 132 cases at Oxford: after excluding extreme prematurity and lethal anomalies there was one death from asphyxia in 121, after a delayed transfer from home.

Bladder filling is the dispensary's tool. A Foley catheter is passed into the bladder, 500 to 750 mL of fluid run in through a giving set, and the catheter clamped. The full bladder lifts the head off the cord and frees the attendant's hand. Vago reported one neonatal death in 28 cases with a decision-to-delivery interval of 25 to 115 minutes. Caspi

treated 88 cases with no fetal deaths although 48 waited more than 30 minutes. Chetty had no perinatal deaths in 24 cases with a mean interval of 65 minutes. The bladder must be emptied before the birth. In the community, knee-chest while waiting and left lateral during transport. Terbutaline 0.25 mg under the skin can quiet contractions if it is in stock (RCOG 2008).

The limit is plain. Every one of those series ended in a caesarean within about two hours. With no caesarean, lifting the head buys time only until the cervix is fully open and the baby can be born, by pushing or vacuum. If the cord prolapses at 3 cm in a first labour, that may be many hours, and the baby will probably die [VERIFY: inference from Onwuhafua and RCOG]. If the cord has stopped pulsing and no heartbeat can be heard by several listeners, the baby is dead and there is no emergency for the mother.

6. Shoulder dystocia

In shoulder dystocia the head is born and the front shoulder catches behind the pubic bone. It occurred in 1.5% of 132,098 births in one American series, with neonatal injury in 5.2% (Hoffman 2011), and in 1.9% in a later analysis (Zullo 2026). The clock is short. In 200 cases in Hong Kong, the baby's cord pH fell by 0.011 for each minute between head and body. With an interval under five minutes severe acidosis and brain injury each occurred in 0.5%, and at five minutes or more in 5.9% and 23.5% (Leung 2011).

WHO's sequence is to shout for help, put the mother in the McRoberts position (thighs pulled hard back towards her chest), apply firm downward traction on the head together with pressure above the pubic bone, never press on the top of the belly, then attempt internal rotation of the shoulders, then deliver the posterior arm. A deliberately broken collarbone or a finger hooked in the armpit are last resorts (WHO 2017). In the largest comparison, delivery of the posterior shoulder succeeded in 84.4% against 24.3 to 72.0% for other manoeuvres, and more manoeuvres went with more injury (Hoffman 2011). With three or more manoeuvres, adverse outcomes reached 15.1% against 6.5% with fewer (Zullo 2026).

The all-fours manoeuvre came from a lay midwife. Ina May Gaskin learned it from Guatemalan practice and it is named after her. Bruner and colleagues, with Gaskin as co-author, reported 82 shoulder dystocias in midwife-attended births: 83% were delivered simply by turning the mother onto hands and knees, in a mean of 2.3 minutes (range 1 to 6), with no deaths. Neonatal morbidity was 4.9%, all in babies over 4,500 g (Bruner 1998). MA-01 already teaches it for the household. The Guatemalan origin comes from the paper's own account [VERIFY: abstract does not say].

Who must never attempt: no one should pull hard on the head, twist the neck or press on the fundus. Fundal pressure in labour has been tested and does harm (THRIVING library, TR-14).

7. At the infirmary: vacuum and the Odon device

The vacuum extractor pulls on the baby's scalp with a cup. WHO's conditions are a head-first term baby, a fully dilated cervix, and the head at least at the level of the ischial spines or no more than 2/5 palpable above the pubic bone (1/5 when labour is obstructed). The vacuum is raised to 0.2 kg/cm2, the application checked, then raised to 0.8 kg/cm2. Traction is applied only with contractions, never to rotate, and for no more than 30 minutes in all. It is not for face or brow presentations (WHO 2017). Above that level, with a live baby, WHO's answer is caesarean.

A vacuum needs a cup and a pump. Hand pumps and soft cups are salvageable and simple to sterilise. A kitchen-built device is not something I found any record of [VERIFY]. The vacuum is the infirmary's most valuable salvaged instrument for obstructed labour, because it turns a fully dilated, low, stuck head into a living baby without opening the abdomen.

