

Spring / Summer 2015

Reading

CEPCP

Professional Development:
Delivery Related Emergencies

Introduction

The one thing Mark would always remember about that night was how cold it was. After a few days of steady snow and milder temperatures a large arctic airmass had moved in over the area. The winds had picked up and the clouds, shredded torn cumulus pieces, scurried across a winter sky seemingly running from the ice-cold air, leaving in their wake crystal clear skies with equally crystal cold temperatures.

Driving into work for the night-shift that afternoon Mark's car had been noticeably buffeted by the winds. A film of road salt stuck to the windshield, only to be smeared by futile attempts to spray windshield washer fluid on it. When he arrived at the base the TV - left on after a hastily departed crew- showed the cold-weather alert in bright red text under the talking head of a news anchor. Mark hoped that it would be a quiet night and walked out

to the bays where the day crew was returning with an ambulance covered in road-salt.

Mark's wish came through. It was a quiet night. A couple of routine calls to nursing homes to get elderly patients into the ER for unresolved chest infections. In retrospect Mark would have traded the quiet night for a night of back-to-back calls if it had meant avoiding that last call of the shift, but EMS doesn't work that way. You don't get to choose, you don't get to trade, you don't get to prepare, the wheel-of-calls spins and wherever it stops is what you get assigned.

Mark had been awake when the call came in. Earlier, when they returned from their last call shortly after 5:30am, Mark knew there was no point in trying to get rest. In less than an hour it would be time to get the truck washed for the incoming crew. So he was awake watching the 24 hour news channel when the tones went off. The wheel-of-calls



had stopped, if it had only ticked past this one call and moved on to something else, but no. "4145 Priority 4, 1100 Queenbridge Avenue, apartment 415, entry code of same, 37 year old female, in labor..."

Mark felt the unpleasant, prickly feeling of anxiety sweep across him as he and his partner made their way to the truck. He tried telling himself that this one would be like most of the other "active labor" calls he had been to. A false alarm, early contractions, several hours until delivery, lots of time to get to the hospital. Then he took a deep breath and decided to focus and prepare on the task at hand. *Prepare for the worst and hope for the best*, he thought to himself as they pulled out onto the mostly deserted early morning streets. He called dispatch and asked if they were sending a second vehicle in case the patient delivers. To Mark's pleasant surprise they assured him a second vehicle was already on the way. Next he started thinking about delivering a baby. Most of the deliveries go well without much human intervention, just like they have for hundreds, if not thousands, of years. If things get complicated then there are ways of dealing with it. What could go wrong? Breech presentation, cord prolapse, cord around the neck, shoulder dystocia, Mark began mentally going through each condition and how they should be dealt with.

"Let's get this baby out!", his partner said enthusiastically as they pulled into the apartment building parking lot. Mark knew his partner all too well, it was a false, overcompensating enthusiasm. He was just as scared as Mark.

They got into the lobby without buzzing, since the front-door had failed to latch properly. It wasn't until after they pressed the elevator button that they noticed the note

taped to the elevator door "Out of service, sorry for any inconvenience. Management". "You gotta be kidding me!" Mark's partner exclaimed with a disbelieving tone of voice. "Inconvenience! No shit!" Mark said and pulled the bags off the stretcher and headed for the stairs.

It is amazing how incredibly winded you can get from climbing four flights of stairs. Especially when carrying bags, and a monitor. The nervousness about the call probably didn't help either. Mark called the second crew on the portable radio to alert them about the elevator and realized it probably sounded like the call was going badly with his chopped, gasping speech. When they got to the fourth floor Mark was not comforted by the sound of a woman screaming. He almost hoped that the screaming was from another apartment, an unrelated incident not requiring an ambulance. Considering the building they were in it was not beyond the realm of possibilities. It was not the case though, It clearly was from apartment 415. Mark knocked, waited a few seconds and then cautiously walked in. He followed the sound of the screams that had now subsided somewhat to more of a groaning. When he entered the bedroom his heart sank, this was not going to be one of those uncomplicated deliveries.

