International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 10 No. 6s, 2024
https://theaspd.com/index.php

Obstetrical Emergencies: A Comprehensive Review on Diagnosis, Prevention and Management

Simarjeet Kaur[1], Dr. Jyoti Sarin[2]

[1]Associate Professor and PhD Scholar, M. M. College of Nursing Mullana, Maharishi Markandeshwar (Deemed to be University) Mullana, Haryana. Email id: kaursimarjeet913@gmail.com

[2]Professor cum Principal, M. M. College of Nursing Mullana, Maharishi Markandeshwar (Deemed to be University) Mullana, Haryana. Email id: sarinjyoti@yahoo.co.in

Corresponding Author: Dr. Jyoti Sarin, Professor cum Principal, M. M. College of Nursing Mullana, Maharishi Markandeshwar (Deemed to be University) Mullana, Haryana. Email id: sarinjyoti@yahoo.co.in

Abstract

Life-threatening medical issues that arise during pregnancy, labour, or delivery are known as obstetric crisis. The health of the mother and the unborn fetus may be at risk due to a variety of pregnancy-related diseases and conditions. Obstetrical crisis can occur both during active labor and after delivery (postpartum). All pregnancies have some risk, even though the great majority of pregnancies and deliveries go smoothly. While pregnancy can be exciting and joyful, it can also cause worry and anxiety. Low birth weight, stillbirth, and preterm birth are all harmful pregnancy outcomes that contribute to infant sickness, death, and long-term physical and mental health issues.

Keywords: *Obstetrical Emergencies; Shoulder Dystocia; Uterine Rupture; Obstetric hemorrhage; Diagnosis; Complications; Prevention*

INTRODUCTION

Obstetric crisis are potentially fatal medical issues that arise during pregnancy, childbirth, or labor. Pregnancy-related diseases and conditions can put the health of the mother and the unborn child at risk. According to Medicine (2008), obstetrical crisis can also happen during active labor and the postpartum period. Even while most pregnancies and deliveries go smoothly, there are risks associated with every pregnancy. According to Lawn et al. (2015), pregnancy may be both an exciting and happy time, as well as a time of worry and anxiety. Pregnancy, birth, early postoperative care, and the mother's health must all be carefully balanced for a seamless transition from life in the womb to life outside the womb. Maternal and child survival outcomes are greatly impacted by pregnancy and the newborn period (Filippi et al., 2006).

Preterm delivery, stillbirth, and low birth weight are the main causes of newborn illness, death, and longterm physical and psychological issues. Adverse pregnancy outcomes are those pregnancy outcomes that are not normal live birth (Chaibva, 2015). Unfavorable birth outcomes include preterm birth, low birth weight, and stillbirth are significant problems in both industrialized and developing nations. Over one in ten births, or over 15 million babies, are born before their due date globally. Over a million babies may away shortly after birth, and many more suffer from physical, neurological, or educational issues for the rest of their lives—often at a significant financial burden to families and communities. Furthermore, difficulties during and after pregnancy and delivery can result in women's deaths (WHO, 1984). Most of these issues arise during pregnancy and are preventable or treatable. Other issues could exist before to pregnancy, but if they are not addressed as part of the woman's treatment, they will worsen throughout the pregnancy. One important indicator of the caliber of obstetric cases is the maternal mortality ratio (MMR), which is defined as the number of maternal fatalities per 100,000 live births within a certain time period. The most prevalent causes of maternal mortality, according to a WHO analysis, are hemorrhage (30.8%), hypertensive disorders (9.1%), sepsis/infections (11.6%), obstructed labor (9.4%), abortion (5.7%), and anemia (12.8%). 12.5% of maternal deaths are attributable to other indirect causes, 1.6% to other direct causes, 0.4% to embolism, 0.1% to ectopic pregnancy, and 6.1% to unidentified causes (Prasad et al., 2018). Since the majority of interventions take place in the labor room, the majority of maternal and newborn fatalities happen during delivery (childbirth) or right after birth (Prasad et al., 2018). Therefore, this study aims to explain the diagnosis, prevention, complications, prognosis, and

management of obstetric emergencies as well as to quantify the severity of unfavorable maternal and perinatal outcomes after an obstetric emergency.

Shoulder Dystocia

Dystocia is the word for labor that progresses slowly, with delayed rates or even pauses in the cervix's dilatation or the fetus' descent. Dystocia, which is sometimes used as a synonym for the phrase "pathological birth," refers to the departure from the parameters that characterize a normal delivery. The "failure of the shoulders to spontaneously traverse the pelvis after delivery of the fetal head" is the definition of shoulder dystocia, which is also referred to as the manual evacuation of the shoulders during vaginal birth on cephalic presentation (Hill and Cohen, 2016). When the anterior shoulder gets stuck beneath the pubic symphysis or, less frequently, the posterior shoulder at the pubic iliac crest, shoulder dystocia occurs. The fetal head retracting into the perineum after delivery is known as the "turtle point sign." The anterior shoulder becomes stuck behind the symphysis pubis, causing resistance when the arm is suffocatingly forced on the expectant lady after the head is delivered (Athukorala et al., 2006). Although the incidence varies according on the fetal birth weight, shoulder dystocia accounts for 0.15 to 1.7% of all births (Heinonen et al., 2024; Li et al., 2015). Accordingly, it appears in around 0.3% to 1% of newborns weighing 2.5–4 kg at birth, and in 5%–7% of newborns weighing 4–4.5 kg (Rozenberg, 2016). Shoulder dystocia is an unanticipated issue since it affects fetuses with normal birth weight in more than half of instances (Bothou et al., 2021). There is proof that shoulder dystocia, an obstetric emergency, has become more common over time as a result of babies' rising birth weights. Additionally, a transperineal ultrasound combined with a transvaginal digital examination can help prevent the negative outcome of an operative vaginal delivery, since the engagement of the fetal head is a decisive factor when choosing this method (Desurmont et al., 2018).