The Odon device, invented by an Argentine car mechanic and developed with WHO and Becton Dickinson [VERIFY: background not read in a source], slides a plastic sleeve around the head and pulls on that. In the first UK

in-human study it succeeded in 19 of 39 attempts, less than standard instruments, and it was not to be used with the head at the spines (Hotton 2022, O'Brien 2019). Whether development continues I could not confirm [VERIFY]. It is not a tool to plan around.

8. Symphysiotomy

8.1 The record

Symphysiotomy cuts the fibrous joint at the front of the pelvis so that the bones spread by a centimetre or two and the head can pass. It was first described in France in 1777 (Verkuyl 2007). It can be done in a few minutes under local anaesthetic, with a catheter in the bladder and an assistant holding each leg so that the thighs never part more than about 40 degrees each side (Verkuyl 2007). The operative technique is not given here.

Björklund reviewed 5,000 symphysiotomies and 1,200 caesareans from 28 countries across the twentieth century. He concluded that the operation was safe for the mother's life, enlarged the pelvis permanently, saved the child and had rare severe complications (Björklund 2002). Verkuyl reports that Björklund found no maternal death directly caused by it after 1950 (Verkuyl 2007). At Afikpo in Nigeria, from 1982 to 1999, Sunday-Adeoye's team did 1,013 symphysiotomies in 27,477 deliveries (3.7%), 88% for disproportion. One mother died of pulmonary embolism. Perinatal mortality was 108.7 per 1,000. Transient pain was the commonest complication, with some stress incontinence and some vesicovaginal fistula (Sunday-Adeoye 2004). In Zimbabwe, long-term outcomes of 34 women after symphysiotomy did not differ from those of 29 after caesarean. Two-thirds of staff thought the operation obsolete but lifesaving in remote areas, and 10 of 13 remote midwives wanted to learn it (Ersdal 2008).

The only meta-analysis is less kind. Across seven studies and 1,266 women, symphysiotomy against caesarean showed no significant difference in maternal death (RR 0.48, 0.13 to 1.76) or perinatal death (RR 1.12, 0.64 to 1.96), less infection (RR 0.30), but more fistula (RR 4.19, 1.07 to 16.39) and much more stress incontinence (RR 10.04, 3.23 to 31.21) (Wilson 2016). There are no randomised trials (Hofmeyr and Shweni 2012). The Cochrane authors list two indications: caesarean is unavailable, or the aftercoming head of a breech is trapped.

The operation is only for a live baby with the head engaged, the cervix fully dilated and the baby lying lengthways. It is not for a dead baby, an incompletely dilated cervix, a transverse lie, or gross disproportion (Verkuyl 2007).

8.2 Ireland

In Ireland roughly 1,500 women had symphysiotomy between 1944 and the 1980s, many without being told or asked (Wikipedia 2026, secondary). The context was Catholic medicine's hostility to the limit on repeat caesareans, to sterilisation and to contraception: a widened pelvis meant more vaginal births. Alex Spain performed 43 and Arthur Barry urged it wherever caesarean would otherwise be used. Our Lady of Lourdes at Drogheda kept doing it into the 1980s, in part to train doctors for Africa. Survivors of Symphysiotomy, founded in 2002 with Matilda Behan as a leading voice, campaigned for redress. The Walsh report of 2014 covered 1944 to 1984. The UN Human Rights Committee criticised Ireland in July 2014. An ex gratia scheme paid 50,000, 100,000 or 150,000 euros to about 400 women. Judge Harding Clark's 2016 report found that at least a third of claimants had never had the operation. The European Court of Human Rights declared the applications inadmissible in 2020 (Wikipedia 2026, secondary).

The Irish scandal was about consent and indication, not about whether the operation saves lives where nothing else can. Both arguments must be carried.

8.3 What WHO says

The brief describes a WHO view that symphysiotomy belongs where caesarean is impossible. That view appeared in earlier WHO manuals. The 2017 edition of Managing Complications in Pregnancy and Childbirth, which I read

in full, does not mention symphysiotomy at all (WHO 2017). Whether it was dropped for evidence or for politics I cannot say [VERIFY: the 2003 edition was not checked].

