

Abnormalities of Labor: Understanding Complications During Childbirth

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Abstract: _

Normally many pregnancies progress in a smooth manner and some women exhibit abnormalities of labor, which can complicate the birthing process. An extended labor is also termed as dystochia and it happens if labor lasts longer than average period in a significant manner. Diagnosis is linked to the ineffective contractions, slowness of cervical dilatation or delaying of baby's descent. An extended labor can expose the body to an enhanced stress and may result in issues namely meconium aspiration, low oxygen levels and potential birth injuries. Precipitous labor is manifested by extremely rapid labor process, often completing in less than three hours. This can result in more dangerous for both the mother and the baby. Symptoms of precipitous labor are string and frequent contractions, a sudden urge to push and a rapid descent of the baby through the birth canal. Breech presentation happens if the baby's feet, buttocks or knees present fomirst instead of the head. Diagnosis of breech presentation is based on physical examination or ultrasound in the late second or early third trimester pregnancy. Signs of fetal distress are an abnormal heart rate (either too fast or too low), decreased fetal movement, meconium (baby's first stool) in the amniotic fluid and decreased oxygen levels in the baby's blood. It us finally vconcluded that abnormalities of labor can be complex and challenging, but with the proper medical care and timely interventions.

Keywords: Abnormalities of Labor Child birth, prolong labor, cervical dilatation, pelvic shape, oversized baby, uterine contractions, cesarian section, post parturition hemorrhage, stress, precipitus labor, hormonal changes, post parturition care, tocolytic agent, breech presentation, external cephalic version, fetal position, umbilical cord compression, vaginally birth, ultrasound, asphyxia, neonatal intensive care unit (NICU), supra pubic pressure and administration vof fluids.

Introduction

Childbirth is a natural and remarkable process, but it is not without its challenges. While many pregnancies progress smoothly, some women encounter abnormalities of labor, which can complicate the birthing process. These abnormalities can affect the health of both the mother and the baby, making it crucial for healthcare professionals to monitor and address them. Let's explore common abnormalities of labor, their causes, and potential management strategies.

Prolonged Labor

Prolonged labor, also known as “dystocia,” occurs when labor lasts significantly longer than average. There are two types of prolonged labor:

Prolonged First Stage: This involves a slow or delayed cervical dilation. It can be caused by maternal factors, such as pelvis shape, or fetal factors, like an oversized baby.

Prolonged Second Stage: This happens when the mother has difficulty pushing the baby out. The main causes include weak uterine contractions or fetal malposition.

Diagnosis: Healthcare providers monitor the progress of labor and may diagnose prolonged labor if contractions are not effective, cervical dilation is slow, or the baby's descent is delayed.

Management: Management options depend on the cause and severity of prolonged labor. Interventions may include augmenting labor with medications, changing the mother's position, or performing a cesarean section if necessary.

Risks to the Baby: A prolonged labor can expose the baby to increased stress and may lead to issues such as meconium aspiration, low oxygen levels, and potential birth injuries.

Risks to the Mother: Prolonged labor can lead to maternal fatigue, increased pain, and a higher risk of infection or postpartum hemorrhage.

Monitoring: Continuous fetal monitoring and close observation of the mother's progress are crucial during prolonged labor to ensure the well-being of both.

Support: Emotional and psychological support for the mother is essential during prolonged labor. This can help alleviate stress and anxiety associated with the extended labor process.

Precipitous Labor

In contrast to prolonged labor, precipitous labor is characterized by an extremely rapid labor process, often completing in less than three hours. This can be dangerous for both the mother and the baby.

Duration: Precipitous labor is defined as labor that lasts less than 3 hours from the onset of contractions to the birth of the baby. This is significantly shorter than the average labor duration, which can last 12-18 hours for first-time mothers.

Causes: The exact causes of precipitous labor are not always clear, but it can be related to various factors, including the mother's previous birthing history, uterine contractions, and hormonal changes.