This indicates that mild traction has failed and that obstetric measures are required to deliver the fetus's body after the head has been born. Partograms, the lengthening of the latent phase, or the slowing and stopping of the cervical dilatation and fetal descent phases are all signs of abnormal labor (dystocia). Although partograms are useful for visualizing the progression of labor, there is little evidence that their frequent usage significantly improves obstetric outcomes, and comparative trials have not revealed any partogram to be better than others. Because dystocia can occur at any stage of the childbirth process, it is important to evaluate all the variables that could lead to its aberrant development at the same time. These include the forces applied, the weight, the shape, the presentation and position of the fetus, the integrity and morphology of the pelvis, and its relationship to the fetus. A higher incidence of maternal illness as well as a higher incidence of newborn morbidity and death may arise from this condition. In practice, it has been hard to identify individual cases of shoulder dystocia before they develop during birth, despite the fact that there are a number of risk factors linked to the condition. The main objective of the many published recommendations for the treatment of shoulder dystocia is to inform obstetricians and midwives about the significance of a prearranged series of procedures in order to lower maternal and newborn morbidity and death. **Diagnosis**

All maternity staff must quickly recognize early signs of shoulder dystocia, such as the shoulders' inability to drop, when prenatal and postnatal variables are associated with the condition's possible development. From an objective perspective, shoulder dystocia is characterized by a duration of more than 60 seconds between the delivery of the head and the shoulders. The "turtle sign," which is defined by the baby's head withdrawing into its shell like a turtle and a red, bloated face, may seen in a small percentage of shoulder dystocia births. This occurrence happens when the mother's pelvis blocks the baby's shoulder. Since dystocia is defined as a deviation from the norms governing a normal delivery process, the phrase "pathological birth" is commonly used interchangeably. There is a noticeable slow progress in difficult births, indicated by postponed periods or pauses in cervical dilatation or the fetus' descent.

Dystocia may be categorized into three main groups based on their cause:

(a) Dystocia, which results from insufficient force exerted by the placenta and uterus during delivery, with the goal of facilitating the fetus's escape (Sentilhes et al., 2016). These include the failure of the epitome's voluntary expulsive attempts during the second stage of labor and the main or secondary malfunction of the uterus during the first and second phases of labor, respectively.

(b) Foetal factors are responsible for dystocia. These include big fetuses, congenital abnormalities of the fetus, and aberrant forms, presentations, and placements.

(c) Dystocia resulting from malformations of the pelvic canal that are acquired or congenital. According to Lima et al. (2009), these abnormalities include both structural irregularities of the bony pelvis and abnormalities pertaining to the soft tissues that make up the pelvic canal. The aforementioned dystocia distinction is not always true since dystocia can arise for a variety of reasons that fall into different categories. For instance, a small pelvis makes it possible for the fetus to seem abnormally in terms of shape, presentation, and position (Bouchghoul et al., 2023). **Prevention**

Shoulder dystocia is more likely to occur when a number of risk factors linked to its etiology appear before or during a typical vaginal birth. However, there are cases of dystocia that occur without the presence of these risk factors, therefore these characteristics by themselves are not enough to accurately predict dystocia. Furthermore, because there are currently no reliable techniques for detecting embryos at risk of developing dystocia, the majority of cases cannot be predicted or avoided (Lau et al., 2024). Fetal macrosomia, gestational or pre-existing diabetes mellitus, and a history of shoulder dystocia in a prior birth are the primary risk factors that may manifest prior to delivery. According to Leung et al. (2011), oxytocin treatment, protracted first and second stages of labor, and invasive vaginal delivery using a metallic embryo tube or suction are risk factors that arise throughout labor.

A history of a macrosomic fetus in a prior pregnancy, maternal low height, maternal obesity, pelvic abnormalities, multiparity, and protracted gestation are additional minor risk factors. Even though shoulder dystocia is extremely difficult to anticipate, it is known that attempts are being made to address some of the risk variables that manifest during pregnancy in order to enhance the prognosis and treatment of childbirth (Fuchs, 2015). Although an ultrasound evaluation of fetal growth can aid in crucial clinical and therapeutic choices if there is a clinical suspicion of macrosomia, its diagnostic and preventative accuracy is limited. It is recommended that individuals with gestational diabetes mellitus constantly monitor their blood sugar levels, follow a diabetic diet, and have an endocrinologist provide insulin if needed in order to prevent macrosomia. Compared to children born to non-diabetic moms of comparable weight, newborns born to mothers with diabetes have a two to four times increased chance of developing shoulder dystocia. To lower the risk of a macrosomic fetus, physical activity in conjunction with a suitable food regimen is advised for women who are overweight or obese (BMI > 25). It is advised that women with a normal body mass index gain between 11.5 to 16 kg during pregnancy (Lau et al., 2024). To reduce the risk of gestational diabetes, fetal macrosomia, and excessive weight gain during pregnancy, physical activity is advised for the general public either before or during pregnancy.