9. Destructive operations on a dead fetus

When the baby has died in an obstructed labour, the mother can still be saved by making the baby smaller and delivering it vaginally. WHO keeps the operation in its 2017 manual: if the fetus is dead in obstructed labour, perform a craniotomy, and if not proficient, a caesarean (WHO 2017). Death must be confirmed by several listeners. The mother and family need the explanation that the baby is dead and that the priority now is the mother. After the operation the vagina and cervix are checked for tears and a catheter stays in until bladder injury is excluded (WHO 2017). Craniocentesis, draining a hydrocephalic head, is the related procedure. No technique is given here.

The figures I could reach are second-hand, from the Ethiopian review: maternal mortality of 0 to 2.7% after destructive operations against 7.5% after abdominal delivery, uterine rupture 2.6 to 9.1%, postpartum haemorrhage 4.5% and lacerations 1.3%. The operation is safer than caesarean only if the uterus is not already ruptured or about to rupture (Ayenew 2021). In one Tigray series craniotomy was performed in 31 of 195 obstructed labours [VERIFY: search summary only].

Destructive operations are hard on everyone who does them and they are not done on a living baby. This rule has no exception in any source I read. They need an infirmary, a trained operator, pain relief and a catheter. King's Primary Surgery, the manual named in the brief, describes them for district hospitals. I could not reach it in this session.

10. Caesarean section by non-physicians, and without blood or antibiotics

10.1 Mozambique and its successors

After independence Mozambique had almost no surgeons and trained técnicos de cirurgia, assistant medical officers, to operate in district hospitals (THRIVING library, WO-08). At Maputo Central Hospital, 2,071 consecutive caesareans were reviewed, of which 958 (46.3%) were done by these officers. The only difference from obstetricians was superficial wound separation, 0.35% against 0.05% (Pereira 1996, abstract). WO-08 gives 978 técnico caesareans against 1,113 by obstetricians, and the abstract I read gives 958 of 2,071. One of the two is a slip [VERIFY]. Across 14 técnicos and 10,258 operations, mortality was 0.4% for emergencies and 0.1% for elective surgery, and 88% of técnicos were still in district posts after seven years (THRIVING library, WO-08). In Sierra Leone, CapaCare trainees had a caesarean mortality of 0.7% (13 of 1,915) (THRIVING library, WO-08).

A meta-analysis of six studies and 16,018 women found no significant difference in maternal death between clinical officers and doctors (OR 1.46, 0.78 to 2.75) or perinatal death (OR 1.31), but more wound infection (OR 1.58) and more wound breakdown (OR 1.89) (Wilson 2011).

10.2 The mortality that remains

Even with antibiotics and blood, caesarean in poor countries kills 7.6 mothers per 1,000, and 10.9 per 1,000 in sub-Saharan Africa, and 23.8% of all maternal deaths there follow a caesarean (Sobhy 2019). Verkuyl put it at about 1 in 150 in Africa and parts of Asia, with decision-to-delivery intervals of 1.9 to 4.4 hours (Verkuyl 2007). WO-08 records a warning that a first generation of surgeons may see 11% mortality (THRIVING library, WO-08).

Without antibiotics and blood the record is older and worse. Classical caesarean before Porro's operation at Pavia in 1876 is reported to have killed more than half of mothers in the 1880s, and close to all in eighteenth-century Europe [VERIFY: search summaries only]. Anaesthesia is held in WO-10: open-drop ether in Kathmandu covered 535 caesareans with no anaesthetic death, and ketamine before delivery must be kept to 1 mg/kg (THRIVING library, WO-10).

10.3 Feasibility

A caesarean needs an operator trained over months under supervision, an assistant, an anaesthetic, sterile instruments, sutures, a clean room, light, and someone to watch the mother for days. It is a district infirmary operation at the very least, and only after a training programme of the kind WO-08 describes. Whether a district should build that capacity is a major owner's decision [OWNER].

