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Umbilical Cord Prolapse

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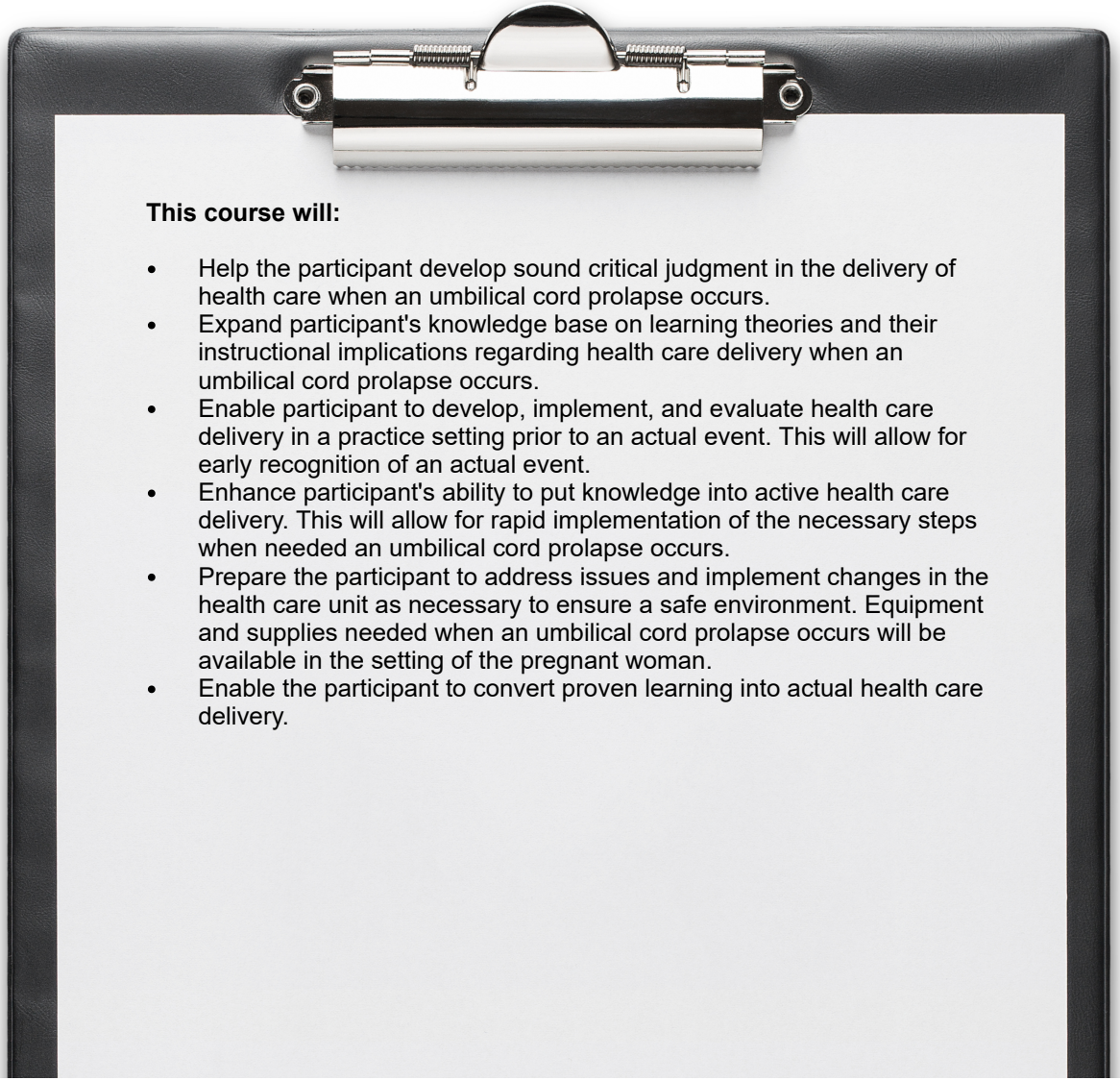
Course Description:

Will the next patient you care for have a cord prolapse? The measures implemented immediately after an umbilical cord prolapse occurs may help to save the fetus. The course will help the participant to understand and implement the actions needed for the best outcome possible. The knowledge gained will help to communicate with other providers, the patient, and her family.

Approximate Time to Complete: 45 minutes

Click here to download a print version of this course.