Induction of labor and cesarean section are two methods that can be used to help avoid shoulder dystocia. According to Iaconianni et al. (2024), elective labor induction based on suspected macrosomia is not a sensible course of action and has no positive impact on the neonatal outcome. Women who have been diagnosed with gestational diabetes mellitus and suspected of having macrosomia may be eligible for elective induction of labor if they are above 39 weeks along and have a prepped cervix. When the estimated fetal weight reaches 4500 g and the mother has gestational diabetes, or when the estimated fetal weight exceeds 5000 g without the mother having gestational diabetes, an elective cesarean delivery may be necessary (De Miguel-Rubio et al., 2023).

In cases where the fetus exhibits macrosomia and the second stage of labor (expulsion) cannot proceed, a caesarean section should be done instead of an aided vaginal delivery. Given that the risk of shoulder dystocia recurrence in future deliveries is ten times greater than in the general population, an elective caesarean section should be advised in cases where shoulder dystocia has occurred in a prior birth.

Management

To release the anterior shoulder from its wedged position behind the maternal symphysis pubis, many dystocia procedures have been documented. These procedures aim to alter the biacromial diameter inside the pelvis, decrease the biacromial diameter, and enlarge the mother's pelvis. The "shoulder delivery immediately after head exit" technique should be used by the obstetrician in women who have risk factors so that the fetus can be delivered uninterrupted until the anterior shoulder departs. In the event of entrapment, the mother's pushing efforts will be combined with a small downward traction of the fetal head as the first line of therapy. To prevent harming the unborn brachial plexus, the neck should not be bent, twisted, or moved suddenly. It is not recommended to apply pressure on the bottom of the uterus since it does not provide any assistance and instead raises the risk of harm to both the mother and the fetus (Chauhan and Gherman, 2022).

It is always important to think about and assess if a perineotomy is necessary. Since the soft tissues are not affected, a broad perineotomy does not immediately address the issue; nevertheless, it does create the room required to execute intravaginal operations.

Initial Treatments for Shoulder Dystocia (a) McRoberts maneuver

One of the earliest and most straightforward treatments for shoulder dystocia is the McRoberts technique. The thighs are bent slightly abducted to contact the patient's tummy in order to execute the technique. In this manner, the lumbar lordosis of the spine (the obstetrician's pronunciation) is straightened and the anteroposterior diameter of the pelvis is increased; the McRoberts procedure is effective in treating 40% of shoulder dystocia (Desseauve et al., 2020).

(b) Suprapubic pressure

One of the most important techniques for treating shoulder dystocia is the suprapubic pressure maneuver. In order to abduct the shoulders, this procedure applies pressure on the fetus's anterior shoulder above the pubic bone. At the same time, the obstetrician continues to gently traction. Similar to cardiopulmonary resuscitation, the pressure should be constant at first before changing to a rhythmic pattern. In more than half of instances, this method effectively treats shoulder dystocia when paired with the McRoberts technique.

(c) Intravaginal Maneuver

There are intravaginal methods for treating shoulder dystocia in addition to the main maneuver mentioned above. Among them are the Woods Screw, Rubin, and reverse Woods Screw maneuvers, as well as the technique for removing the posterior upper limb from the birth canal. The obstetrician applies pressure to the fetal chest by inserting their hand behind the anterior shoulder during the Rubin technique.

(d) The Woods Screw maneuver

The intravaginal manipulation is done in tandem with the Rubin maneuver and was initially reported by C.E. Woods in 1943. This technique reinforces the attempt to rotate the shoulder in the same direction as the Rubin manipulation by having the obstetrician's second hand approach the posterior shoulder from the fetus's anterior surface.

Another technique is the reverse Woods Screw procedure, in which the obstetrician places their hands in front of the anterior shoulder and behind the posterior shoulder in an effort to rotate the fetus in the opposite direction as the earlier operations. Moving the posterior upper limb into the genital canal is another intravaginal technique used to decrease shoulder diameter. In order to reach the posterior top end of the fetus, the obstetrician puts his hand into the vagina. The elbow is bent to bring the forearm out in front of the fetal chest after it has been reached. To prevent breaking the upper extremity, the traction shouldn't be too strong. This allows the anterior shoulder to drop below the pubic symphysis, which facilitates delivery, and the posterior upper extremity to escape.

(e) The knee–elbow position

The knee-elbow posture is a quick, safe, and efficient technique. It is essential that we place the mother in the knee-elbow posture throughout this technique. Increases in pelvic diameters are made possible by this position: the transverse measurement of the pelvic outlet can expand by up to 20 mm, and the strait is enhanced by around 10 mm. During rotation, the anterior fetal shoulder is frequently freed with the aid of gravity. In order to deliver the posterior shoulder, it is crucial in this situation to draw the fetus lower.

(f) Clavicle fracture

A clavicle fracture is another treatment option for shoulder dystocia. To avoid damaging the subclavian arteries, upward pressure is delivered to the center of the clavicle during this manipulation.

Last-Resort Treatments for Shoulder Dystocia (a) Zavanelli procedure

The Zavanelli technique, abdominal surgery with hysterotomy, and symphysiotomy are the last-resort treatments for shoulder dystocia. An emergency cesarean section is performed after attempts to realign the fetal head using the Zavanelli procedure. Until the caesarean section is possible, the fetal head is gently pushed back against the delivery device while the pressure is maintained.