11. Tradition on its own terms

Rubbing the belly. Mexican parteras practise the sobada, rubbing and shaping the belly in pregnancy, which can include coaxing a breech or transverse baby to turn. The partera understands the womb and the baby as something the hands can settle into its right place. The record is of practice without measured outcomes, and turning without the checks of ECV risks abruption (THRIVING library, TR-14). Grade D, with harm possible.

Hot herbs and pushing on the fundus. Across West Africa and elsewhere, herbal preparations are given to strengthen a slow labour, among them the hot mansugo of the Dagaaba of northern Ghana, and in many places attendants push on the top of the belly (THRIVING library, TR-14). The logic is that the labour lacks strength and must be helped. In Ghana, 41 uterine ruptures were counted in 5,085 deliveries, with herbs given in 24 (58.5%), and 4 mothers and 34 babies died (Fofie and Baffoe 2010, via THRIVING library, TR-14). Fundal pressure showed no benefit and more tears in the Cochrane review (Hofmeyr 2017, via THRIVING library, TR-14). Grade X for both in obstructed labour.

Internal version. Siegemund turned babies by hand inside the womb in Brandenburg in the late seventeenth century, with about 6,200 births recorded (THRIVING library, TR-14). Grade B as history, expert only.

The Bunyoro caesarean. In 1879 at Kahura in Bunyoro (present-day Uganda), Robert Felkin, a Scottish medical student, watched a local healer deliver a first-time mother of about 20 by caesarean. She had been given banana wine until half-conscious, the healer washed his hands and her belly with wine, vessels were sealed with a red-hot iron, the wound closed with seven iron pins and a root paste, and she was healing by the eleventh day. Felkin published it in the Edinburgh Medical Journal in 1884 (Fischer 2023, secondary). It shows that surgical knowledge of this kind existed outside Europe. One case is not a record.

The gishiri cut. In Hausa practice in northern Nigeria, a vaginal cut is made for a range of complaints including difficult labour, and the fistula literature links it to fistula. I could not reach a primary source in this session [VERIFY].

12. The decision tree when there is no referral at all

This tree is for the attendant who knows that nobody further up exists. Each rung assumes the ones below it.

1. **Before labour, at 36 to 37 weeks.** Feel the lie. If head-down, go on as MA-01. If breech or transverse, offer moxibustion from 33 to 35 weeks, then at 37 weeks ECV by the trained attendant if the owner has allowed it [OWNER]. A transverse lie at term that cannot be turned cannot deliver alive and will rupture the uterus if left (WHO 2017). Plan for that woman to labour at the infirmary.
2. **In labour, watch the clock and the signs.** Use the alert line (MA-01). When it is crossed, or when good contractions bring no progress for two hours in the active phase, move the woman to the place with the most skill, while she can still walk or be carried [VERIFY: two-hour figure is an inference from MA-01 and WHO 2017].
3. **Never give oxytocin or herbs, and never push on the belly,** in any labour that has stopped despite good contractions.
4. **If obstruction is diagnosed, ask three questions.** Is the baby alive (several listeners)? Is the cervix fully open? How much of the head can be felt above the pubic bone?

5. **Baby alive, cervix full, head 1/5 or less above the pubis.** Vacuum at the infirmary if trained. If not, all-fours and upright pushing for up to one more hour.
6. **Baby alive, head higher.** There is no lay manoeuvre. The options are symphysiotomy or caesarean by a trained infirmary operator [OWNER], or waiting. Waiting usually means the baby dies.
7. **Baby dead.** Destructive operation by a trained operator at the infirmary. If none exists, keep the woman drinking, keep her bladder empty with a catheter, give comfort, and accept that the labour may continue for a long time. The risks are rupture, sepsis and fistula [VERIFY: no outcome series read for this pathway].
8. **Signs of rupture** (pain that suddenly changes, contractions stop, shock, baby's parts felt under the skin, bleeding): nothing at village level can repair it. Comfort, warmth and presence (section on Red flags).
9. **After any obstructed labour.** Catheter for seven days if bladder injury is possible (WHO 2017). Watch for leaking urine or stool, and refer to MA-11.