In the last reading package we reviewed pregnancy related emergencies. This takes over where that one left off and will go over emergencies related to delivery. Luckily deliveries in the field are relatively rare. When they do happen they are often uncomplicated and are often looked at as one of the perks of working in EMS. There is something very special about seeing a life be brought into this world. The problem is when something goes

wrong with the delivery. Suddenly being prepared and versed in special, time-sensitive skills and maneuvers becomes a matter of life and death. Even though a reading package, such as this, may help refresh your memory about the various complications and how to recognize and deal with them, nothing compares to getting some hands-on practice with a suitable mannikin.

This package will deal with deliveries complicated by breech presentations, prolapsed cord, shoulder dystocia, nuchal cord and meconium aspiration. Rarely encountered but critical to know how to deal with when the wheel-of-calls tick, tick, tick and stops on one of those calls.

Shoulder Dystocia

Shoulder dystocia in its literal translation means difficult (dys-) birth (-tocia), and describes a situation where an infant's head delivers, but the top shoulder gets stuck behind the pubic bone. Shoulder dystocia happens in approximately 2% of births (Gherman, Chauhan et al. 2006, Draycott, Crofts et al. 2008).

Shoulder dystocia can result in a wide range of complications to both the mother and the baby. The worst case scenario is that the baby dies or suffers permanent brain damage (Gherman, Chauhan et al. 2006). Fortunately those outcomes are very rare. The most common complication is a brachial plexus injury, which may be exacerbated by inappropriate management (Draycott, Crofts et al. 2008). The injury to the brachial plexus (the nerve network for the arm) can cause paralysis and numbness in the affected arm. On a positive note the damage is rarely permanent. One of the most important determining factors between a minor injury (or no injury at all)

versus a life-threatening one, is how long it takes to resolve the issue and get the baby out. The sooner the dystocia can be resolved, the less likely the risk of complications.

By now there is probably a question burning in your mind..."How long do we have? Enough to get packaged up and transport?". You won't like my answer..."No". One study correlated the time from the head delivering to the shoulders delivering and brain injury. In that study any time equal to or longer than 7 minutes was very likely to result in permanent brain injury. On the other hand, if you can resolve the issue in less than 5 minutes there is a very low likelihood of the fetus suffering brain damage (Gynaecologists 2012). The bottom line is that you are stuck having to deal with this. Don't shoot the messenger, just make sure you know how to deal with it like a pro.

A lot of research has been aimed at trying to predict which deliveries will be complicated by shoulder dystocia. Although there are several identified risk-factors, they do not seem to reliably predict whether shoulder dystocia will occur. It stands to reason that if the baby is big, it might be more likely to get stuck, and that is true.

The risk of shoulder dystocia increases with increasing birth weight (Gherman, Chauhan et al. 2006). However, there are many cases of lower birthweight babies getting stuck, as well as some cases of very large babies not getting stuck (Gherman, Chauhan et al. 2006).

There are other risk-factors too; equal to or greater than 42 weeks gestation, multiple previous births, diabetes, mother older than 35 years, and having previous high birthweight babies (> 4000 grams). Even though it is a nice list to keep in mind, don't get too hung up on

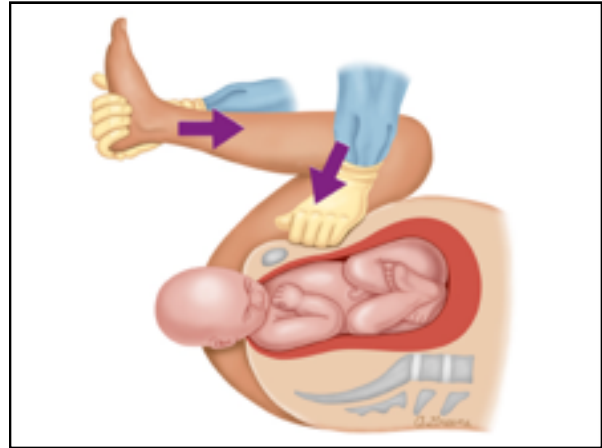
it, only 25% of shoulder dystocia cases have even one of those risk-factors (Gherman, Chauhan et al. 2006). The bottom line is that it is difficult to predict when shoulder dystocia may occur.