Usually, tocolysis is given prior to the process starting. Because the fetus is turned, as in the intraabdominal Woods Screw procedure, vaginal birth is made easier during abdominal surgery with hysterotomy. Local anesthetic is used for symphysiotomy after bladder catheterization. The separation of

the pubic symphysis' fibrocartilage comes next. Since the process takes at least two minutes from the moment of choice, it must be started within five to six minutes of the baby's head being born. **(b) Symphysiotomy**

Local anesthetic is used for symphysiotomy after bladder catheterization. The separation of the pubic symphysis' fibrocartilage comes next. Since the process takes at least two minutes from the moment of choice, it must be started within five to six minutes of the baby's head being born. Only when all other options have been exhausted and a cesarean section is not feasible may symphysiotomy be employed (Sancetta et al., 2019).

Uterine rupture

A rip in the uterine wall that penetrates its whole thickness, including the serosa, is known as uterine rupture, an uncommon and possibly fatal obstetric disease (Veena et al., 2012). Uterine rupture rates vary, ranging from 1 in 3000-5000 in rich countries to 1 in 100-500 births in poor countries (Sinha et al., 2016).

The most frequent cause of uterine rupture in any trimester is a scarred uterus, which is followed by variables such great multiparity, a placenta that is morbidly connected, and the careless use of prostaglandin and oxytocin (Chang, 2020). Compared to the global average of 1 in 100, the incidence of uterine rupture after a cesarean section has dropped to 1 in 2000 in industrialized nations (Vandenberghe et al., 2019). An estimated 1 in 8,000 to 1 in 15,000 women will experience uterine rupture in a nonscarred uterus. According to Al-Zirqi et al. (2017), the risk of rupture for second-trimester abortions with misoprostol is less than 0.35% for scarred uteri and 0.04% for unscarred uteri.

Another contributing aspect is multiparity, since the uterine muscle thins with successive pregnancies. In wealthy countries, uterine rupture causes 0.2% of maternal deaths; in poor ones, the rate might reach 30%. There is a 14–33% chance of a hysterectomy due to uterine rupture (Paprikar et al., 2022). Because uterine rupture in the first or second trimester is extremely uncommon and might manifest with a variety of symptoms, clinical identification can be difficult. Regardless of gestational age, it is imperative to take into account the likelihood of uterine rupture in any pregnant woman who is suffering significant abdominal discomfort. Abdominal discomfort, uterine atony, hypotension, maternal tachycardia, and vaginal bleeding are additional typical symptoms (Hawkins et al., 2018).

In order to improve our knowledge and provide insightful information for clinical practice and research, the review attempts to clarify a number of elements of this uncommon obstetric syndrome. This review's primary goal is to identify and investigate the many risk factors linked to uterine rupture. This entails a thorough analysis of variables including great multiparity, a scarred uterine, a placenta that is morbidly connected, and the use of prostaglandin and oxytocin. Optimizing patient treatment and creating focused preventative initiatives require an understanding of these risk variables. Examining the variations in the incidence of uterine rupture in various locations and environments is another crucial goal. The review aims to draw attention to possible differences in uterine rupture healthcare practices, access, and outcomes by comparing rates across wealthy and underprivileged countries. With a special emphasis on the frequency of rupture in both scarred and non-scarred uteri, the review also aims to identify the etiological patterns of uterine rupture. The purpose of this research is to shed light on the particular situations and circumstances that might lead to uterine rupture during pregnancy. Additionally, the effect of medical procedures on the frequency of uterine rupture will be investigated. This involves evaluating the results of treatments like misoprostol usage and cesarean sections, with a focus on how incidence rates have changed over time and in response to changing medical procedures. **Diagnosis**

In the presence of severe abdominal discomfort, the differential diagnosis for vaginal bleeding in the second and third trimesters includes uterine rupture, placenta previa, placental abruption, spontaneous abortion, and bloody show associated with normal labor. During the first 20 weeks of pregnancy, fetal tissue in the cervical canal can be palpated or seen during the speculum exam to diagnosis a spontaneous abortion, also known as an early pregnancy loss or a miscarriage. Mucus mixed with blood that is released before labor begins is referred to as "bloody show." A bloody show can occur up to three days before birth. Hemodynamic stability is maintained in patients with bloody shows, and there is minimal blood loss.

The placenta adhering to the uterus through the cervical aperture is known as placenta previa. One of the more frequent reasons for bleeding in the second and third trimesters is placenta previa (Jauniaux et al.,

2019). Placenta previa is traditionally described as painless vaginal bleeding that does not coincide with uterine contractions. Nonetheless, cramping contraction discomfort may be experienced by certain people with placenta previa. Ultrasound can be used to diagnose the majority of placenta previas (Oppenheimer, 2007). Patients experiencing vaginal bleeding in the second or third trimester should not undergo a digital examination until placenta previa has been ruled out. When placenta previa is present, digital cervix examination might cause potentially fatal maternal bleeding (Anderson-Bagga and Sze, 2007).
When the placenta separates from the uterus before to birth, this is known as a placental abruption. According to Oyelese and Ananth (2006), the majority of placental abruptions happen around week 25. The placenta and uterus are forced apart during an abruption when the mother's blood arteries rip away from the decidua basalis, the uterine endometrium at the placentation site. Due to blood irritation, patients may have severe stomach discomfort, vaginal bleeding, and ongoing cramping contractions (Ananth et al., 2019). Placental abruption can result in unsettling fetal heart rate variations, much like a uterine rupture. But rather than a uterine rupture, placental abruption is more likely to be linked to tetanic uterine activity. Large amounts of blood may pool behind a placental abruption and be undetected by ultrasonography. The sensitivity of ultrasound in identifying a placental abruption is low. Both the lady and the newborn may be at risk of death from an abruption if there is a substantial loss of blood.