Evidence grades

Practice	Tradition says	Record shows	Science infers	Grade
ECV at term	Hands can settle the baby (sobada)	Siegemund turned by hand	Halves non-cephalic birth, serious harm 0.24%	A
Moxibustion at BL67	Warms and moves the channel	Long Chinese use	Modest effect, RR 0.87, low certainty	A (low)
Hands-off vaginal breech	Patience	Low harm where skilled (PREMODA)	Higher mortality than planned caesarean in hospital	B
Upright breech	Not recorded	Fewer manoeuvres and injuries (Frankfurt)	One cohort	C
Lovset, Mauriceau-Smellie-Veit	Not recorded	Standard teaching for a century [VERIFY]	No trials	B
Second twin by ECV or wait 2 h	Patience, breastfeeding	Twin Birth Study safe if first twin head-down	Planned vaginal equal to caesarean	A
Knee-chest, manual elevation, bladder filling for cord prolapse	Not recorded	1 death in 121 (Oxford), 0 in 88 (Caspi) with caesarean	No trials, plausible	B
McRoberts, suprapubic, posterior arm	Not recorded	Posterior arm succeeds 84%	Observational	B
All-fours for shoulder dystocia	Guatemalan and Farm practice	83% of 82 cases resolved	One series	B
Vacuum	Not recorded	Standard instrument	Safe within limits	A to B
Odon device	Not recorded	19 of 39	Inferior to standard tools	C
Symphysiotomy	Not recorded	5,000 cases, few deaths	Fistula RR 4.2, incontinence RR 10	B

Practice	Tradition says	Record shows	Science infers	Grade
Destructive operation on a dead fetus	Old surgical tradition	Mortality 0 to 2.7%	Safer than caesarean if uterus intact	B
Non-physician caesarean	Bunyoro case	Equal mortality to doctors	More wound problems	A to B
Herbal augmentation in obstruction	Strengthens labour	Ruptures (Ghana)	Harmful	X
Fundal pressure	Helps the baby out	More tears	No benefit	X
Cord replacement above the head	Not recorded	5 of 8	Not recommended	D

Means ledger

Rung	What it adds	What it changes
Hands and knowledge alone	Feeling the lie. Hands-off breech, upright positions. Second-twin waiting and breastfeeding. Knee-chest and manual lifting for cord prolapse. McRoberts, suprapubic pressure, all-fours, posterior arm. Recognising obstruction and moving early	Prevents most shoulder dystocia deaths and many breech and twin deaths. Cannot relieve true obstruction
Hearth	Warm water, cloths, a sand-glass or watch to count minutes, a light	Allows the head-to-body clock and the two-hour twin clock
Garden and still	Moxa from *Artemisia vulgaris*. Alcohol for hands and instruments	Fewer breeches at term. Cleaner hands for internal manoeuvres
Village dispensary (300)	A trained attendant with ECV skill [OWNER]. Foley catheter, giving set and boiled salt water for bladder filling. Pinard horn. Partograph sheets	Buys cord prolapse time, prevents some breeches, catches obstruction early
District infirmary (3,000)	Vacuum extractor. A trained operator for symphysiotomy, destructive operations and in the end caesarean [OWNER]. Anaesthesia (WO-10). Catheters for fistula prevention	Saves the mother in most obstructions. Saves some babies
Hospital before the Fall	Caesarean within 30 minutes, blood, antibiotics, neonatal care	Obstructed labour almost never kills or leaves a fistula

Harm test

ECV. Harms by abruption, cord entanglement, membrane rupture and, rarely, a torn uterus (0.24% serious). Never in twins before the first is born, with bleeding, ruptured membranes, praevia, pre-eclampsia, or an abnormal heart

rate. Signs of trouble are a slow heart after a move, pain, or bleeding. Stop, turn the mother on her left side, and listen again.

Moxibustion. Burns, smoke irritation and nausea. Never with an indication against vaginal birth. TR-03 covers it.

Vaginal breech. Traction causes extended arms, a caught head, and neck and brachial injury. A footling breech can pass through a partly opened cervix and catch the head. Never pull, never hold the belly, and never hurry before the umbilicus.