This course will:

- Help the participant develop sound critical judgment in the delivery of health care when an umbilical cord prolapse occurs.
- Expand participant's knowledge base on learning theories and their instructional implications regarding health care delivery when an umbilical cord prolapse occurs.
- Enable participant to develop, implement, and evaluate health care delivery in a practice setting prior to an actual event. This will allow for early recognition of an actual event.
- Enhance participant's ability to put knowledge into active health care delivery. This will allow for rapid implementation of the necessary steps when needed an umbilical cord prolapse occurs.
- Prepare the participant to address issues and implement changes in the health care unit as necessary to ensure a safe environment. Equipment and supplies needed when an umbilical cord prolapse occurs will be available in the setting of the pregnant woman.
- Enable the participant to convert proven learning into actual health care delivery.

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- Introduction
  - Types of Umbilical Cord Prolapse
  - Cause and Occurrence Rates
- Risk Factors
  - Risk Factors
  - Maternal and Fetal Risk Factors
  - Other Risk Factors
  - Etiology
  - Other Possible Causes of Fetal Heart Rate Changes
  - Women at Risk
- Planning and Prevention
  - Planning and Prevention
- Management and Treatment
  - Practice Approach
  - Overt Cord Prolapse Management
  - Occult Cord Prolapse Management
  - Cord Prolapse Management
  - Previable Cord Prolapse Management
  - Complications
- Summary
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Umbilical cord prolapse is defined as the presentation of the umbilical cord alongside or beyond the fetal presenting part and is a rare obstetrical emergency.

This is a life-threatening event for the fetus as blood flow through the umbilical vessels is compromised from the compression of the cord between the fetal presenting part and against the uterus, cervix, or pelvis.

Click the images to learn more.

Pregnancy requires the health care professional to be alert to risks associated with causes for umbilical cord prolapse.

Early recognition and delivery of care can decrease the morbidity associated with this, as complications worsen with delay of resolution of cord compression and/or delivery of the fetus.

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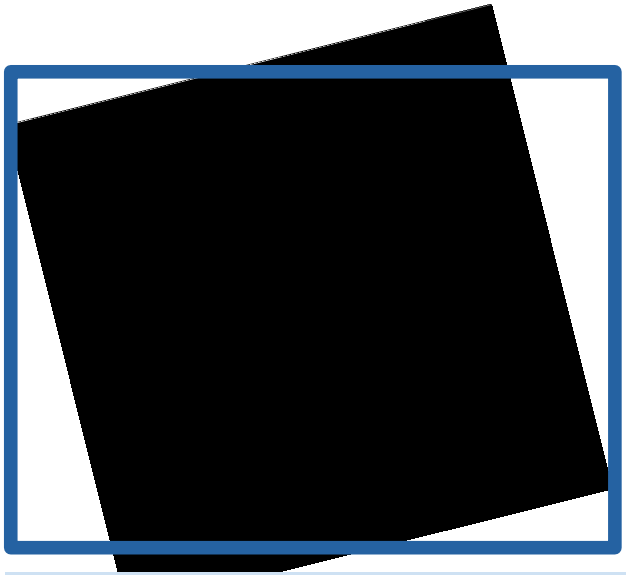


Click each rectangle to reveal information.

Click the tabs to learn more.

- 50% of umbilical cord prolapse is associated with obstetic interventions [15]
- In a study of the obstetric population, augmenting labor by artificial rupture of membranes (AROM) is thought to increase rates of prolapse cord [10 & 16]
- The following interventions move the fetal presenting part from the cervix, which can allow the umbilical cord to drop down next to the fetus, cervix, vagina, or out of the vaginal introitious:
  - Balloon catheter used for cervical ripening [17]
  - Induction of labor (IOL) [18]
  - Application of an internal scalp electrode
  - During the insertion of an intrauterine pressure catheter (IUPC)
  - Manual rotation of the fetal head
  - Amnioinfusion
  - External cephalic version (ECV)
  - During the application of a vacuum or forceps
- Internal podalic version.
  - Internal podalic version is an obstetric procedure wherein the fetus is turned within the womb.