Although uterine rupture is uncommon, it must be ruled out in every instance of vaginal bleeding in the second and third trimesters. Trial of labor after cesarean birth (TOLAC) is the most significant risk factor for uterine rupture. The majority of uterine ruptures happen during childbirth. Any woman having a TOLAC who exhibits any of the following symptoms—hypotension, abrupt change in contraction pattern, fetal bradycardia, acute abdominal pain, hematuria, loss of fetal position, or vaginal bleeding—should have a uterine rupture evaluated.

Management

Action must be taken right away in the event of a uterine rupture. Maternal and fetal risk is increased by postponing delivery, resuscitation, or surgery (Leung et al., 1993). Fetal bradycardia is usually linked to a ruptured uterus. An emergency cesarean birth, with or without an exploratory laparotomy, is therefore the first course of therapy. Even with a labor epidural, general endotracheal anesthetic is usually necessary to enable a speedy birth. In cases of uterine rupture, the 5 to 15 minutes it takes for labor epidurals to produce a surgical block is usually an intolerable delay. Other benefits of general anesthetic include stabilizing the airway, enabling neuromuscular blocking to assist laparotomy, and enabling improved monitoring of the mother's acid-base condition with minute breathing adjustments. Finally, individuals with severe bleeding diathesis and those with hemodynamic instability should not undergo neuraxial anesthesia.

When a uterine rupture occurs, the mother's bleeding must be treated concurrently with the delivery (Toppenberg and Block, 2002). Blood should be requested and transported to the operating room, along with the placement of a second large-bore intravenous line. Central venous access with a large bore sheath introducer should be taken into consideration if big-bore intravenous access is not possible. Lactated Ringer's electrolyte solution is frequently infused to provide initial resuscitation. Early blood transfusion should be prompted by rapid and significant blood loss. An arterial line will increase blood pressure monitoring accuracy and frequency, shorten the time it takes for hypotension to occur, and make serial laboratory testing easier if bleeding is not promptly stopped.

When intraperitoneal hemorrhage is detected, a midline abdominal incision should be considered instead of the Pfannenstiel incision. A midline incision may reduce the time between the surgical incision and delivery and offers improved surgical exposure for locating the cause of the hemorrhage. The uterus could be repairable in a lesser rupture. A hysterectomy is recommended in cases of hemodynamic instability or severe uterine damage. A hysterectomy is necessary for around one in three women who have uterine rupture (Chibber et al., 2010).

Postpartum Hemorrhage

With 27% of all maternal fatalities worldwide, postpartum hemorrhage (PPH) is the primary cause of direct maternal mortality and one of the main causes of severe maternal morbidity (Kassebaum et al., 2014). Despite being mostly a preventable and curable ailment (Goffman et al., 2016), PPH was the cause of 127,000 deaths among women globally in 2017 (UNICEF, 2019). Although PPH may happen anywhere, poor and middle-income countries (LMICs) have a disproportionately greater rate of PPHassociated mortality than high-income nations (Borovac-Pinheiro et al., 2018). According to a comprehensive investigation of maternal mortality causes conducted by the World Health Organization (WHO), PPH accounts for approximately 73% of maternal fatalities in LMICs, with over 40% of PPH deaths occurring in sub-Saharan Africa alone (Say et al., 2014). Early detection and prompt, evidencebased treatment are essential for preserving women's lives when PPH strikes (Andrikopoulou and D'Alton, 2019).

The quantity of blood lost after delivery is the basis for the most often used definition of PPH (WHO, 2012). PPH for a vaginal birth is defined as 500 ml or more of blood loss, and severe PPH as 1,000 ml or more. The most prevalent kind of PPH, primary PPH, happens 24 hours after delivery, whereas secondary PPH happens 24–6 weeks later (Evensen et al., 2017). About 20% of PPH instances occur in women without risk factors, however other women have observable risk factors for PPH, such as a history of PPH. As a result, medical professionals need to be equipped with the information, abilities, and resources necessary to identify and treat PPH in every delivery. However, medical professionals can pass up chances to identify PPH early, which would delay the use of efficient PPH management strategies and result in preventable maternal fatalities (Miller et al., 2016).

The most popular technique for detecting PPH after vaginal delivery is visual measurement of blood loss (Hancock et al., 2015); however, this approach is subjective and inaccurate by nature, since reports of both overestimation and underestimating have been made (Yoong et al., 2010). PPH identification and treatment are delayed due to underestimation, which is more common and involves larger blood loss volumes than medical professionals anticipate (Lertbunnaphong et al., 2016). Furthermore, early identification necessitates routine postpartum monitoring of the woman, which can be difficult for medical professionals in low-resource environments where maternity units are usually understaffed, patient loads are high, and key resources for PPH treatment are scarce. Inconsistent and delayed use of evidence-based, successful first-line PPH interventions (uterotonics, tranexamic acid, intravenous fluids, and uterine massage) can result from a lack of knowledge or access to current PPH treatment guidelines, a lack of essential resources for PPH care, a lack of opportunities for refresher training, and understaffing.