If we can't predict shoulder dystocia with any reliability we better learn to recognize it when we see it. Luckily that is a bit more straight forward.

The classical sign of shoulder dystocia is the "turtle sign" where after the head has delivered it partially goes back in again. In some cases it may appear that the face and chin doesn't seem to come out all the way. However, those signs are not the best way of detecting shoulder dystocia. A better way is to consider the length of time it takes for the body to deliver after the head has delivered. Normally this should take about 25 seconds, if it takes longer than a minute then you are probably dealing with shoulder dystocia (Gherman, Chauhan et al. 2006).

Management of Shoulder Dystocia

The fortunate thing about shoulder dystocia is that there are some fairly easy maneuvers that can be very effective in resolving the problem. Once you recognize that you are dealing with shoulder dystocia the first thing to try is the McRobert's maneuver, which is sharply flexing the mother's thighs onto her abdomen. The McRobert's maneuver tilts the pelvis and opens up the pelvic opening a bit. The general recommendation is to use one person on each leg to help push them up. At the same time as you and your partner are pushing up on the legs you ask the mother to push.



McRobert's with Massanti Technique

<http://www.motherbabyuniversity.com/outreach/outreach/PeaPods/1893%20OB%20Emergencies/Pages/ShoulderDystocia.htm>

Along with McRobert's maneuver, suprapubic pressure is often helpful. This is called the Massanti technique and is accomplished by one of you simply pushing down above the pubic bone at the same time as the legs are flexed in an attempt to push the top shoulder under the pubic bone (Gherman, Chauhan et al. 2006). The McRobert's maneuver will work in a few less than half of cases (Gherman, Chauhan et al. 2006). The rest will need the addition of one of the other techniques.

The next technique to try is to get mom up on all fours. This tends to shift the fetus around and often dislodges the stuck shoulder (Gynaecologists 2012). If those two maneuvers fail then you may have to try to get the bottom shoulder out (Hoffman, Bailit et al. 2011). This can be accomplished by placing mom back on her back and then putting your hand, palm up into the vagina, under the baby. At this point you can either rotate the whole fetal body, or find the baby's wrist and sweep this across the fetal chest, flexing the elbow, to deliver the arm posteriorly (Institute 2015). It is important to get as much help and advice as possible during a situation like this. If at all possible patch to a physician early and start getting

some advice as you work through the above maneuvers.

After you have managed to resolve the shoulder dystocia it is time to turn your attention to dealing with any complication that may have occurred. There are complications to consider not just with the baby, but also with the mother.

For mom:

- Postpartum hemorrhage
- Perineal / vaginal tears
- Bladder rupture
- Uterine rupture
- Sacroiliac joint dislocation

For baby:

- Fracture of the humerus
- Fracture of the clavicle
- Pneumothorax
- Hypoxic brain damage

Needless to say you will be busy. Hopefully there is a second crew there or on the way so you can split up and give each patient your full attention.

YouTube



<http://youtu.be/vxrZq7hCw8o>

Scan this for a great video that shows an actual shoulder dystocia case and discusses how to manage it.

Nuchal Cord

A nuchal cord by definition is when the umbilical cord wraps around the throat of the fetus. Nuchal cord occurs in 20 - 30% of births (Mercer, Skovgaard et al. 2005). They tend to occur and resolve several times during a pregnancy. The risk increases with gestational age. At 42 weeks 29% of births have a nuchal cord (Mercer, Skovgaard et al. 2005).

Typically blood-flow through the cord is not affected by the contractions during birth. However, if the cord is wrapped around a fetal part the cord can become compressed. The umbilical vein is easier to compress because it has thinner walls and a lower pressure. Venous compression can cause a vagal response with subsequent fetal bradycardia and distress. Also, keep in mind that the vein moves blood TO the fetus, compressing the vein and not the artery essentially causes the blood to flow in one direction, away from the fetus! This blood draining that occurs can leave the baby hypovolemic and hypoxic at birth.

