

## Guideline on Management of Umbilical Cord Prolapse

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### DEFINITION

**Cord prolapse:** Descent of the umbilical cord through the cervix alongside (occult) or past (overt) the presenting part in the presence of ruptured membranes.

**Cord presentation:** Presence of the umbilical cord between the fetal presenting part and the cervix, with or without intact membranes.

**Incidence:** The overall incidence of cord prolapse ranges from 1 – 6 per 1000 births. The incidence is higher in the case of breech presentation (1 in 100). Perinatal mortality associated with this is just over 9%.

### Risk Factors

Any condition that displaces the head or presenting part from the lower segment or cervix is a predisposing factor. Factors that are associated with this condition are shown in table below.

Antenatal Risk Factors	Intra-partum Risk Factors
Non vertex presentation (transverse lie "back up" or breech)	<b>Artificial rupture of the membranes</b> (especially with high presenting part)
Unengaged presenting part eg Low-lying placenta, cervical fibroid etc	Prematurity
Polyhydramnios	Second twin
Unstable lie is when the longitudinal axis of the fetus (lie) is changing repeatedly after 37+0 weeks	Manual rotation or other vaginal manipulation of the fetus - internal podalic version - disimpaction of fetal head during rotational assisted delivery) - placement of a fetal scalp electrode - insertion of an intrauterine pressure catheter or amnioinfusion catheter
External Cephalic Version	Large balloon catheter induction of labour
Preterm premature rupture of membranes	Stabilising induction of labour
Multiparity	
Low birth weight	
Congenital abnormalities	
Cord abnormalities	
Male gender (if known)	

### **Prevention of cord prolapse and or its effects**

With transverse, oblique or unstable lie, elective admission to hospital after 37+0 weeks of gestation should be discussed and women in the community should be advised to present urgently if there are signs of labour or suspicion of membrane rupture.

Women with non-cephalic presentations and preterm prelabour rupture of membranes should be recommended inpatient care.

Artificial membrane rupture should be avoided whenever possible if the presenting part is mobile and/or high.

If it becomes necessary to rupture the membranes with a high presenting part, this should be performed with arrangements in place for immediate caesarean section.

Upward pressure on the presenting part should be kept to a minimum in women during vaginal examination and other obstetric interventions in the context of ruptured membranes because of the risk of upward displacement of the presenting part and cord prolapse.

Rupture of membranes should be avoided if on vaginal examination the cord is felt below the presenting part.

When cord presentation is diagnosed in established labour, caesarean section is usually indicated.

### **Diagnosis**

It is a clinical diagnosis and is usually made on a vaginal examination. A cord prolapse is diagnosed by the presence of a palpable, soft, pulsatile mass either within the vagina or visibly extruding from the introitus. It should be ruled out whenever an abnormal CTG is noted more so in the presence of risk factors. It should also be ruled out when CTG abnormalities start soon after spontaneous or artificial rupture of membranes.

Differential diagnoses

- limb
- face presentation
- severe caput succedaneum

### **Role of Ultrasound Examination**

- Routine ultrasound examination should not be performed for identification of cord presentation antenatally.
- Selective ultrasound screening can be considered for women with breech presentation at term who are considering vaginal birth.

- Should a cord presentation be noted on ultrasound for another indication then this would warrant individualization of care and discussion with a senior obstetrician, including a repeat ultrasound if the woman is not delivered.

## Management

### Objectives:

- After 26+6 weeks (with fetal heartbeat present)  
Prompt recognition of cord prolapse and immediate delivery is the priority.
- At the threshold of viability: Extremely premature infant (22+0 – 26+6 weeks)
  - Foetal factors, clinical (maternal and fetal) condition and parent's wishes must be taken into consideration to plan further management. Individualized information (Appendix 1) on disability and survival of extremely premature infants<sup>1</sup> must be provided to parents to help them decide.

### Counselling, consent and documentation:

- Pre-emptive counselling should be done whenever possible. Ideally, Consultant Obstetrician and Neonatologist should be involved in counselling and decision making. They should be involved as early as possible.
- Even in emergency situation, giving appropriate information and obtaining informed consent is vital. Foetal outcomes in terms of survival and disability, maternal risks of classical c section and hysterectomy should be highlighted. Parents should be encouraged to actively involved in the decision making process.
- Even when there is little time to intervene, basic facts should be given to parents.
- Details of discussions with parents including parent's response must be recorded in patient's case notes.
- Under the threshold of viability (<22+0 weeks)
  - Obstetric and Neonatal interventions are not recommended.
  - Women should be counselled on both Palliative (comfort focused) management and termination of pregnancy following cord prolapse.