Second twin. Uterotonics before the last baby, rough internal version and pulling on the cord before both are born all cause harm. Bleeding before the second twin means separation.

Cord prolapse. Handling the cord causes vessel spasm. Bladder filling left in place obstructs birth, so empty it first. Knee-chest in a moving vehicle is unsafe, so use left lateral.

Shoulder dystocia. Pulling hard on the head injures the brachial plexus. Fundal pressure worsens impaction. Each added manoeuvre adds injury risk.

Vacuum. Scalp injury and bleeding under the scalp. Never on a high head, a face or brow, a preterm baby, or before full dilatation. Stop at 30 minutes.

Symphysiotomy. Urethral and bladder injury, fistula, stress incontinence, pelvic pain, difficulty walking, and the Irish lesson of operation without consent. Never on a dead baby, an undilated cervix, or a transverse lie.

Destructive operations. Vaginal and cervical tears, bladder injury, rupture if the uterus is already thin, and grief for the operator and family. Never on a living baby.

Caesarean. Haemorrhage, sepsis, anaesthetic death, wound breakdown, and a scar that can rupture in the next labour (about 1%) (Hofmeyr 2005).

Augmentation. Herbs or oxytocin given in obstruction rupture the uterus.

Red flags

These signs mean the mother or baby will probably die or be disabled without what the village cannot give.

- A ruptured uterus: sudden change in pain, contractions stop, shock, fetal parts easily felt, bleeding.
- A ballooning lower segment or a retraction band with no progress.
- Labour beyond a day with a dead baby and a high head.
- A transverse lie in labour, or an arm in the vagina.
- Cord prolapse at less than full dilatation with no caesarean.
- A trapped aftercoming head more than a few minutes after the body [VERIFY: no time figure read].
- Shoulder dystocia beyond five minutes.
- Fever, foul discharge and a fast pulse after a long labour.
- Leaking urine or stool in the days after birth: fistula (MA-11).

What to do anyway: keep the mother warm, drinking if she can, bladder emptied by catheter, on her left side. Bring the most skilled person you have. Tell her and her family the truth gently. If she is dying, stay with her, relieve her pain with whatever the dispensary holds (WO-10), and let her people be near her. A dead baby can be named and held. The attendant who did everything right and still lost a mother or baby needs the village's support as well.

The case against

Against routine vaginal breech. Hannah and the Term Breech Trial Collaborative Group found three times as many bad outcomes with planned vaginal birth (Hannah 2000), and two meta-analyses keep finding higher perinatal

mortality (Wängberg Nordborg 2022, Fernández-Carrasco 2022). Their defence of the trial against Glezerman stands in print (Hofmeyr and Hannah 2006). The counter is that no caesarean is available after the Fall and the two-year outcomes were the same.

Against symphysiotomy. Wilson and colleagues found four times the fistula and ten times the incontinence (Wilson 2016). Survivors of Symphysiotomy argue that the operation was a violation in Ireland and that no woman should undergo it. The counter is Björklund's 5,000 cases and the Zimbabwean midwives who wanted it.

Against non-physician caesarean. Wilson 2011 found more wound infection and breakdown. Murphy's warning of 11% mortality for a first generation surgeon is the strongest caution (THRIVING library, WO-08).

Against ECV without backup. WHO and the RCOG make ECV conditional on caesarean (WHO 2017, Royal Hospital Oman 2024). In a world without caesarean, an abruption after ECV has no rescue.

Against moxibustion. The certainty is low, the caesarean rate did not fall, and smoke causes discomfort (Coyle 2023).

Against the all-fours manoeuvre. It rests on one series of 82 from a single community, and its authors included its promoter (Bruner 1998).

The romance of the hospital. All the trial data come from hospitals with anaesthesia and blood. The romance of tradition: herbs and fundal pressure rupture the uterus.