There is an interesting link between blood volume and breathing that is worth mentioning here. Before birth a small percentage of the fetal blood flow goes to the lungs. The lungs are just full of fluid anyway. As soon as the baby is born that needs to change. Blood needs to flow through the lungs, not just to be oxygenated but to alter the anatomical structures of the lungs. Picture the capillaries around the alveoli in the lungs. Before birth they are mostly empty and lay flat much like an inflatable snowman with the air turned off. At birth the blood flow through these capillaries cause them to distend, a process called "capillary erection" (nope, I didn't make that up). Our snowman now has the air-pump on and he is..well..erect. The



erect capillaries essentially scaffolds the alveoli open and help the little one take their first breath.

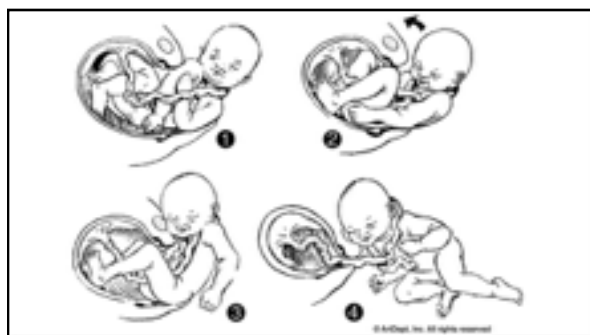
The problem with a tight, compressed umbilical cord is thus mainly a blood volume problem that can lead to hypoxia, not just from hypovolemia but from difficulties 'opening' the lungs after birth. A newborn who has been negatively affected by a tight nuchal cord can be expected to present pale, tachycardic, and hypotensive (Vanhaesebrouck, Vanneste et al. 1987). There is usually no cyanosis and the pale colour does not improve with oxygenation. (Vanhaesebrouck, Vanneste et al. 1987).

Managing a Nuchal Cord

Management of a nuchal cord varies. Some providers clamp and cut the cord immediately after the head delivers, before the shoulders deliver, whereas others do not clamp at all. Standard medical management recommends one attempt to slip the cord over the infant's head just before delivery of the body or, should the cord be too tight, to clamp

and cut prior to delivery of the shoulders (Mercer, Skovgaard et al. 2005).

The recommendation to clamp and cut the cord early if it cannot be slipped over the head is now being disputed by several sources (Mercer, Skovgaard et al. 2005, David 2013). The reasoning makes sense. Imagine that the cord compression has lead to hypovolemia and non-erect lung capillaries. Now the delivery is happening and you are unable to slip the cord over the head so you clamp and cut. How is the hypovolemia going to be corrected? How will the lungs get the fluid they need (as well as all the other organs)? They won't, at least not until fluids can be administered through an IV or IO. A better option is to keep the cord intact, so that once the delivery has occurred, the cord can re-perfuse the baby before being clamped and cut. There is a specific way of accomplishing this called the "Somersault maneuver". This simple procedure involves somersaulting the infant's head toward the mother's thigh as the infant emerges, immediately unwinding the cord, and allowing the infant to re-perfuse (Mercer, Skovgaard et al. 2005).



Performing the somersault maneuver requires enough cord length, if the cord is wrapped several times you may have to clamp and cut prior to delivery.

After delivery with a tight nuchal cord be prepared to perform neonatal resuscitation if required.

Umbilical Cord Prolapse

Umbilical Cord Prolapse (UCP) is when the umbilical cord comes out before the first presenting part of the fetus (usually the head). During birth the fetus still relies on blood flow and oxygen from the umbilical cord. If part of the cord comes out before the baby it will get pinched and occluded as the rest of the baby starts to deliver.

The incidence of UCP reported in the literature ranges from 0.1% to 0.6%, one of the rarer complications in this reading (Lin 2006). The most serious complication is prolonged blood flow interruption, either from cord compression or from cord vasospasm from the relatively cool vagina (Lin 2006). The cord compression can lead to perinatal hypoxic encephalopathy (Lin 2006).