Diagnosis

Healthcare professionals from various cadres in three different nations had varying answers when asked what they knew and understood about PPH. The WHO PPH Guidelines' criteria for blood loss thresholds, vital sign alterations, and PPH definitions were more frequently reported by physicians than by midwives or nurses in all countries (WHO, 2017). A clinical definition for primary and secondary PPH based on blood loss measurement was offered by physicians with more years of clinical experience:

- Severe primary PPH: ≥1,000 ml of blood loss within 24 hours of childbirth;
- Secondary PPH: ≥500 ml blood loss between 24 hours and 6 weeks after childbirth;
- Primary PPH: ≥500 ml blood loss within 24 hours after childbirth, or any quantity of blood loss with concerning vital signs; **Primary prevention**

Although risk-profiling cannot be used to predict all women who may have bleeding, evaluating risk variables is the first step in primary prevention of PPH. It may be possible to stop a mild bleeding from becoming serious and potentially fatal by regularly reviewing risk factors and responding quickly to any problems. According to Lewis (2007), women who have been diagnosed as having a high risk of PPH should give birth at a facility that has a blood bank on site and access to professionals who are properly trained.

According to Rousseau et al. (2006), anemia increases the likelihood of PPH and the requirement for a transfusion during cesarean birth. A woman's capacity to tolerate mild to moderate bleeding without suffering impairment will be maximized if underlying anemia is corrected. Iron deficiency is the cause of anemia in most cases, and if anemia is discovered early in pregnancy, oral iron supplements should be

enough to treat it; but, if severe anemia is discovered later in pregnancy, intravenous iron may be necessary.

Because women with underlying bleeding problems are more likely to develop PPH, women who are at risk of severe bleeding should be referred for birth to a facility that has a hemophilia treatment center or a hematologist with hemostasis expertise in addition to high-risk obstetrics experts. Support from the lab, pharmacy, and blood bank is crucial. Before giving birth, the anesthesiologist should be informed and a personalized treatment plan for blood product replacement should be created (James, 2009).

Management

Globally, postpartum hemorrhage is the primary cause of maternal death. However, with prompt identification and treatment, postpartum hemorrhage-related fatalities may be avoidable. Based on national and international guidelines updated with new evidence, the current review discusses the management of postpartum hemorrhage algorithm, which includes the use of uterotonics, non-surgical (balloon tamponade) or surgical (sutures, artery ligations, and/or hysterectomy) techniques, endovascular radiologic interventions, antifibrinolytic (tranexamic acid), and procoagulant (fibrinogen concentrate) medications.

CONCLUSION

Life-threatening situations that arise during pregnancy, during labor, or after delivery are known as obstetrical crisis. Pregnancy-related diseases and conditions can endanger the health of both the mother and the unborn child. It is critical that nurses understand how to recognize obstetrical crisis and how to handle them. However, as more maternity care is being provided in the community, midwives, general practitioners, and paramedics may be engaged and need to be aware of the potential side effects and the basic guidelines for managing crisis. Plans must be established to quickly and securely transport the lady to the obstetric unit if such a circumstance arises outside of the hospital. Obstetricians, midwives, general practitioners, and paramedics should have discussed and agreed upon all emergency measures in advance.

REFERENCES

1. Al-Zirqi, I., Daltveit, A. K., Forsén, L., Stray-Pedersen, B., & Vangen, S. (2017). Risk factors for complete uterine rupture. American journal of obstetrics and gynecology, 216(2): 165.e1–165.e8.
2. Ananth CV, Lavery JA, Vintzileos AM, Skupski DW, Varner M, Saade G, Biggio J, Williams MA, Wapner RJ, Wright JD (2016). Severe placental abruption: clinical definition and associations with maternal complications. Am J Obstet Gynecol., 214(2):272.e1-272.e9.
3. Anderson-Bagga FM, Sze A. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): 12, 2023. Placenta Previa.
4. Andrikopoulou M, D'Alton ME, editors. Postpartum hemorrhage: early identification challenges. Semin. Perinatol. (2019) 43(1):11–7.
5. Athukorala, C.; Middleton, P.; Crowther, C.A. Intrapartum interventions for preventing shoulder dystocia. Cochrane Database Syst. Rev. 2006, CD005543.
6. Borovac-Pinheiro A, Pacagnella R, Cecatti J, Miller S, El Ayadi A, Souza J, et al. (2018). Postpartum hemorrhage: new insights for definition and diagnosis. Am J Obstet

Gynecol., 219(2):162–8.
7. Bothou, A.; Apostolidi, D.M.; Tsikouras, P.; Iatrakis, G.; Sarella, A.; Iatrakis, D.; Peitsidis, P.; Gerente, A.; Anthoulaki, X.; Nikolettos, N.; et al. Overview of techniques to manage shoulder dystocia during vaginal birth. Eur. J. Midwifery 2021, 5, 48.
8. Bouchghoul, H.; Hamel, J.F.; Mattuizzi, A.; Ducarme, G.; Froeliger, A.; Madar, H.; Sentilhes, L. Predictors of shoulder dystocia at the time of operative vaginal delivery: A prospective cohort study. Sci. Rep. 2023, 13, 2658.
9. Chaibva BV. Determinants of adverse pregnancy outcomes in Mutare district clinics, Manicaland Province, Zimbabwe (MSc Dissertion). Faculty of Health Sciences, University of Pretoria, Pretoria, South Africa. Available online at:

https://repository.up.ac.za/bitstream/handle/2263/46131/Chaibva_Determinants_2015.