Risks: While a rapid labor can be convenient for some mothers, it can also present risks. These risks include limited time for medical interventions, an increased risk of tearing or other complications, and emotional stress due to the speed of delivery.

Symptoms: Symptoms of precipitous labor may include strong and frequent contractions, a sudden urge to push, and a rapid descent of the baby through the birth canal.

Medical Attention: It's crucial for women experiencing precipitous labor to seek immediate medical attention. Rapid labor can pose risks to both the mother and the baby, and healthcare providers should be prepared to assist with a quick delivery.

Delivery Location: Some women with a history of rapid labor may be advised to give birth in a hospital or birthing center to ensure quick access to medical care.

Support: Emotional support and coaching during precipitous labor can be essential. Partners or support persons should be aware of the signs of rapid labor and be prepared to seek medical help if needed.

Postpartum Care: After a precipitous birth, it's important for the mother and baby to receive proper postpartum care to address any potential complications and ensure a healthy recovery.

Management: Medical professionals should monitor the mother and baby closely and prepare for a quick delivery. In some cases, the use of tocolytic agents may be necessary to slow down contractions.

Breech Presentation

A breech presentation occurs when the baby's feet, buttocks, or knees present first instead of the head. This is a less common but challenging abnormality.

Types of Breech Presentation: There are three main types of breech presentation:

Frank Breech: "Frank breech" refers to a specific breech presentation during pregnancy, where the baby's buttocks are the leading part, and the legs are extended straight up towards the head.

Presentation: In a Frank breech presentation, the baby's buttocks are positioned to enter the birth canal first. This is different from a complete breech presentation where the baby's legs are flexed at the hips and knees.

Incidence: Frank breech presentations are less common than other breech presentations, like the complete breech or footling breech.

Risks: Vaginal delivery with a Frank breech baby can be challenging and carries some risks, as the baby's head may get stuck (head entrapment) during birth, potentially leading to birth complications.

Delivery options: In many cases, a planned cesarean section (C-section) is recommended for Frank breech presentations to minimize the risks associated with a vaginal delivery.

External Cephalic Version (ECV): In some situations, healthcare providers may attempt an ECV to try to turn the baby into a head-down position before delivery. This procedure involves manually manipulating the baby's position on the mother's abdomen.

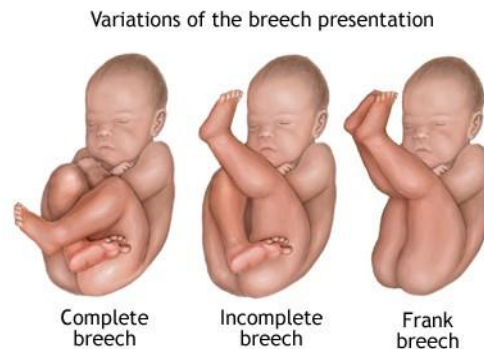
Consultation with a healthcare provider: If a Frank breech presentation is diagnosed during pregnancy, it is important to discuss delivery options and potential risks with your healthcare provider. They will help you make an informed decision based on your specific circumstances.

Preparing for birth: If a vaginal birth is attempted with a Frank breech presentation, it is crucial that the healthcare team is experienced in handling breech deliveries, as special techniques are often required.

Complete Breech: A complete breech presentation is a fetal position in which the baby's buttocks are situated at the birth canal's entrance, with the feet and legs folded up towards the baby's head.

Incidence: Complete breech presentations occur in approximately 3-4% of full-term pregnancies.

Incomplete Breech: Incomplete breech presentation is a situation in which a baby's buttocks or feet are positioned to come out first during childbirth, but the baby's head is not engaged in the pelvis.



Types of Incomplete Breech:

Frank Breech: The baby's buttocks are the presenting part, with the legs flexed at the hips and extended at the knees.

Footling Breech: One or both of the baby's feet are positioned to come out first.