Mortality is less than 10% (Lin 2006). UCP can happen when the presenting part does not completely fill the maternal pelvis (Lin 2006). The problem may lie with the presenting part (eg, small fetus, abnormal presentation, multiple gestation), the lower uterine segment (eg, abnormal placentation, tumors), or obstetric manipulations that disturb the relationship between the lower uterine segment and the presenting part (Lin 2006).

Risk factors:

- Low birthweight infant <1500 g
 - Breech presentation
 - Second born twin
 - Male gender (of baby, obviously)
- (Lin 2006)

The underlying cause of a prolapsed cord is an interesting one. If the umbilical cord gets acidotic it tends to stiffen, the stiffening of the cord makes it less buoyant and it essentially sinks to the bottom and becomes more likely to prolapse (Lin 2006).

The prolapsed cord is usually diagnosed when the fetal heart rate decelerates during the delivery and the cord is palpated below the presenting part in the vagina (Lin 2006). These diagnostics are not helpful to us as pre-hospital providers since we do not have a way of measuring fetal heart rate during birth, nor do we palpate inside the vagina. Hence we will not be aware of the prolapse until the cord starts coming out of the vagina before the presenting part.

Managing an Umbilical Cord Prolapse

The in-hospital management for a prolapsed cord is usually caesarean section if the woman is in the first or second stage of labor (Lin 2006). There are other strategies that can be employed in the in-hospital setting. But what about pre-hospital care? We won't discover the issue until late in the game and then we will have limited resources to deal with it. There is not a lot of research that can guide the management in this setting. Because cord prolapses are rare it is very difficult to research. All we can do is turn to the Basic Life Support Patient Care Standards (BLS-PCS) which has some specific guidelines to help us.

The first step is to administer high-concentration oxygen to the mother and transport immediately unless crowning is present or delivery appears imminent, really imminent ((EHS) 2007). If the cord is visible, don a sterile glove and palpate the cord pulse. If the cord pulse is weak or absent then you need to take steps to relieve the compression. How you go about that will depend on if the presenting part of the fetus is visible or not. If you can see the fetus then gently insert two fingers into the vagina and gently elevate the

part away from the cord. If the presenting part is not visible but the cord

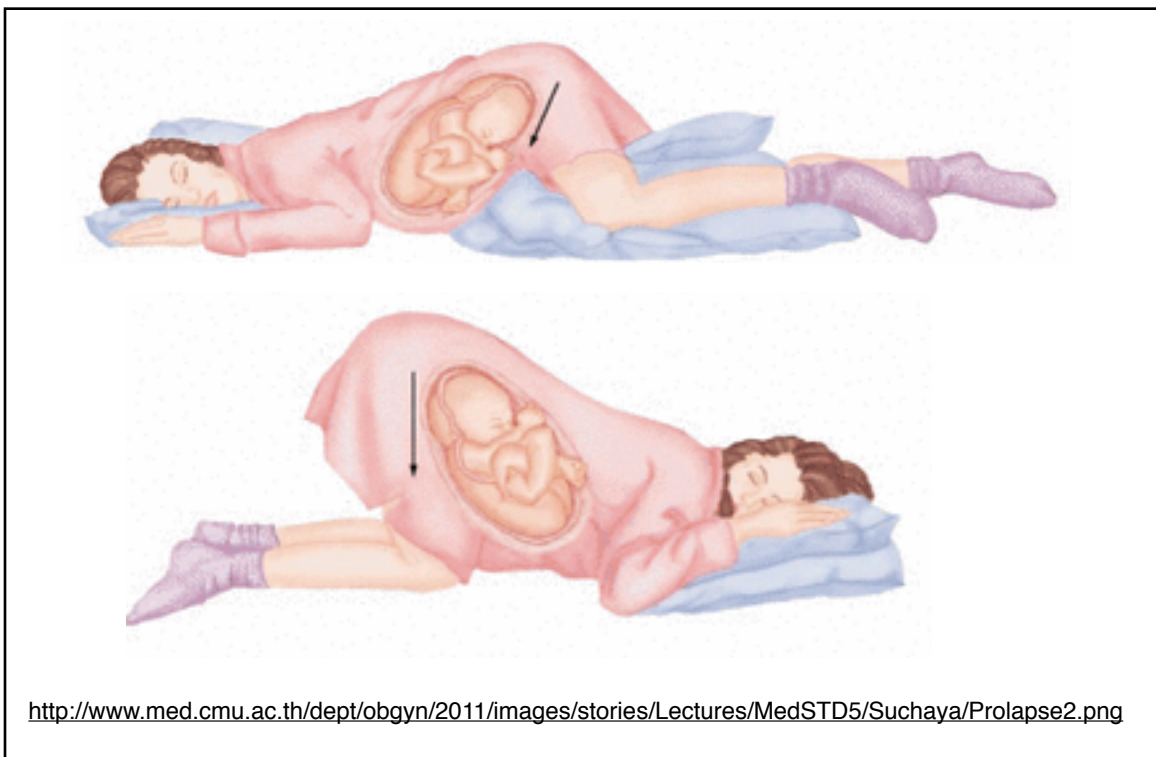
pulse is weak or absent, then you will have to re-position mom instead of the fetus. Here are the recommendations from the BLS-PCS.