RISK FACTORS

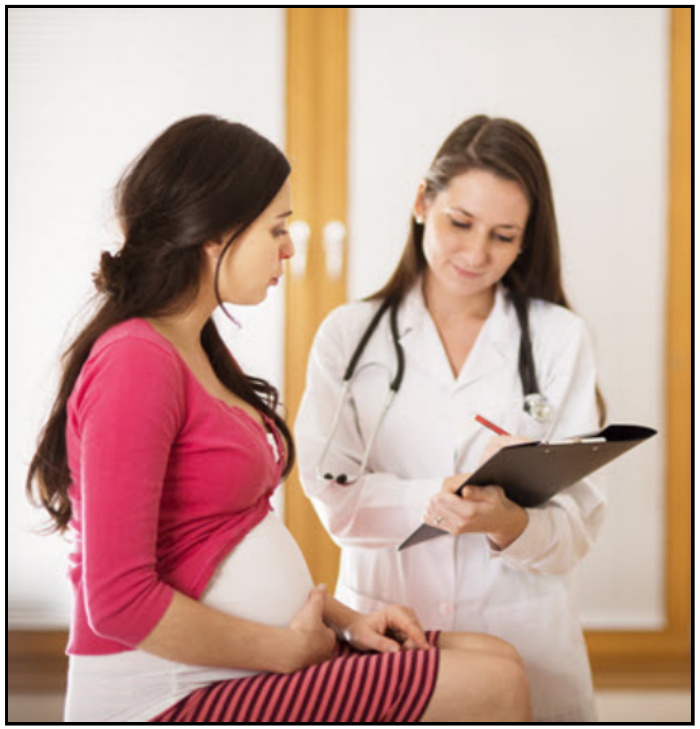
When cord prolapse occurs an abrupt change in the fetal heart tracing may be observed.
The health care provider may see severe, prolonged fetal bradycardia or a moderate to severe variable deceleration [11 & 15].
The FHR tracing is usually normal prior to this event.
This change will be observed more often soon after membranes rupture or an obstetric intervention occurs which dislodges the fetal presenting part [11 & 15].

At decreased frequency, the health care provider may palpate a pulsating umbilical cord during a vaginal exam to evaluate the progress of labor or the patient will feel an overt cord prolapse.
The occult cord prolapse may or may not be confirmed at the time of a cesarean section (c/s) delivery.
In one study, at the time of cord prolapse, the mean cervical exam found the cervix 5.8cm dilated and -1.6 station [19].

Other possible causes for FHR changes suggesting an occult cord prolapse:

- Decrease in maternal blood pressure
- Uterine tachysystole
- Placental abruption
- Uterine rupture
- Vasa previa

Click the image to learn more.



The health care team providing care to pregnant women should always be alert to the risks associated with prolapse umbilical cord.

Women, who are diagnosed with a fetus in a position other than vertex, should be educated on the increased occurrence of cord prolapse and what should be done to prevent fetal asphyxia.

- This education will be discussed in the management section.

A woman with PROM or spontaneous rupture of membranes (SROM) should immediately have a vaginal examination to evaluate for prolapse and FHR evaluation for decelerations.

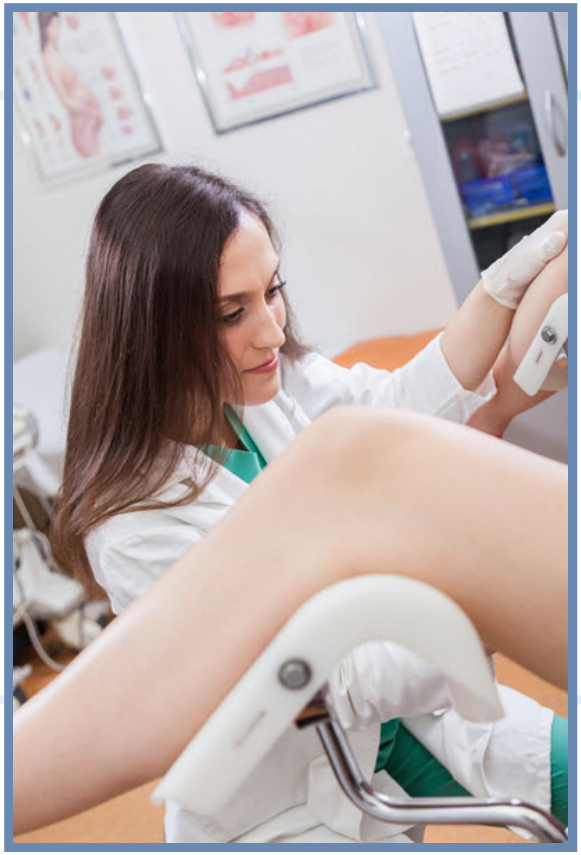
If the woman is admitted to the antepartum unit, FHR monitoring is performed to evaluate for decelerations and education about the signs and symptoms of a cord prolapse.