10-line summary

1. Obstructed labour affects 3 to 6% of births and, if neglected, kills by rupture and sepsis and leaves fistula.
2. Time in impaction, not force, causes fistula, so early recognition and early movement matter most.
3. Never give herbs or oxytocin and never press on the fundus when good contractions bring no progress.
4. ECV halves breech births with serious harm in about 1 in 400 attempts, and moxibustion adds a small effect.
5. Hands-off, upright vaginal breech with Lovset and Mauriceau-Smellie-Veit for rescue is the honest option after the Fall.
6. The second twin can usually wait up to two hours, and no uterotonic is given before the last baby.
7. Cord prolapse: lift the head, knee-chest, fill the bladder, but these only buy time until birth.
8. Shoulder dystocia: under five minutes, McRoberts, suprapubic pressure, all-fours, posterior arm.
9. Symphysiotomy and destructive operations saved mothers where caesarean was impossible, at a real cost.
10. Caesarean by trained non-physicians matched doctors on mortality, but still kills about 1 in 130 mothers in poor countries.

Open questions

- What is the outcome of vaginal breech with no theatre at all? No modern series exists.
- Should a lay attendant attempt ECV without caesarean backup [OWNER]?
- What is the untreated case-fatality of obstructed labour by parity? Dolea and AbouZahr gave model assumptions only.
- Why did WHO drop symphysiotomy from its 2017 manual?
- Can a district train a caesarean operator to Mozambique's standard without a teaching hospital?
- What happened to the Odon device?
- How long can a cord prolapse be held off with bladder filling when there is no caesarean?
- What did Loudon's pre-caesarean record show for obstructed labour specifically?

Sources to read in full

1. WHO 2017, Managing Complications in Pregnancy and Childbirth, the attendant's working manual.

2. Klein, Miller and Thomson, A Book for Midwives (Hesperian), the lay attendant's companion.
3. Hannah 2000 and Whyte 2004, the Term Breech Trial and its follow-up together.
4. Goffinet 2006, PREMODA.
5. Björklund 2002, with Wilson 2016 alongside.
6. Verkuyl 2007, the case for symphysiotomy.
7. RCOG Green-top 50 on cord prolapse (2008, and the 2014 edition).
8. King, Primary Surgery, volume 1, Obstetrics (not read).
9. Dolea and AbouZahr 2003, the burden of obstructed labour.
10. Pereira 1996 and Wilson 2011 on non-physician caesarean.

At the bedside after the Fall

Household. Know the warning signs and do not wait. Know all-fours for stuck shoulders, knee-chest for a cord, and hands off a breech. Keep a watch or sand-glass. First failure to expect: the family waits too long because the labour is "only slow".

Village of 300. One or two trained attendants who can feel the lie, do moxibustion, perhaps ECV [OWNER], attend breech and twins hands-off, manage cord prolapse with a catheter, and run the shoulder dystocia sequence. Needs: Foley catheters, a giving set, salt, a Pinard horn, moxa, partograph sheets, a cart or stretcher and a rota of bearers. First failure to expect: an unexpected breech or second twin in the middle of the night with the trained attendant away.

District of 3,000. An infirmary with a vacuum extractor, a trained operator for symphysiotomy and destructive operations, and in time a caesarean operator [OWNER]. Anaesthesia from WO-10. A death review for every mother and baby lost. Needs: salvaged instruments, sutures, sterile cloths, catheters, an operating light. First failure to expect: the woman arrives with a ruptured uterus because the village waited, or the first caesareans go badly.

Protocols

Protocol 1. Recognising obstruction and moving the woman

1. Count contractions every 30 minutes: 3 or more in 10 minutes, each over 40 seconds, is good labour.
2. Check the cervix every 4 hours in active labour (MA-01).
3. If the alert line is crossed, start moving the woman towards the most skilled help at once.
4. If contractions are good but there is no progress, look for: large scalp swelling, overlapping skull bones, swollen cervix, a ridge across the belly, a fast pulse in the mother.
5. If any sign is present: no herbs, no oxytocin, no pressure on the belly.
6. Keep the bladder empty. Ask her to pass urine often, and use a catheter if she cannot.
7. Give drink, keep her on her side or upright, and move her.
8. In the second stage: if there is no bulging after 30 minutes or no descent after 1 hour of good pushing, get help.