Guidelines

Utilize the following guidelines to re-position the patient to relieve cord compression:

- position supine, buttocks elevated, knees/hips flexed, or,
 - if the cord appears to be compressed on the right side of the vagina, attempt the left lateral position, knees/hips fully flexed, or, position supine with right buttock elevated; if necessary, apply gentle, manual abdominal pressure to push the uterus to the left, or,
 - if the cord appears to be compressed on the left side of the vagina, attempt the right lateral position, knees/hips fully flexed, or, position supine with left buttock elevated; if necessary, apply gentle manual, abdominal pressure to push the uterus to the right, or,
 - position prone, with knees to chest (all fours position). This position is not recommended if the patient is in the back of a moving ambulance.
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In addition, the BLS-PCS suggest that the cord be wrapped in gauze moistened by saline and then covered with a dry dressing. Early recognition, very frequent re-assessments and rapid transport needs to be the focus though.



Breech Presentations

Breech presentations are, by definition, where the baby does not come out head first. Normally the head is the largest fetal part. Pushing it out first makes sense because once it is out everything else should come out fairly easily. The exception to this rule is in the cases of shoulder dystocia as discussed above. However, in breech deliveries the largest part, the head, delivers last. Not only can this cause a problem if the head gets stuck, but because the umbilical cord comes out before the head, it often gets compressed. There are four types of breech presentation:

Frank Breech (the most common, 65% of breech cases)

Complete Breech

Footling Breech

Kneeling Breech

So what causes a baby to come out backwards? It might be more useful to ponder the opposite question: Why don't they come out backwards more often? How do they know which way to come out? The answer lies in the shape of the infant and the shape of the space where the infant grows. Early in the pregnancy, when the fetus is still floating around like Sandra Bullock in the movie Gravity, they can be oriented pretty much any way. In fact, at 28

weeks 28% of fetuses are in a breech position (Rosa and Gimovsky 2007). But as the fetus grows it tends to end up head down just due to it's shape. At full-term only 3-4% are still upside down (head up).

This is a good example of why knowing the whys are invaluable. If we know that the baby's orientation is due to it's shape in relation to the space it's growing within and that it floats around until it get's large enough to get stuck in the correct position, then we can figure out what might lead to a breech presentation:

1. Abnormalities in the volume or shape of the inside of the uterus.

- Uterine abnormalities
- Space occupying lesions
- Abnormalities of the placenta
- Many previous pregnancies
- Too much amniotic fluid.

