

## Emergency response for cord complications



### Why cord complications become emergencies

The umbilical cord contains two arteries and one vein surrounded by Wharton's jelly, a protective substance that helps resist compression. Even with this protection, the cord can become vulnerable when it lies between the fetus and the cervix, is compressed during contractions, or is exposed outside the vagina after the membranes rupture. The most dramatic scenario is umbilical cord prolapse, where the cord descends through the cervix alongside or ahead of the presenting part.

The physiologic problem is not the visible cord itself but impaired perfusion. Compression can reduce venous return and arterial blood flow, while exposure and handling may contribute to vasospasm. Fetal heart rate abnormalities can follow quickly, including variable decelerations, prolonged deceleration, or sustained bradycardia. A fetal bradycardia after waters break is a classic warning pattern that prompts immediate assessment for cord prolapse, especially when the presenting part is high or malpresentation is known.

Not every cord issue has the same severity. A nuchal cord, for example, is common and often managed routinely at birth. In contrast, cord prolapse with fetal compromise is treated as a life-threatening emergency because ongoing

compression can lead to hypoxia and birth asphyxia. The key principle is simple but urgent: reduce pressure on the cord and expedite safe delivery if fetal status is suspicious or pathological.

## **Recognizing possible cord prolapse**

Cord prolapse most often becomes apparent after rupture of membranes, whether spontaneous or artificial. It may be suspected when the fetal heart rate suddenly deteriorates after the waters break, particularly if there are recurrent variable decelerations or a prolonged deceleration. On vaginal examination, a clinician may feel a pulsating loop of cord beside or below the presenting part. Occasionally, the cord is visible at the vulva.

Risk is higher when the presenting part is not well applied to the cervix. Examples include an unengaged presenting part, breech or transverse lie, unstable lie, polyhydramnios, multiple pregnancy, prematurity, and some situations after artificial rupture of membranes. However, prolapse can occur without obvious warning, which is why fetal heart rate surveillance and prompt clinical evaluation matter.

For the pregnant person, signs may be subtle. They may feel or see something soft and cord-like in the vagina after the waters break. There may be no pain and no maternal bleeding. Because fetal compromise may occur before the parent feels unwell, this is not a situation to watch and wait. If a cord is seen or suspected outside hospital, emergency services should be called immediately.

## **Immediate actions outside hospital**

If cord prolapse is suspected at home, in transit, or in a community setting, the response should be direct and urgent. Call the local emergency number immediately and state that umbilical cord prolapse is suspected. If already under maternity care, the maternity triage or labor unit can also be contacted, but emergency transport should not be delayed.

The birthing person should be helped into a position that uses gravity to reduce pressure from the fetus on the cord. Commonly recommended positions include the knee-to-chest position, with the chest lowered and hips elevated, or a steep head-down position if safely achievable. The goal is not comfort

alone; it is mechanical decompression of the cord until skilled help arrives.

If the cord is visible, it should not be pushed back into the vagina. Avoid touching it unless specifically instructed by emergency clinicians, because handling may provoke vasospasm or contamination. If there is unavoidable exposure while waiting for help, emergency dispatchers or clinicians may advise measures to keep the cord warm and moist, but the safest general rule for non-clinicians is to minimize manipulation.

Do not attempt to drive yourself if prolapse is suspected. Ambulance teams can provide positioning, communication with the receiving maternity unit, and rapid transfer to a consultant-led unit capable of operative delivery and neonatal support. The emotional intensity of this moment can be overwhelming; one support person can help by calling, opening access for paramedics, noting the time membranes ruptured, and keeping the parent in the recommended position.

### **Hospital priorities: decompress, mobilize, prepare**

In hospital, the emergency response is simultaneous rather than sequential. The team calls for senior obstetric, midwifery, anesthesia, neonatal, and operating room support while initiating funic decompression. Time to decompression is critical because improving cord blood flow may stabilize fetal oxygenation while definitive birth is arranged.

Manual elevation is a core maneuver. A clinician inserts a hand or fingers vaginally and lifts the presenting fetal part away from the cord, maintaining pressure until delivery or until another effective decompression method is in place. This can be physically demanding and emotionally distressing for the patient, so clear explanation and consent as far as possible are important even during urgency.

Maternal positioning is used immediately. Knee-chest, exaggerated Sims, or Trendelenburg positioning can reduce compression by shifting the fetus away from the pelvis. If delivery is not immediate, bladder filling may be used: a Foley catheter is placed and the bladder filled with fluid to elevate the presenting part. This may be particularly useful during transfer to theatre or when manual elevation cannot be maintained safely.

If uterine contractions are worsening compression or delivery is delayed, clinicians may consider acute tocolysis, such as terbutaline, to reduce contraction frequency. This is a medical decision based on fetal status, maternal condition, contraindications, and anticipated time to delivery. Throughout, fetal heart rate monitoring guides urgency, but treatment should not wait for prolonged observation when prolapse with fetal compromise is evident.