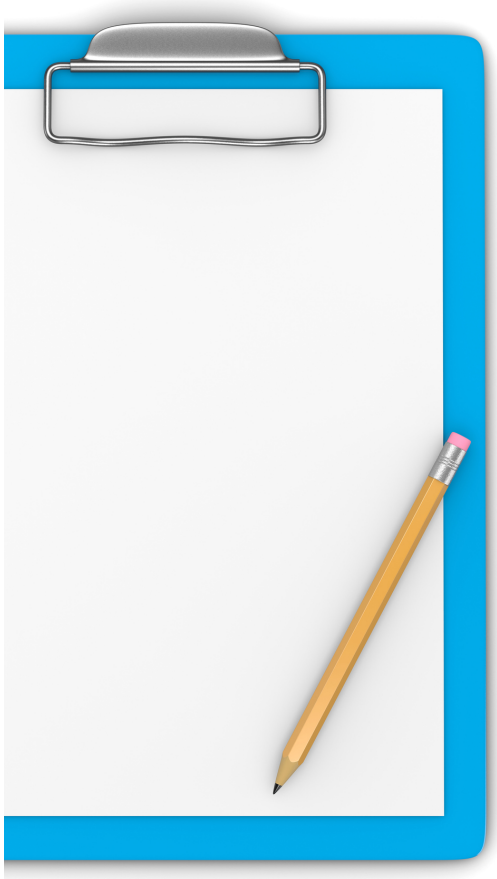
When performing a vaginal exam, the health care provider should be focused on the presentation, station, and engagement of the fetus.

A pulsating umbilical cord may be palpated upon exam. If an overt prolapse is present, it may not be easily identified especially if the membranes are intact.

Click the image to learn more.

- Women who have PROM and the fetus is in malpresentation are at increased risk of umbilical cord prolapse.
- Continuous FHR monitoring may identify those with sudden, severe, prolonged fetal bradycardia, or moderate to severe variable decelerations after a previously normal heart pattern [11 & 15].
- When an ominous FHR pattern occurs a vaginal exam should be performed immediately.
- If ROM is performed, the intervention should be performed when the fetal head is engaged and well applied to the cervix.
- If ROM is performed prior to engagement, careful controlled amniotomy is suggested with an fetal scalp electrode FSE or small gauge needle such as a 22-gauge spinal needle or small angiocatheter with the needle removed to prevent a gush of amniotic fluid. At the same time the small puncture is being made in the membrane, mild pressure is applied to the fundal region to decrease the risk of umbilical cord prolapse by moving the presenting fetal part into the pelvis.





When performing any intervention:

- FSE application
- IUPC insertion
- Fetal scalp sampling
- Amnioinfusion
- Forceps or vacuum application
- Manual rotation of the head

The health care provider should avoid disengaging the fetal presenting part.