2. Abnormalities in the shape or size of the infant.

- Fetal abnormalities
- Extension of the fetal legs
- Fetal asphyxia
- Impaired growth
- Neurologic impairment
- Short umbilical cord
- Fetal death

(Rosa and Gimovsky 2007)

Frank Breech (65%)	Complete Breech (10%)	Incomplete Breech (25%)	
		Footling Breech	Kneeling Breech
			
The baby's hip joints are flexed and knee joints are extended.	The baby's hip and knee joints are flexed.	The baby's hip and knee joints are extended on one or both sides.	The baby's hip joints are extended and knee joints are flexed on one or both sides.

If the breech is recognized prior to birth there are ways of spinning the baby around prior to delivery (external cephalic version) (Rosa and Gimovsky 2007). If the external manipulation is unsuccessful then the debate about whether to perform a c-section or try a vaginal delivery rages on. Luckily it does not matter to us. The bottom line is if we arrive and a breech delivery is in progress, then we must suck it up and deal with it.

Managing a Breech Delivery

Rule #1 - If a limb is presenting do NOT try to deliver. Wrap the presenting part and begin transport with mom in the fetal position ((EHS) 2007).

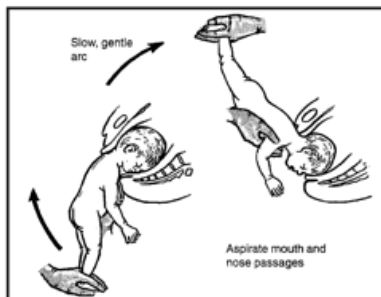
For any other kind of breech presentation the principles boil down to supporting the body of the fetus as it delivers and then trying to deliver the head, identifying and relieving cord compression, and/or securing the airway if the head does not deliver within 3 minutes. The specifics are outlined in the BLS-PCS pages 5-4 - 5-5. Here is a summary of that information.



Support the Body

Allow delivery to occur spontaneously until the shoulders have been delivered; support the infant's body and legs as they deliver - allow the body to rest on the palm of your hand; elevate the legs with the free hand, or let them dangle freely over your supporting arm.

When the cord is visible, check the cord pulse - if absent or weak, elevate the infant's body and/or reposition the mother (elevate her buttocks or tilt her to the left or right lateral position). Re-assess the pulse. If still absent/weak, attempt maneuvers to assist delivery of the head.



Deliver the Head

When the nape of the neck becomes visible, gently lift and hold the infant upwards and backwards by the legs; avoid hyperextension of the infant's neck. Allow the head to deliver spontaneously



Secure an Airway

If the head does not deliver within 3 minutes of the body:

- use your hands to support the infant's body with the infant's legs straddling your lower supporting arm;
- with the lower supporting hand, reach into the lower end of the vagina, palm up; spread the index and middle fingers to form a "V" shape on either side of the infant's nose and mouth; push the wall of the vagina away from the infant's face to create an airway

You Tube



<http://youtu.be/MJbOxy1EDpl>

Scan this for a video that shows a breech delivery. This DOES NOT necessarily show the correct management.

You Tube



<http://youtu.be/SGMtXdxZlzl>

Scan this for a video that shows a breech delivery. This DOES NOT necessarily show the correct management.

Meconium

As most of you know, meconium “staining” refers to a baby who pooped in his own bath water (amniotic fluid). To keep things professional we will stick to the term “meconium staining” rather than any of the other more descriptive terms I am sure we can think of. Meconium staining is a relatively common occurrence which happens in about 12% of births (Gupta, Bhatia et al. 1996), that is more than one in ten so it is definitely not unlikely that a paramedic will encounter at least one meconium stained infant in their careers. There are a couple of things about meconium staining that is good to know. We will cover those things before we get in to the management.

Meconium staining is more likely to happen as the pregnancy progresses and is unlikely (but not impossible) before 38 weeks gestation (Gupta, Bhatia et al. 1996). In post-term pregnancies the rates shoot up as high as 28-52% (Gupta, Bhatia et al. 1996). It makes sense, you can only hold it for so long! The obvious take-home message here is that if the pregnancy that you are dealing with is post

term you are quite likely to have to deal with meconium so be ready for it!