### **Decision-making about birth route and timing**

When cord prolapse occurs and vaginal birth is not imminent, emergency cesarean delivery is commonly required. For suspicious or pathological fetal heart rate patterns, the response is often managed as a category 1 emergency C-section, meaning there is an immediate threat to the life of the fetus or mother. Many emergency frameworks aim for a decision-to-delivery interval under 30 minutes in this context, while recognizing that the fastest safe delivery depends on local resources, anesthesia readiness, and clinical circumstances.

Vaginal birth may be appropriate if the cervix is fully dilated, the presenting part is low, and birth can be achieved more quickly and safely than cesarean. Assisted vaginal birth may be considered by the obstetric team if criteria are met. The central question is not which mode is preferred in theory, but which route will restore fetal safety most rapidly with acceptable maternal risk.

Anesthesia planning happens under pressure. The anesthesiologist must be informed immediately because urgent operative delivery may require rapid regional anesthesia, conversion of an existing epidural, or general anesthesia if there is no time or regional anesthesia is unsuitable. Neonatal clinicians should be present or immediately available, as babies born after significant cord compression may require assessment and resuscitation after birth.

For families, the speed can feel shocking: many people remember a sudden alarm, staff entering quickly, a change in position, and rapid movement to theatre. Clinicians can reduce trauma by using brief, honest statements: what is happening, what is being done now, and what the next step is. Even in a true emergency, respectful communication is part of safe care.

### **Protecting the cord when it is visible**

A visible prolapsed cord requires particular care. The cord should be kept free of compression and protected from drying and cold exposure. In clinical settings, if the cord protrudes, teams may cover it with warm sterile saline-soaked gauze while avoiding unnecessary handling. The cord should not be clamped, squeezed, or repeatedly examined unless there is a clear clinical reason.

Repeated vaginal examinations can worsen compression or delay delivery, so assessment should be purposeful. Once prolapse is identified, the focus shifts to maintaining decompression, mobilizing the team, and proceeding to birth. If the fetal heartbeat is absent or extremely abnormal, clinicians will rapidly reassess fetal viability and maternal safety; however, these decisions require professional evaluation and cannot be determined by appearance of the cord alone.

It is also important to avoid false reassurance. A cord may still pulsate while compromised, and a fetus may have intermittent recovery between decelerations. Conversely, not all fetal heart rate decelerations are due to prolapse. The emergency response relies on clinical examination, fetal monitoring, and rapid escalation rather than assumptions.

### **Team coordination and emotional support**

Cord emergencies are managed best by rehearsed teams using clear roles. One clinician maintains decompression; another leads obstetric decision-making; anesthesia prepares for operative birth; midwifery staff coordinate monitoring, consent support, intravenous access, documentation, and transfer; neonatal staff prepare for newborn assessment. Closed-loop communication, where instructions are repeated back and confirmed, helps prevent delays.

Documentation should capture the time of membrane rupture if known, time prolapse was recognized, fetal heart rate findings, decompression maneuvers, time of decision for birth, anesthesia method, and time of delivery. These details matter for clinical review and for helping the family understand the sequence later.

The birthing person may feel frightened, exposed, or powerless, especially if

they must remain in an uncomfortable position while clinicians act urgently. A designated staff member or support person can stay near their face, explain what is happening, and offer grounding reminders. After birth, parents may need repeated, compassionate explanations, particularly if the baby required resuscitation or admission to neonatal care.

A postnatal debrief after emergency birth can be very helpful. It gives families a chance to ask why the emergency occurred, what actions were taken, how the baby responded, and whether there are implications for future pregnancies. Emotional recovery is part of medical recovery, and distress after a sudden obstetric emergency deserves care rather than dismissal.

### **Prevention, preparedness, and risk reduction**

Not all cord complications are preventable, but some risks can be anticipated. If the presenting part is high, unstable, or malpresenting, clinicians may take extra care before artificial rupture of membranes. This can include confirming presentation, ensuring immediate access to fetal monitoring, and performing rupture in a controlled setting where emergency delivery is available if needed.

For known risk factors such as transverse lie, breech presentation, polyhydramnios, or preterm prelabor rupture of membranes, individualized planning is important. This may affect place of birth, timing of admission, monitoring recommendations, and whether a consultant-led unit is advised. People planning birth outside a hospital should discuss how emergencies such as cord compression in labor would be recognized and transferred.

Preparedness does not mean expecting the worst. It means knowing which symptoms are urgent, having emergency contact pathways, and ensuring teams have protocols. For patients, the most actionable message is to seek urgent help if the waters break and a cord is felt or seen, or if there is a sudden concern about fetal movement or fetal wellbeing. For clinicians, the priority is rapid recognition, immediate decompression, and decisive escalation.