### Mode of delivery:

- If the cervix is fully dilated and the vertex at or below the ischial spines, a ventouse or forceps delivery should be performed.
- In a case of cord prolapse in association with a non-vertex second twin, an internal version and breech extraction may be considered.

- In all other cases a caesarean section should be performed.
- If an intrauterine death has already occurred, aim for a vaginal delivery if feasible.

### **Initial management of cord prolapse in the hospital setting (University Hospital Wishaw)**

The following should be performed simultaneously:

**1 Call for help**

(Obstetric and Neonatal emergency page 2222). Call senior midwife, obstetric registrar, anaesthetic registrar, neonatal registrar and neonatal midwife. When help arrives, state *cord prolapse* so all understand the emergency.

**2 Relieve pressure on the cord**

Elevate foot of bed and place patient on all fours or in left lateral position if epidural in situ.

**3** If the cord has prolapsed externally, it should be gently replaced into the vagina to prevent vasospasm.

**4** Perform vaginal examination and ensure the presenting part is pushed upwards to relieve pressure on the cord. No attempt should be made to replace the cord into the uterine cavity as this may cause further direct occlusion or vasospasm.

**5 Assess fetal wellbeing**

Commence cardiotocograph (CTG) if not already being undertaken.

**6 Plan for birth**

Maintain the position in 2 whilst the woman is being transferred to theatre and until staff available to facilitate delivery.

**7** Ensure intravenous access with a size 14 – 16 gauge venflon and send bloods including a group and save.

**8** If the cervix is fully dilated and the vertex at or below the ischial spines, a forceps delivery should be performed. Vacuum delivery is not advisable at early gestation due to the increased risk of intracranial bleeding to the fetus, (and generally takes longer than a forceps. An instrumental delivery should only be undertaken if the pre-requisites for this are met. In the case of cord prolapse in association with a non-vertex

second twin, an internal version and breech extraction *may* be considered. In all other cases a caesarean section should be performed. If an intrauterine death has already occurred, aim for a vaginal delivery if feasible.

- 9 If caesarean section is required give 30mls Sodium Citrate orally, and 50mgs Ranitidine intravenously. If CTG is pathological, a category 1 caesarean section under general anaesthetic should be performed if there are no known maternal contraindications to this. If the fetal heart rate is normal a category 2 caesarean section under regional anaesthetic is appropriate.
- 10 If delays are encountered or CTG abnormalities are noted, fill bladder (achieved by siting a urinary catheter, attaching a blood giving set to the catheter, filling with 500-750mls of fluid (e.g. normal saline) and then clamping the catheter) consider use of 0.5 mgs terbutaline subcutaneously until delivery can be expedited.

### **Initial management of cord prolapse in the community (including University Hospital Hairmyres & University Hospital Monklands)**

1. Call 999 to arrange rapid hospital transfer and institute 2-4 above. Insert a size 12 foley catheter in bladder and fill with 500mls normal saline. Clamp catheter to prevent bladder emptying, this will help displace the presenting part of the cord until delivery can be expedited. The knee chest position cannot be maintained during ambulance transfer and the patient should be transferred in left lateral position. Transfer immediately to theatre on arrival to hospital and complete 6-9 above.

### **Clinical governance**

- Documentation of all events related to cord prolapse (Proforma attached below).
- Debrief the women and family and staff involved.
- Training
  - All staff involved in maternity care should receive training in the management of obstetric emergencies including the management of cord prolapse
- Incident reporting

**Cord prolapse documentation proforma**

Name:
CHI:

Emergency Call:                      Yes / No:                                      Time called:

Senior midwife called:              Yes / No                                      Time called:

Obstetrician called:                  Yes / No                                      Time called:

Anaesthetist called:                  Yes / No                                      Time called:

Neonatologist called:                Yes / No                                      Time called:

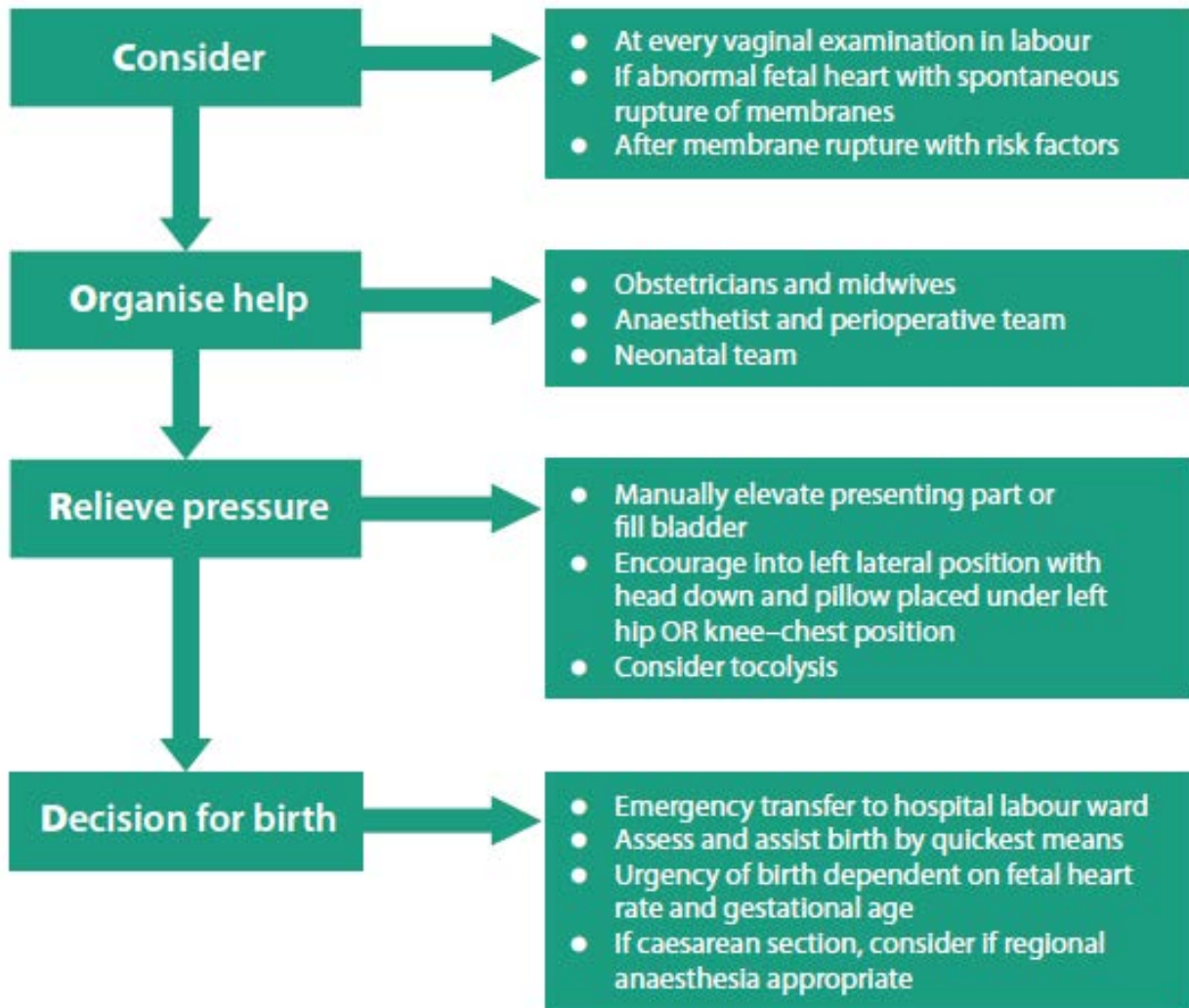
Diagnosis made at: Home / Hospital      Time at diagnosis: .....                      Cervical dilatation:

**CTG Findings:**

<b>Procedures used in managing cord prolapse</b>		
Elevating the presenting part manually	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Filling the bladder	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Left lateral, head tilted down / knee-chest position (please circle)		
Tocolysis with subcutaneous terbutaline	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Mode of birth		Mode of anaesthesia
Normal <input type="checkbox"/>		General anaesthetic <input type="checkbox"/>
Forceps <input type="checkbox"/>		Spinal <input type="checkbox"/>
Ventouse <input type="checkbox"/>		Epidural <input type="checkbox"/>
Caesarean section <input type="checkbox"/>		None <input type="checkbox"/>
Other <input type="checkbox"/>		
Diagnosis-to-birth interval:.....minutes		
<b>Neonatal outcome</b>		
Apgar scores:	Weight:.....kg	
1 min:	Cord pH	Base excess
5 mins:	Venous:	
10 mins	Arterial:	
Admission to neonatal intensive care unit (NICU)/special care baby unit (SCBU):		
Yes <input type="checkbox"/> No <input type="checkbox"/> Reason:.....		
Risk incident reporting form completed:    Yes <input type="checkbox"/>		
Known risk factors? Please state:.....		
Mother debriefed    Yes <input type="checkbox"/> No <input type="checkbox"/>		

Signature: .....                      Print Name:.....                      Date: .....