The other thing about meconium is that it comes in different thicknesses. The thickness has a direct impact on the likeliness of the meconium causing problems so having a base-knowledge about what constitutes thick versus thin meconium is beyond just academic. Thin meconium is a lightly stained yellow or greenish colour, thick meconium is dark green and of a pea-soup consistency (Gupta, Bhatia et al. 1996). Thin meconium is unlikely to cause any problems but stay alert to complications even if it does not look like the thick stuff.

Managing Meconium Staining

Meconium staining isn't a problem all on its own. The real issue is when the meconium is inhaled (aspirated). Anywhere between 5-12% of babies born with meconium staining will develop meconium aspiration syndrome (Wiswell, Gannon et al. 2000). The obvious solution to this might seem obvious, suction. And indeed that was the recommendation for a long time. Suction the mouth and nose as

soon as the head comes out, then as soon as the baby is delivered intubate and suction through the endotracheal tube. However, like many other interventions that seemed to make a lot of sense at the time, not all of it has held up to rigorous, scientific study. In 2000, the routine endotracheal suctioning of meconium stained newborns was shown to not be helpful for babies that were born vigorous (Wiswell, Cannon et al. 2000). Then in 2004, another large study showed that the suctioning of the mouth and nose prior to delivery of the body was also not useful for preventing meconium aspiration (Vain, Szyld et al. 2004). These research findings were adopted in the 2010 American Heart Association guidelines (Kattwinkel, Perlman et al. 2010).

In summary, the only special treatment required for meconium stained newborns is endotracheal suctioning of nonvigorous babies with meconium stained amniotic fluid, and even that is based on flimsy evidence (Kattwinkel, Perlman et al. 2010). This means that if you do not feel that there is enough time to get prepared for intubation or if you do not have intubation in your bag of tricks then it is fine to suction what you can see and then move on to BVM ventilations, if required (Kattwinkel, Perlman et al. 2010).

Meanwhile...

Mark dropped the response bags and knelt on the floor at the bottom of the mattress on the floor.

"The baby is coming. There is nothing I can do, it happened so fast.", the woman on the mattress said with an apologetic tone of voice. Mark recognized the head that was protruding from her vagina, it looked like a picture he had seen in a paramedic textbook on the subject of traumatic asphyxia. It was blue and looked

congested, the umbilical cord wrapped tight around the neck. For a moment Mark reflected on the irony. This infant's lifeline, the only source of life for the past nine months was now seemingly choking the life out of its dependent. Mark tentatively grasped at the cord to see if he could slip it over the head but it was way too tight. He was at the same time relieved to see that it looked like it was only wrapped once.

"We are going to have to somersault this kid.", Mark said to his partner who was still stopped at the bedroom door, looking as if he was about to pass out.

"We are going to do what now?"

"Somersault...you know...when...never mind, just get the OBS kit out".

"Oh here it comes again!". The patient screamed with near panic in her voice. Mark took a deep breath and got ready.

"What's your name?", he asked.

"Sofia.", She answered with obvious distress.

"Ok Sofia. We are going to get through this. When you are ready, push".

Mark felt a remarkable calm wash over him. The calm that sometimes hit him in the middle of an intense call when he felt in control, focused and ready to let his training and knowledge lead a turbulent call to a safe conclusion.

Sofia screamed and pushed, Mark could feel the shoulders coming out and got ready. Once the shoulders came out it was over in a flash, with a gush of fluid the rest of the baby came out and Mark immediately somersaulted the babies body up and over thus unwrapping the umbilical cord from the babies neck. For what seemed like an eternity (but was realistically less than a minute) the newborn seemed to remain flaccid and pale but then with some vigorous drying the little

boy suddenly started crying and Mark had to take yet another deep breath and swallow not to do the same.

The rest of the call went by in a blur. During the delivery Sofia's husband had shown up. He was wearing work clothes and had clearly been summoned from whatever night-shift he was working. The second crew also showed up with a gaggle of firefighters and a stairchair. Before he knew it Mark was driving home after his shift. The sky turning from orange to green to blue from the rising sun. He looked at the thermometer in the dash. -24. It was going to be another cold one.

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