Protocol 2. Breech birth, hands off

1. Mother upright, kneeling or on all fours, or at the edge of the bed.
2. Let the baby come without touching it until the umbilicus is seen.
3. Do not pull. Keep your hands off the baby's belly. If you must hold, hold by the hips.
4. If the arms do not come: hold the hips, turn the baby half a turn keeping the back up, sweep down the arm under the pubic bone, then turn back for the other arm (Lovset).
5. For the head: lay the baby on your forearm, a finger on each cheekbone to keep the chin down, the other hand flexing the back of the head, an assistant pressing above the pubic bone (Mauriceau-Smellie-Veit).

6. Bring the head slowly.
7. Be ready to resuscitate (MA-05).
8. Footling breech in labour: knee-chest and seek help.

Protocol 3. The second twin

1. After the first baby: clamp and cut the cord, leave a clamp on the mother's end.
2. Give no uterotonic.
3. Feel the belly: lengthways or across? Listen to the heart.
4. If across and you are trained: gently turn to head or breech between contractions.
5. Wait for contractions, usually 15 to 20 minutes. If they do not return, put the first twin to the breast or stimulate the nipples.
6. When the head or breech is low and contractions are good, break the waters if needed.
7. Deliver the second twin as for a single birth or a breech.
8. Bleeding before the second twin: get the baby out quickly.
9. Limit: if not born within 2 hours of good contractions, move to the infirmary.
10. After the last baby only: uterotonic and placenta (MA-02).

Protocol 4. Cord prolapse

1. If the cord is felt or seen: call for help.
2. Check the cord for pulse and listen to the baby's heart.
3. If alive: put two fingers in the vagina and push the head or buttocks up, and keep pushing.
4. Put the mother in knee-chest (face down, bottom up), or head-down on her left side.
5. Do not handle the cord. Cover it with a warm wet cloth if it is outside.
6. At the dispensary: pass a Foley catheter, run in 500 to 750 mL of boiled cooled salt water (9 g salt per litre [VERIFY: own household equivalent of normal saline]), clamp the catheter.
7. During transport: left lateral, not knee-chest.
8. If the cervix is fully open and the baby is low: empty the bladder, mother pushes, vacuum if available.
9. Empty the bladder before any birth.
10. If the cord has stopped pulsing and no heartbeat is heard by several listeners: the baby has died, and there is no emergency for the mother.

Protocol 5. Shoulder dystocia

1. Note the time the head is born. Aim for the body within 5 minutes.
2. Call for help. No pulling hard and no pushing on the belly.
3. McRoberts: two helpers pull the mother's thighs back to her chest. Gentle downward traction on the head. About 30 seconds [VERIFY: timings in this protocol are my own division of the five-minute window].
4. Suprapubic pressure: a helper pushes down and sideways above the pubic bone, behind the front shoulder. About 30 seconds.
5. All-fours: turn the mother onto hands and knees. Gentle downward traction to free the upper (posterior) shoulder. In Bruner's series this took 1 to 6 minutes.
6. Posterior arm: if trained, slide a hand along the back of the baby and bring down the posterior arm.
7. Be ready to resuscitate (MA-05).

Protocol 6. After an obstructed labour

1. Leave a catheter in for 7 days if labour was long and the bladder may be injured.
2. Give plenty of fluids.

3. Watch for fever and smelly discharge (MA-04).
4. Ask daily about leaking urine or stool. If present, refer to MA-11.
5. Hold a death review if mother or baby died (MA-01).

Numbers to carry

1. **3 to 6%** of births obstruct. A district sees 3 to 6 a year.
2. **1 hour** of good pushing with no descent means get help.
3. **50%** of breeches turn with ECV, with serious harm in **0.24%**.
4. **Umbilicus**: no hands on a breech before it is born.
5. **2 hours** of good contractions is the limit for the second twin.
6. **500 to 750 mL** of fluid fills the bladder for cord prolapse.
7. **5 minutes** from head to body in shoulder dystocia, after which brain injury rises to about 1 in 4.
8. **0.8 kg/cm2** and **30 minutes** are the vacuum limits.
9. **7 days** of catheter after a long obstructed labour.
10. **About 1 in 130** mothers die after caesarean in poor countries even now.

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