Risks and Concerns: Incomplete breech presentations can be associated with higher risks and complications during childbirth compared to a head-first presentation. The baby's head, being the largest part, is typically best for a safe and smooth delivery. When it's not engaged, there's a risk of head entrapment, umbilical cord compression, or birth injuries.

Delivery Options: Incomplete breech presentations may sometimes be candidates for a vaginal birth, depending on various factors like the baby's position, size, and the mother's health.

A healthcare provider will assess the specific situation and make an individualized decision regarding the mode of delivery.

Planned C-Section: In some cases, a cesarean section (C-section) may be recommended to reduce the risks associated with an incomplete breech presentation.

Turning the Baby: External Cephalic Version (ECV): This is a medical procedure where a healthcare provider tries to manually turn the baby to a head-down position from breech. It's not always successful and depends on several factors.

Close Monitoring: Mothers with a baby in incomplete breech presentation are typically closely monitored during labor to detect any potential complications and ensure a safe delivery.

Timing: The decision on how to manage an incomplete breech presentation is often made in the weeks leading up to the due date, considering the baby's position and other relevant factors.

Incidence: Breech presentation occurs in about 3-4% of full-term pregnancies.

Causes: The exact cause of breech presentation is often unknown, but factors such as premature birth, multiple pregnancies, and certain uterine or fetal abnormalities may increase the likelihood.

Diagnosis: Breech presentation is typically diagnosed through physical examination or ultrasound in the late second or early third trimester of pregnancy.

Risks: Breech birth can be riskier than head-first birth and may lead to complications, including head entrapment, cord prolapse, and birth injuries.

Delivery Options: Your healthcare provider may recommend a cesarean section (C-section) for breech births to minimize risks. However, some healthcare professionals are trained in breech vaginal deliveries, and this option may be considered in certain cases.

External Cephalic Version (ECV): ECV is a procedure where the healthcare provider tries to manually turn the baby into a head-down position. It's usually done after 37 weeks of pregnancy and can increase the chances of a head-first delivery.

Decision-Making: The choice of delivery method for a breech baby should be discussed with your healthcare provider, taking into consideration individual circumstances and risks.

Complications: Breech births may lead to complications like birth injuries, asphyxia, and neonatal intensive care unit (NICU) admissions, so close monitoring is essential.

Presentation Correction: In some cases, techniques like moxibustion and Webster chiropractic adjustment are explored to encourage the baby to turn head-down.

Management: The approach to a breech presentation depends on factors like the baby's size and the mother's health. In some cases, a cesarean section may be recommended to ensure a safe delivery.

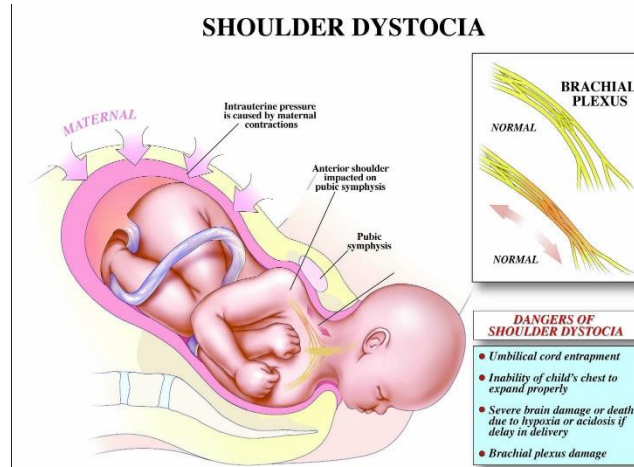
Shoulder Dystocia

Shoulder dystocia is a situation where the baby's head delivers but the shoulders become stuck behind the mother's pelvic bone. It is a medical emergency that can lead to complications for both the mother and baby.

Risk Factors: Shoulder dystocia is more common in pregnancies with risk factors such as gestational diabetes, large fetal size (macrosomia), maternal obesity, or a history of shoulder dystocia in previous deliveries.