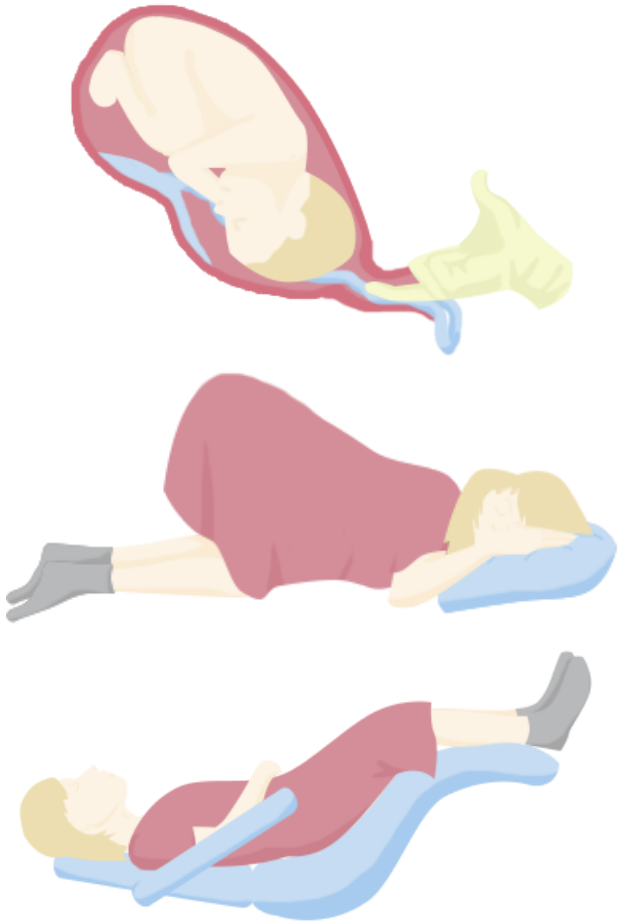
Call for assistance of your team

- Nursing
- Obstetrician
- Neonatal/pediatric provider
- Anesthesia provider
- Operating room staff
- Administer a tolcolytic
  Manually replace the prolapsed cord

Continuous fetal monitoring is important to evaluate resuscitative efforts and should be implemented if the woman is not already on the monitor.
Initiate intrauterine resuscitation:

- Manually elevating the fetal presenting part off of the umbilical cord
- Repositioning the mother in trendelenburg or knee-chest position
- Retrofill the maternal bladder

There is no data indicating one maneuver is better than another.



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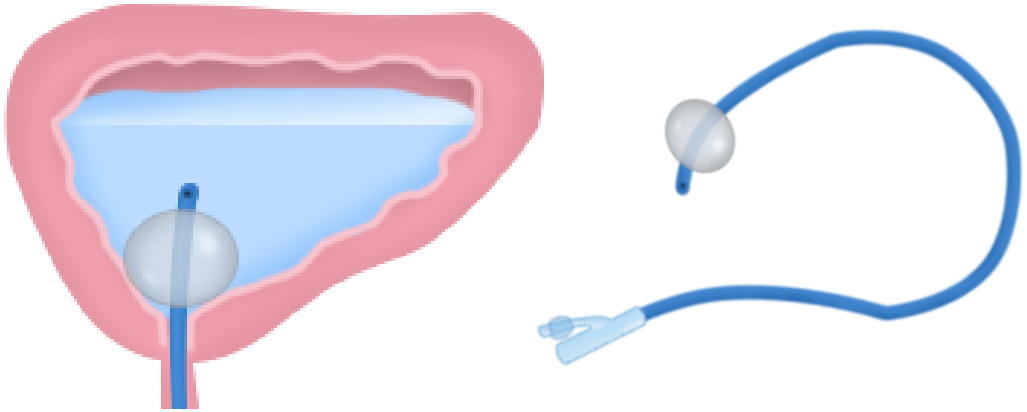

Bladder filling

- A foley catheter is inserted into the maternal bladder and filled with 500 to 700 milliliters (mL) of normal saline [25].
- The purpose of filling the bladder is to elevate the presenting part, keeping it off of the umbilical cord, with no need for prolonged vaginal digital decompression.
- To further reduce compression on the cord, the woman can be positioned in Trendelenburg position.
- This procedure may be very helpful when a c/s cannot be immediately performed.

Funic reduction of the umbilical cord:

- This procedure is a controversial approach to reduction of umbilical cord prolapse.
- When the health care provider palpates the prolapsed cord, the cord can be reduced by sliding it over the fetal presenting part.
- This procedure may be initiated when a vaginal delivery is imminent, a c/s delivery is being set up, or a c/s delivery cannot be immediately performed.

During this maneuver elevation of the fetal head is accomplished by providing suprapubic pressure or transvaginal pressure or both and then sliding the cord over the vertex into the nuchal area [29].

Tocolysis

- Administration of a tocolytic medication may be useful if considering
- Funic decompression
- Fetal bradycardia persists
- Delivery is not imminent

- Tocolysis relaxes the uterus and decreases the occurrence of contractions

- May perform bladder filling with tocolysis

Reduce handling of the umbilical cord and avoid exposure to the cold environment, both of which may cause spasm of the umbilical artery and further decrease perfusion.

The umbilical cord may be placed into the vagina and kept moist with a wet gauze to reduce spasm.

Overt cord prolapse requires prompt delivery to prevent or avoid fetal compromise.

Cesarean delivery may be the optimal mode; however, a vaginal delivery may occur if the health care provider's judgment is that the fetus can deliver safely and in a rapid manner compared to cesarean [26].

The type of anesthesia provided is dependent on the current treatment and the urgency of the birth; category I, II, or III tracing.