pdf?sequence=1
10. Chang YH. Uterine rupture over 11 years: a retrospective descriptive study. Aust N Z J Obstet Gynaecol. 2020;60:709–713.
11. Chauhan, S.P.; Gherman, R.B. Shoulder Dystocia: Challenging Basic Assumptions. Obstet. Gynecol. Clin. N. Am. 2022, 49, 491–500.
12. Chibber R, El-Saleh E, Al Fadhli R, Al Jassar W, Al Harmi J., (2010). Uterine rupture and subsequent pregnancy outcome-how safe is it? A 25-year study. J Matern Fetal Neonatal Med., 23(5):421-4.
13. De Miguel-Rubio, A.; Alba-Rueda, A.; Millán-Salguero, E.M.; De Miguel-Rubio, M.D.; Moral-Munoz, J.A.; Lucena-Anton, D. Virtual Reality for Upper Limb Rehabilitation in Patients With Obstetric Brachial Palsy: Systematic Review and Meta-Analysis of

Randomized Controlled Trials. J. Med. Internet Res. 2023, 25, e47391.

14. Desseauve, D.; Fradet, L.; Gherman, R.B.; Cherni, Y.; Gachon, B.; Pierre, F. Does the McRoberts' manoeuvre need to start with thigh abduction? An innovative biomechanical study. BMC Pregnancy Childbirth 2020, 20, 264.
15. Desurmont, S.; Houzé de l'Aulnoit, A.; Brabant, G.; Houzé de l'Aulnoit, D. Assessment of fetal head engagement with transperineal ultrasound: Searching for the cutoff level. J. Gynecol. Obstet. Hum. Reprod. 2018, 47, 317–324.
16. Evensen A, Anderson JM, Fontaine P. Postpartum hemorrhage: prevention and treatment. Am Fam Physician. (2017) 95(7):442–9.
17. Filippi V, Ronsmans C, Campbell OM, Graham WJ, Mills A, Borghi J et al. Maternal healthin poor countries: the broader context and a call for action. Lancet. (2006) 368:1535–41.
18. Fuchs, F. Prevention of shoulder dystocia risk factors before delivery. J. Gynecol. Obstet. Biol. Reprod. 2015, 44, 1248–1260.
19. Goffman D, Nathan L, Chazotte C, editors. Obstetric hemorrhage: a global review. Semin. Perinatol. (2016) 40:96–8.
20. Hancock A, Weeks AD, Lavender DT. Is accurate and reliable blood loss estimation the'crucial step'in early detection of postpartum haemorrhage: an integrative review of the literature. BMC Pregnancy Childbirth. (2015) 15(1):230.
21. Hawkins, L., Robertson, D., Frecker, H. et al. Spontaneous uterine rupture and surgical repair at 21 weeks gestation with progression to live birth: a case report. BMC Pregnancy Childbirth 18, 132 (2018).
22. Heinonen, K.; Saisto, T.; Gissler, M.; Kaijomaa, M.; Sarvilinna, N. Pitfalls in the diagnostics of shoulder dystocia: An analysis based on the scrutiny of 2274 deliveries. Arch. Gynecol. Obstet. 2024, 309, 1401–1409.
23. Hill, M.G., and Cohen, W.R. Shoulder dystocia: Prediction and management. Women's Health 2016, 12, 251–261.
24. Iaconianni, J.A.; Balasubramanian, S.; Grimm, M.J.; Gonik, B.; Singh, A. Studying the Effects of Shoulder Dystocia and NeonateFocused Delivery Maneuvers on Brachial Plexus Strain: A Computational Study. J. Biomech. Eng. 2024, 146, 021009.
25. James AH, Kouides PA, Abdul-Kadir R, Edlund M, Federici AB, Halimeh S, Kamphuisen PW, Konkle BA, Martinez-Perez O, McLintock C, Peyvandi F, Winikoff R. von Willebrand disease and other bleeding disorders in women: consensus on diagnosis and management from an international expert panel. Am J Obstet Gynecol, 2009; 201: 12.e1–8.
26. Jauniaux E, Grønbeck L, Bunce C, Langhoff-Roos J, Collins SL. Epidemiology of placenta previa accreta: a systematic review and meta-analysis. BMJ Open. 2019, 12;9(11):e031193.
27. Kassebaum NJ, Bertozzi-Villa A, Coggeshall MS, Shackelford KA, Steiner C, Heuton KR, et al. (2014). Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the global burden of disease study 2013. Lancet. 384(9947): 980–1004.
28. Lau, S.L.; Sin, W.T.A.; Wong, L.; Lee, N.M.W.; Hui, S.Y.A.; Leung, T.Y. A critical evaluation of the external and internal maneuvers for resolution of shoulder dystocia. Am. J. Obstet. Gynecol. 2024, 230, S1027–S1043.
29. Lawn JE, Gravett MG, Nunes TM, Rubens CE, Stanton C, (2015). Global report on preterm birth and stillbirth (1 of 7): definitions, description of the burden and opportunities to improve data. BMC Pregnancy Childbirth. 10:S1.
30. Lertbunnaphong T, Lapthanapat N, Leetheeragul J, Hakularb P, Ownon A., (2016). Postpartum blood loss: visual estimation versus objective quantification with a novel birthing drape. Singapore Med J., 57(6):325.
31. Leung AS, Leung EK, Paul RH (1993). Uterine rupture after previous cesarean delivery: maternal and fetal consequences. Am J Obstet Gynecol., 169(4):945-50.
32. Leung, T.Y.; Stuart, O.; Suen, S.S.; Sahota, D.S.; Lau, T.K.; Lao, T.T. Comparison of perinatal outcomes of shoulder dystocia alleviated by different type and sequence of manoeuvres: A retrospective review. BJOG 2011, 118, 985–990.
33. Lewis G, ed. Saving Mothers Lives: Reviewing Maternal Deaths to Make Motherhood Safer – 2003–2005. The seventh report on confidential enquiries into maternal deaths in the United Kingdom. London: CEMACH, 2007.
34. Li, N.; Li, Q.; Chang, L.; Liu, C. Risk factors and clinical prediction of shoulder dystocia in non-macrosomia. Zhonghua Fu Chan Ke Za Zhi 2015, 50, 17–21.
35. Lima, S.; Chauleur, C.; Varlet, M.N.; Guillibert, F.; Patural, H.; Collet, F.; Seffert, P.; Chêne, G. Shoulder dystocia: A tenyear descriptive study in a level-III maternity unit. Gynecol. Obstet. Fertil. 2009, 37, 300–306.
36. Medicine, GE. Obstetrical Emergencies (2008).
37. Miller S, Abalos E, Chamillard M, Ciapponi A, Colaci D, Comandé D, et al. Beyond too little, too late and too much, too soon: a pathway towards evidencebased, respectful maternity care worldwide. Lancet. (2016) 388(10056):2176–92.
38. Oppenheimer L., MATERNAL FETAL MEDICINE COMMITTEE. RETIRED: Diagnosis and management of placenta previa. J Obstet Gynaecol Can. 2007 Mar;29(3):261-266.
39. Oyelese Y, Ananth CV. Placental abruption. Obstet Gynecol. 2006, 108(4):1005-16.
40. Paprikar S, Lagoo A, Lagoo J. Uterine rupture: review of cases from tertiary care centre in India. Int J Reprod Contracept Obstet Gynecol. 2022;11.
41. Prasad D, Nishat H, Tiwary B, Swet N, Sinha A, Goel N. Review of obstetrical emergencies and fetal out come in a tertiary care centre. Int J Res Med Sci 2018;6:1554-8.
42. Rouse DJ, MacPherson C, Landon M, Varner MW, Leveno KJ, Moawad AH, Spong CY, Caritis SN, Meis PJ, Wapner RJ, Sorokin Y, Miodovnik M, Carpenter M, Peaceman AM, OSullivan MJ, Sibai BM, Langer O, Thorp JM, Ramin SM, Mercer BM. Blood transfusion and cesarean delivery. Obstet Gynecol 2006; 108: 891–7.
43. Rozenberg, P. In case of fetal macrosomia, the best strategy is the induction of labor at 38 weeks of gestation. J. Gynecol. Obstet. Biol. Reprod. 2016, 45, 1037–1044.
44. Sancetta, R.; Khanzada, H.; Leante, R. Shoulder Shrug Maneuver to Facilitate Delivery During Shoulder Dystocia. Obstet. Gynecol. 2019, 133, 1178–1181.
45. Say L, Chou D, Gemmill A, Tunçalp Ö, Moller A-B, Daniels J, et al., (2014). Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health, 2(6):e323–e33.