Signs and Symptoms: It is often recognized when the baby's head delivers, but the shoulders remain stuck. This can lead to complications like brachial plexus injuries, where the nerves in the baby's arm are damaged.

Management: Healthcare providers may use various maneuvers to resolve shoulder dystocia, such as McRoberts maneuver, suprapubic pressure, or the Woods’ screw maneuver. In severe cases, an episiotomy or even a cesarean section may be necessary.



Complications: Shoulder dystocia can lead to both short-term and long-term complications for the baby, including brachial plexus injuries, fractures, and oxygen deprivation. Maternal complications like postpartum hemorrhage or tears may also occur.

Preventative Measures: Obstetricians can identify risk factors during pregnancy and plan for possible shoulder dystocia, but it’s not always preventable. Close monitoring during labor is crucial.

Follow-up Care: Babies who experience shoulder dystocia may require ongoing medical evaluation and physical therapy if they have nerve injuries or other complications.

Legal Implications: Shoulder dystocia can sometimes lead to medical malpractice claims if healthcare providers fail to respond appropriately.

Fetal Distress

Fetal distress occurs when the baby’s oxygen supply is compromised during labor. It can manifest through abnormal fetal heart rate patterns, meconium staining of amniotic fluid, or decreased fetal movement.

Causes: Fetal distress can be caused by various factors, including problems with the placenta, umbilical cord issues, maternal health conditions, or problems with the baby’s own health.

Signs and Symptoms: Signs of fetal distress may include an abnormal heart rate (either too fast or too slow), decreased fetal movement, meconium (baby’s first stool) in the amniotic fluid, and reduced oxygen levels in the baby’s blood.

Monitoring: Fetal distress is typically monitored using electronic fetal monitoring, which tracks the baby’s heart rate and the mother’s contractions during labor. This helps healthcare providers identify potential issues.

Interventions: If fetal distress is suspected, medical interventions may be necessary. These could include changes in the mother’s position, providing oxygen to the mother, administering fluids, or, in severe cases, an emergency cesarean section.

Prevention: Adequate prenatal care, including regular check-ups, can help identify and address potential risk factors for fetal distress. Managing chronic conditions in the mother and avoiding behaviors like smoking and substance use can also reduce the risk.

Communication: It's essential for healthcare providers to communicate effectively with the expectant mother, explaining the situation and the reasons for any interventions. Informed decision-making is crucial.

Prognosis: The outcome for the baby depends on the cause and the timeliness of intervention. Fetal distress, when managed promptly, can often result in a healthy birth.

Management: Immediate intervention is needed to address the underlying cause and ensure the baby's oxygen supply is restored. This may involve changing the mother's position, administering oxygen, or performing an emergency cesarean section.

Conclusion

Abnormalities of labor can be complex and challenging, but with the proper medical care and timely interventions, many complications can be managed effectively, ensuring the safety and health of both the mother and the baby. It is essential for expectant mothers to receive regular prenatal care and for healthcare professionals to be prepared to address these abnormalities as they arise during childbirth.

References:

1. LeFevre NM, Krumm E, Cobb WJ. Labor Dystocia in Nulliparous Women. *Am Fam Physician*. 2021 Jan 15;103(2):90-96. [PubMed]
2. Cheng YW, Caughey AB. Defining and Managing Normal and Abnormal Second Stage of Labor. *Obstet Gynecol Clin North Am*. 2017 Dec;44(4):547-566. [PubMed]
3. Clark SL, Garite TJ, Hamilton EF, Belfort MA, Hankins GD. "Doing something" about the cesarean delivery rate. *Am J Obstet Gynecol*. 2018 Sep;219(3):267-271. [PubMed]
4. Caughey AB, Sharshiner R, Cheng YW. Fetal malposition: impact and management. *Clin Obstet Gynecol*. 2015 Jun;58(2):241-5. [PubMed]
5. Zhang J, Troendle J, Reddy UM, Laughon SK, Branch DW, Burkman R, Landy HJ, Hibbard JU, Haberman S, Ramirez MM, Bailit JL, Hoffman MK, Gregory KD, Gonzalez-Quintero VH, Kominiarek M, Learman LA, Hatjis CG, van Veldhuisen P., Consortium on Safe Labor. Contemporary cesarean delivery practice in the United States. *Am J Obstet Gynecol*. 2010 Oct;203(4):326.e1-326.e10. [PMC free article] [PubMed]
6. Gupta R, Nageeb EM, Minhas I, Dang N, Mock SA, Rivera J, Ballas DA. Emergent Cesarean Section in a Bandl's Ring Patient: An Obstetrics and Gynecology Simulation Scenario. *Cureus*. 2018 Dec 31;10(12):e3800. [PMC free article] [PubMed]
7. Lowe NK. A review of factors associated with dystocia and cesarean section in nulliparous women. *J Midwifery Womens Health*. 2007 May-Jun;52(3):216-28. [PubMed]
8. Pavličev M, Romero R, Mitteroecker P. Evolution of the human pelvis and obstructed labor: new explanations of an old obstetrical dilemma. *Am J Obstet Gynecol*. 2020 Jan;222(1):3-16. [PMC free article] [PubMed]
9. Abalos E, Chamillard M, Díaz V, Pasquale J, Souza JP. Progression of the first stage of spontaneous labour. *Best Pract Res Clin Obstet Gynaecol*. 2020 Aug;67:19-32. [PubMed]
10. Obstetric care consensus no. 1: safe prevention of the primary cesarean delivery. *Obstet Gynecol*. 2014 Mar;123(3):693-711. [PubMed]
11. Angarita AM, Berghella V. Evidence-based labor management: third stage of labor (part 5). *Am J Obstet Gynecol MFM*. 2022 Sep;4(5):100661. [PubMed]

12. Caughey AB. Is Zhang the new Friedman: How should we evaluate the first stage of labor? *Semin Perinatol.* 2020 Mar;44(2):151-155. [PubMed]
13. Nachum Z, Garmi G, Kadan Y, Zafran N, Shalev E, Salim R. Comparison between amniotomy, oxytocin or both for augmentation of labor in prolonged latent phase: a randomized controlled trial. *Reprod Biol Endocrinol.* 2010 Nov 07;8:136. [PMC free article] [PubMed]
14. Watkins VY, O'Donnell CM, Perez M, Zhao P, England S, Carter EB, Kelly JC, Frolova A, Raghuraman N. The impact of physical activity during pregnancy on labor and delivery. *Am J Obstet Gynecol.* 2021 Oct;225(4):437.e1-437.e8. [PMC free article] [PubMed]
15. Kissler K, Hurt KJ. The Pathophysiology of Labor Dystocia: Theme with Variations. *Reprod Sci.* 2023 Mar;30(3):729-742. [PMC free article] [PubMed]
16. Wathes DC, Borwick SC, Timmons PM, Leung ST, Thornton S. Oxytocin receptor expression in human term and preterm gestational tissues prior to and following the onset of labour. *J Endocrinol.* 1999 Apr;161(1):143-51. [PubMed]
17. Hobson SR, Abdelmalek MZ, Farine D. Update on uterine tachysystole. *J Perinat Med.* 2019 Feb 25;47(2):152-160. [PubMed]
18. Lee HJ, Macbeth AH, Pagani JH, Young WS. Oxytocin: the great facilitator of life. *Prog Neurobiol.* 2009 Jun;88(2):127-51. [PMC free article] [PubMed]
19. Sundin C, Mazac L, Ellis K, Garbo C. Implementation of an Oxytocin Checklist to Improve Clinical Outcomes. *MCN Am J Matern Child Nurs.* 2018 May/Jun;43(3):133-138. [PubMed]
20. Cohen WR, Friedman EA. Clinical evaluation of labor: an evidence- and experience-based approach. *J Perinat Med.* 2021 Mar 26;49(3):241-253. [PubMed]