

NEONATAL OUTCOME FOLLOWING MULTI-RISK PREGNANCY
Case report

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RESUME: ***Introduction:** A high risk pregnancy is a condition that puts the mother, the developing fetus or both at higher-than-normal risk for complications during or after the pregnancy and birth. The adverse outcome could be due to inadequate prenatal care, previous obstetrical problems, pre-existing maternal diseases or pregnancy-induced diseases, multiple gestation, etc. The aim of this paper was to present a case that has experienced multi-risk pregnancy and to pose the dilemma whether anything else could be done to prevent the adverse outcome of such newborns by providing better antenatal care and monitoring of the mother's condition during pregnancy. **Material and methods:** the presented case is pregnant woman at the age of 38, G=2, P=1, Ab=1 (second pregnancy, first delivery and one spontaneous abortion). At the moment of the admission to the O&G Clinic (tertiary level of care), the fetus was at gestational age of 33 weeks, and during the previous period the woman had regular antenatal visits at her chosen gynecologist. On admission, obtained data showed unknown last menstrual period, obstetrical risk factors as diabetes, preeclampsia and obesity; as laboratory alterations were considered mild blood coagulation changes and proteinuria; soon after the admission, fetal distress was detected. Following the stabilization of the mother's condition, cesarean section was performed. The newborn was large for gestation age, experiencing birth asphyxia, with slow response to primary resuscitation, severe Respiratory Distress Syndrome, cardiomyopathy and unilateral renal agenesis were confirmed by ultrasound examination. Seventy two hours after the birth, the newborn died. **Conclusions:** The goal of pregnancy management should be: understanding and early detection of the magnitude of high-risk pregnancy, mandatory intensive monitoring than the average pregnant woman before, during, and after pregnancy; emphasizing preventable and avoidable causes, recognizing and utilizing basic diagnostic tools, thus raising the awareness of maternal-fetal medicine.*

Key words: risk pregnancy, newborn, neonatal outcome

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INTRODUCTION

A high risk pregnancy is a condition that puts the mother, the developing fetus or both at higher-than-normal risk for complications during or after the pregnancy and birth. Causes include lack of adequate prenatal care, previous obstetrical history, pre-existing maternal disease or pregnancy-induced disease, and multiple gestation, as well as advanced maternal age.

A pregnancy can be considered as high-risk for a variety of reasons. Factors can be divided into maternal and fetal. Some of these include:

- The mother has medical conditions that began before pregnancy, such as diabetes type 1, high blood pressure, and lot of other chronic diseases.

- The mother develops a medical condition during pregnancy, such as pregnancy-induced hypertension with or without preeclampsia, or gestational diabetes mellitus;
- The mother experienced problems in a previous pregnancy, such as miscarriage(s) or stillbirths;
- Problems are detected in the developing baby;
- Complications occur during pregnancy, such as premature labor, or during the delivery;
- The mother is pregnant with multiples (twins or more).

Diabetes is a medical condition that may be induced by pregnancy or, if pre-persistent, affects the pregnancy. This condition may lead to miscarriages, birth defects, and stillbirths. When a woman monitors her blood sugar carefully and treats high levels with insulin, the risk of these negative outcomes drops a great deal. Unfortunately, pregnancy makes diabetes much harder to control. High blood sugar levels in pregnant women often have specific effects on their infants. Infants born to mothers who have diabetes are generally larger than other babies. In diabetic pregnancies not complicated by vasculopathy, fetal hyperinsulinism and macrosomia are mostly present. They may have large organs, particularly the liver, adrenal glands, and heart. These infants may have episodes of low blood sugar (hypoglycemia) shortly after birth because of increased insulin. Insulin is a substance that moves sugar (glucose) from the blood into body tissues. The infant will need close monitoring of blood sugar levels. Fetal macrosomia is associated with an increased number of operative deliveries and with shoulder dystocia (1, 2). Better control of diabetes and early recognition of gestational diabetes has decreased the number and severity of problems in infants born to mothers with diabetes. Usually, an infant's symptoms go away within a few weeks. However, an enlarged heart may take several months to get better.

Pregnancy-induced hypertension affects at least 10% of all pregnancies. An association with the first pregnancy has been suggested. Although many pregnant women with high blood pressure have healthy babies without problems, it can be dangerous for both, mother and the baby. Women with pre-existing, or chronic, high blood pressure are more likely to have certain complications during pregnancy than those with normal blood pressure. However, some women develop high blood pressure while they are pregnant (often called gestational hypertension, or pregnancy induced hypertension). The effect of the high blood pressure range from mild to severe. High blood pressure can harm the mother's kidneys and other organs, and it can cause low birth weight, premature delivery, or/and stillbirth (3). In the most serious cases, the mother develops preeclampsia-or "toxemia of pregnancy"-which can threaten the lives of both the mother and the fetus. That is a condition that typically starts after the 20th week of pregnancy and is related to increased blood pressure and protein in the mother's urine (as a result of kidney problems). Preeclampsia affects the placenta, and it can affect the mother's kidney, liver, and brain. When preeclampsia causes seizures, the condition is known as eclampsia-the second leading cause of maternal death in the world statistics. There is no proven way to prevent preeclampsia. Most women who develop signs of preeclampsia, however, are closely monitored to lessen or avoid related problems. The way to "cure" preeclampsia is to deliver the baby (4).