46. Sentilhes, L.; Sénat, M.V.; Boulogne, A.I.; Deneux-Tharaux, C.; Fuchs, F.; Legendre, G.; Le Ray, C.; Lopez, E.; Schmitz, T.; Lejeune-Saada, V. Shoulder dystocia: Guidelines for clinical practice from the French College of Gynecologists and Obstetricians (CNGOF). Eur. J. Obstet. Gynecol. Reprod. Biol. 2016, 203, 156–161.
47. Sinha M, Gupta R, Gupta P, Rani R, Kaur R, Singh R. Uterine rupture: a seven year review at a tertiary care hospital in New Delhi, India. Indian J Community Med. 2016;41:45–49.
48. Toppenberg KS, Block WA (2002). Uterine rupture: what family physicians need to know. Am Fam Physician., 01; 66(5): 823-8.
49. UNICEF. Maternal mortality (2019). Available at: https://data.unicef.org/topic/maternal-health/maternal-mortality/ (updated September 2019).
50. Vandenberghe G, Bloemenkamp K, Berlage S, et al. The International Network of Obstetric Survey Systems study of uterine rupture: a descriptive multi-country population-based study. BJOG. 2019;126:370–381.
51. Veena P, Habeebullah S, Chaturvedula L. A review of 93 cases of ruptured uterus over a period of 2 years in a tertiary care hospital in South India. J Obstet Gynaecol. 2012;32:260–263.
52. WHO. The incidence of low birth weight: an update. Wkly Epidemiol Rec. (1984) 59:205–11.
53. World Health Organizaation. WHO Recommendations on prevention and treatment of postpartum haemorrhage and the WOMAN trial world health organization. World Health Organization (2017). Available at:
https://www.who.int/reproductivehealth/topics/maternal_perinatal/pph-woman-trial/en/
54. World Health Organization. WHO Recommendations for the prevention and treatment of postpartum haemorrhage. World Health Organization (2012).
55. Yoong W, Karavolos S, Damodaram M, Madgwick K, Milestone N, AlHabib A, et al. Observer accuracy and reproducibility of visual estimation of blood loss in obstetrics: how accurate and consistent are health-care professionals? Arch Gynecol Obstet. (2010) 281(2):207–13.