### ALGORITHM FOR MANAGEMENT OF CORD PROLAPSE\*



\*RCOG Green-top Guideline No. 50

#### References:

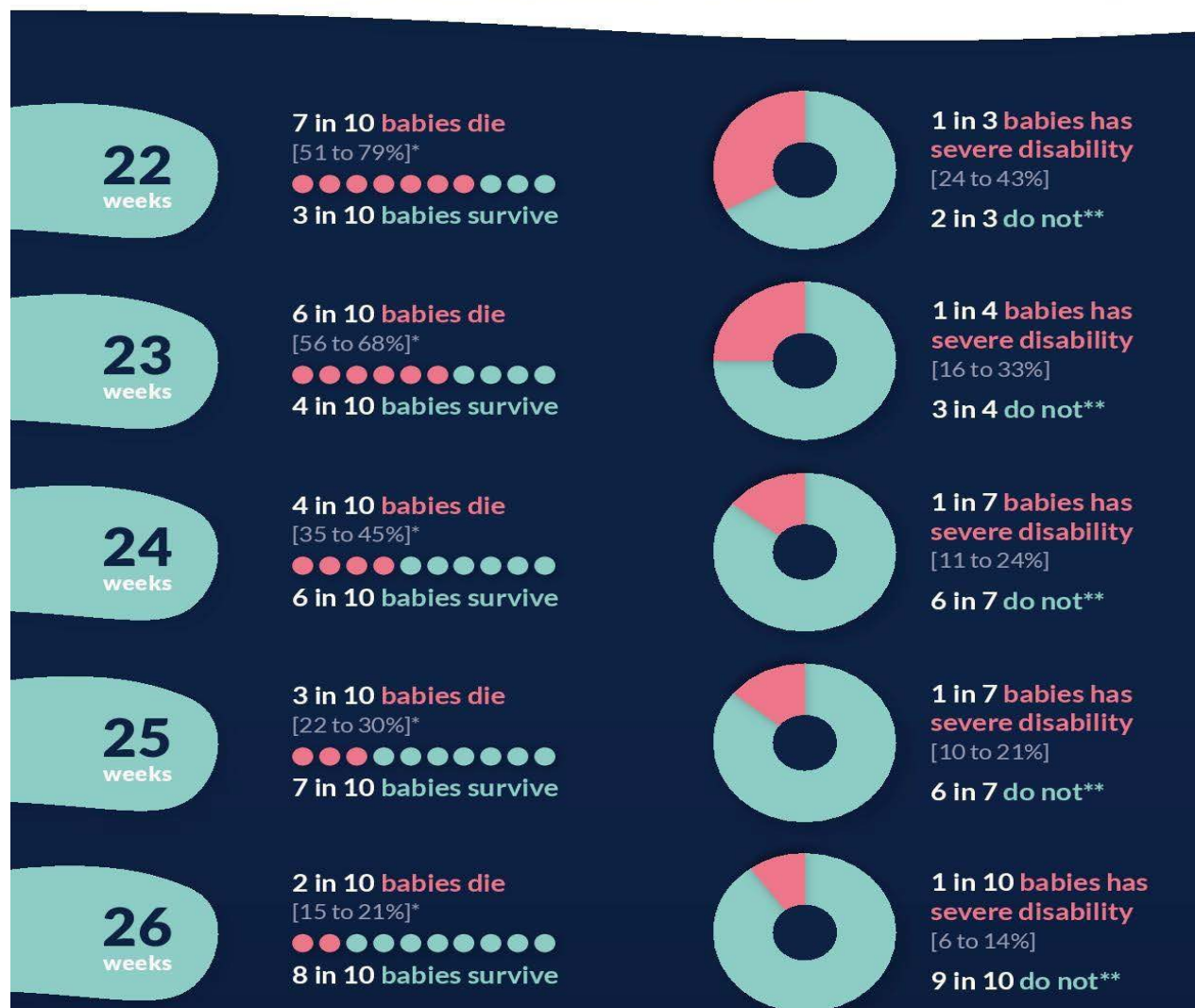
- 1) Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation (2019): A BAPM Framework for Practice.
- 2) Umbilical Cord Prolapse Green-top Guideline No. 50 November 2014.

Appendix 1

Outcome for babies born alive between 22 & 26 weeks' gestation†

**Survival** ● Died ● Survived  
In babies who receive intensive treatment

**Severe disability** ● Severe disability ● No severe disability\*\*  
In survivors\*\*



The survival percentages are for babies who are born alive and receive active stabilisation.

†Some babies born this prematurely cannot survive labour and birth

\* The lower and upper figures indicate how certain we are of the true survival rate.

\*\* Up to a quarter of children without severe disability may nonetheless have milder forms of disability such as learning difficulty, mild cerebral palsy or behavioural problems.



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