High blood pressure problems occur in 6-8% of all pregnancies, and about 70 percent of them are first-time pregnancies.

Although the proportion of pregnancies with gestational hypertension and eclampsia has remained about the same over the past decade, the rate of preeclampsia has increased by nearly one-third. This increase is due in part to a rise in the numbers of older mothers and of multiple births, where preeclampsia occurs more frequently.

Who is at risk for Pregnancy Induced Hypertension (PIH)?

- A first-time pregnant women
- Women whose sisters and mothers had PIH
- Women carrying multiple babies; teenage mothers; and women older than age 40
- Women who had high blood pressure or kidney disease prior to pregnancy

Obesity is an important health problem, with even epidemic proportions. Obesity in pregnancy is responsible for an increased maternal and perinatal morbidity and mortality; there is an elevated risk for hypertensive disorders and gestational diabetes (5, 6). Furthermore, the prevalence of congenital malformations in the offspring is increased in these pregnancies (7).

One another risk factor, threatening both mothers and newborns, is **placental abruption**. This condition refers to separation of the normally located placenta after the 20th week of gestation and prior to birth. It is the most common pathological cause of late pregnancy bleeding. It occurs in 1% of pregnancies worldwide with a fetal mortality rate of 20–40% depending on the degree of separation. Placental abruption is also a significant contributor to maternal mortality. Among the factors which increase the risk for placental abruption are: maternal hypertension, maternal trauma, smoking habit, substance abuse, advanced maternal age, premature ruptured membranes, uterine fibromyomas, amniocentesis, and among potential maternal complications are included: hemorrhagic shock, coagulopathy (disseminated intravascular coagulation-DIC), uterine rupture, renal failure, ischemic necrosis of distal organs (eg. hepatic, adrenal, pituitary). There are some potential fetal complications, as: hypoxia, anemia, growth retardation, CNS anomalies and fetal death.

The background was an introduction to the **purpose** of this paper, to present a case (case report) that has experienced multi-risk pregnancy. The delivery occurred at the Gynecology & Obstetric Clinic in Skopje, Republic of Macedonia. The Clinic is a teaching tertiary level hospital in the country.

CASE REPORT

It was 38 years old woman, G=2, P=1, Ab=1 (second pregnancy, first delivery and one spontaneous abortion). Previously, regular antenatal visits at her chosen gynecologist. The first visit at our clinic was at the 24-th gestational age (by ultrasound examination, unknown last menstrual period; the fetus assessed as fully 33 gestational weeks old).

By antenatal history, some risk factors detected:

- preeclampsia superimposed on chronic hypertension (TA=210/140mmHg, generalized edema, proteinuria, headache);
- Diabetes mellitus (diagnosed at first visit, when the pregnancy was at 8-th gestational age), successfully controlled by insulin therapy;
- Obesity (BMI=35,6 kg/m²)

Laboratory findings of interest:

- mild blood coagulation changes;
- proteinuria of 1,09 g in 24-hour urine collection;
- other laboratory findings didn't show altered renal function, neither changes in liver function tests;

Other findings: Fetal distress (Cardiotocography- Non-stress test imaging); Fetal malposition-transverse (Ultrasound examination);

Further management on the Clinic:

- Urgent hospitalization at the Peripartal Intensive Care Unit;
- Administered antihypertensive and anticonvulsive therapy;
- Urgent Cesarean delivery;
- Intraoperative finding - partial placental abruption;

Cesarean section was performed in general anesthesia, Pfannenstiel incision of the lower abdomen. The type of operation: low transverse (Monroe-Kerr/ Dörrler) incision of the uterus. Extraction of the fetus and the placenta was quickly done and found an abruption about 1/3 of the placenta. Repair of a low transverse uterine incision in a 1-layer fashion (continuous locking stitch) with zero Vicryl suture.

Hospital post-operative management (course and outcome) of the mother: intensive treatment administered (antihypertensive, anticonvulsive, antidiabetic, antibiotics, anticoagulant therapy) and continuous intensive monitoring (blood pressure, blood sugar, fluid balance) until normal parameters achieved. When in stable condition, the mother was transferred to Postnatal ward. No abnormal findings in control laboratory analysis, and fortunately, no postoperative complications. The third postoperative day, the mother left the hospital on her responsibility and demand.