Click each bar to see more information.

Intrauterine resuscitation maneuvers may resolve the occult prolapse and lead to a Category I or II tracing.

If no improvement in FHR an alternative diagnosis may be considered for a Category III tracing.

The decision to proceed with an emergent C/S delivery will be based upon the FHR tracing.

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CORD PROLAPSE MANAGEMENT

Click each circle to see more information.

- There is limited data on conservative management of ROM and overt cord prolapse at a previable gestation age.
- Standard obstetrical management of cord prolapse is prompt cesarean delivery to avoid fetal compromise or death from compression of the cord.
- However, vaginal delivery may be a reasonable option in select cases when delivery is imminent and can be safely assisted.

On a labor and delivery unit, 0 to 3% of mortality events are related to cord prolapse [12].

Prematurity, asphyxia and congenital anomalies are associated with mortality from cord prolapse [12].

The degree of umbilical cord compression, the time between cord prolapse and delivery of the fetus, and successful use of intrauterine resuscitation maneuvers all impact the risk of asphyxia [14].

Neonatal complications occur more often in infants less than 32 weeks gestation [15].

Perinatal mortality rates of 38 to 44 percent are associated with cord prolapse occurring outside of the hospital setting [27].

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Click each box to review the course.

Summary and Recommendations

You have successfully completed this module.

Click on the above 'X' to take the post-test for this course.
If you do not attain a passing score after two attempts at the post-test the entire program must be repurchased.

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Roll-Over the red boxes to learn more about the features on each page.

References

1. Gannard-Pechin, E., Ramanah, R., Cossa, S., Mulin, B., Maillet, R., & Riethmuller, D. Umbilical cord prolapse: a case study over 23 years. J Gynecol Obstet Biol Reprod (Paris). 2012;41(6):574.

2. Gibbons, C., O'Herlihy, C., & Murphy, J. F. Umbilical cord prolapse--changing patterns and improved outcomes: a retrospective cohort study. BJOG. 2014 Dec;121(13):1705-8. Epub 2014 June 16.

3. Woo, J. S., Ngan, Y. S., & Ma, H. K. Prolapse and presentation of the umbilical cord. Aust N Z J Obstet Gynaecol 1983;23(3):142-5.

4. Kahana, B., Sheiner, E., Levy, A., Lazer, S., & Mazor, M. Umbilical cord prolapse and perinatal outcomes. Int J Gynaecol Obstet 2004;84(2):127-32.

5. Koonings, P. P., Paul, R. H., & Campbell, K. Umbilical cord prolapse. A contemporary look. Reprod Med. 1990;35(7):690.

6. Barclay, M. Umbilical cord prolapse and other cord accidents. In: Gynecology and Obstetrics, Sciarra JJ (Ed), JB Lippincott, Philadelphia 1989. p.1.

7. Ylä-Outinen, A., Heinonen, P. K., & Tuimala, R. Predisposing and risk factors of umbilical cord prolapse. Acta Obstet Gynecol Scand. 1985;64(7):567.

8. Uygur, D., Kis, S., Tuncer, R., Ozcan, F. S., & Erkaya, S. Risk factors and infant outcomes associated with umbilical cord prolapse. Int J Gynaecol Obstet. 2002;78(2):127.

9. Kahana, B., Sheiner, E., Levy, A., Lazer, S., & Mazor, M. Umbilical cord prolapse and perinatal outcomes. Int J Gynaecol Obstet. 2004;84(2):127.

10. Gabbay-Benziv, R., Maman, M., Wiznitzer, A., Linder, N., & Yogev, Y. Umbilical cord prolapse during delivery, risk factors and pregnancy outcome: a single center experience. J Matern Fetal Neonatal Med. 2014;27(1):14.

11. Koonings, P. P., Paul, R. H., & Campbell, K. Umbilical cord prolapse. A contemporary look.
J Reprod Med. 1990;35(7):690.

12. Murphy, D. J., & MacKenzie, I. Z., The mortality and morbidity associated with umbilical cord prolapse. Br J Obstet Gynaecol. 1995;102(10):826.

13. Critchlow, C. W., Leet, T. L., Benedetti, T. J., & Daling, J. R., Risk factors and infant outcomes associated with umbilical cord prolapse: a population-based case-control study among births in Washington State. Am J Obstet Gynecol. 1994;170(2):613.

Links

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