Neonatal parameters:

- Live born male premature baby at the age of 34 gestational weeks;

- Birth weight was 3250 g, and length 49 cm. Gestational age assessment performed by Dubowitz, and estimated that the newborn was Large for gestational age baby (LGA-over 95%);
- Apgar score: 4/6;
- Slow response to primary resuscitation;
- Blood gases in umbilical artery: severe hypoxia and mild metabolic acidosis. pH=6,98; pCO₂=108,5 mmHg; BE= - 6,1mmol/l; HCO₃⁻=25,8 mmol/L;
Neonatal condition afterwards:
- Severe Respiratory Distress Syndrome;
- Generalized cyanosis, not improving by hyper oxygenation test, congenital cardiopathy suspected;
- Generalized edema persistent;
- Because of the need of interdisciplinary management, the baby was transferred to the Children's Clinic after initial treatment at NICU within Gyn&Obs Clinic;
- At the Children Hospital, congenital cardiomyopathy confirmed by ultrasound examination;
- Additional congenital anomaly detected: unilateral renal agenesis;
- Early neonatal death (72 hours after the birth);
- No chance for postmortem examination (autopsy), because of parents' refusal.

DISCUSSION AND CONCLUSIONS

This was a fatal outcome for the baby. The mother's condition was improved. Some questions pertaining to the case have aroused in front of us:

- What could be done to prevent such an outcome?
- Which diagnostic tests are the most important for fetal surveillance in complicated pregnancy (both diabetic and pregnancy induced hypertension)?
- Are other anomalies closely linked to Diabetes in pregnancy?
- Which investigations should have been done for better follow-up of the mother's condition during pregnancy?

Pregnancy is an important event that plays a great role in family stability. A high-risk pregnancy is a pregnancy in which the mother, fetus, or neonate is in jeopardy, and women in this situation require greater attention before, during, and after pregnancy. The most important challenge is early diagnosis; therefore, different authors have proposed several high-risk identification systems. Taking of a thorough history and performing a physical examination of every obstetric patient are the best ways to identify a high-risk patient. Because there are advances in this field for many cases that were formerly considered incurable, the knowledge and skills of the obstetrician should expand to cover the recent modalities in investigation and treatment. Pre-conception counseling is also important. It implies commitment from the physician, obstetrician, neonatologist, non medical personnel, but certainly the woman itself and her environment.

A woman with a high-risk pregnancy will need closer monitoring than the average pregnant woman. Such monitoring may include more frequent visits with the primary caregiver, tests to monitor the medical problem, blood tests to check the levels of medication, serial ultrasound examination, and fetal monitoring. These tests are designed to track the original condition, survey for complications, verify that the fetus is growing adequately, and make decisions regarding whether labor may need to be induced to allow for early delivery of the fetus. Additional tests may help determine the need for changes in medication or additional treatment.

The goal of pregnancy management should be: understanding the magnitude of high-risk pregnancy, its different etiologies, and identification systems, and emphasizing preventable and avoidable causes, recognizing and utilizing basic diagnostic tools, and raising the awareness of maternal-fetal

medicine. All these measures are preconditions for improving the prognosis of high-risk pregnancies and reducing the risks to the newborns as well.

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РЕЗИМЕ

ИСХОД НА НОВОРОДЕНЧЕ ОД МУЛТИРИЗИЧНА ВРЕМЕНОСТ

Присмет на случај

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Вовед: Високо-ризичната бременост е состојба која ги стави мајката, плодот во развој или заедно во нешто повисок ризик од компликации за време или после бременоста и раѓањето. Исполнителниот исход може да се должи на несоодветна антенатална грижа, претходни акушерски проблеми, веќе постојечка болест кај мајката или болест предизвикана од самата бременост, близначка бременост или слично. **Целта** на овој труд беше да се презентира еден случај на мултиризишна бременост и да се постави дилемата/дискусијата дали нешто повеќе можело да се направат за да се спречи несреќниот исход на новороденчето со обезбедување на подобра антенатална грижа и мониторинг на мајката за време на бременоста. **Материјал и методи:** Презентиранiot случај е бремена жена на возраст од 38 години, G=2, P=1, AB=1 (втора бременост, прво раѓање и еден спонтан абортус). Во моментот на присмет, амниотички не се доби датумот на последната менструација; детектирани беа неколку ризик фактори, како дијабет, пре eklampiја и обемитет. Лабораториски отстапувања вклучуваа коагулацијата на крвта и постоење на протеинурија; набрзо после приемот, детектиран беше фетален дистрес. После стабилизација на мајчината состојба, породувашкото беше завршено со цезарски рез. Новороденото дете беше големо за гестациската возраст (макстрорфично), со умерена родина асфиксија и многу бавен одговор на примарна респирација, продолжителен тежок респираторен дистрес. Со ултразвук беше потврдено постоење на кардиомегалија и унилатерална ренална агенезија. После 72 часа од раѓањето новороденчето заврши летално. **Заклучок:** Целта за водештото на бременоста треба да биде разбирање и рана детекција на тежкоста на високоризичната бременост, задолжителен интензивен мониторинг пред, за време и после бременоста, поттипување на прогностичките ризици и оние кои можат да се минимизираат, вклучувајќи ги сите базични и достапни дијагностички методи, за да се подигне свеста за важноста на матернално-феталната медицина.

Клучни зборови: Ризишна бременост, новородено, несреќен исход