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Miscarriage and Maternal Health

John D. Ojule and Rosemary N. Ogu

Abstract

Miscarriage also known as spontaneous abortion is the termination of pregnancy before the age of fetal viability or expulsion of fetus or embryo weighing less than 500g. It occurs naturally without any human intervention and complicates about 15–20% pregnancies globally. The age of fetal viability varies from country to country depending on the level of technological development and fetal salvage rate. The age of fetal viability in Norway is 16 weeks, in Australia its 20 weeks, 24 weeks in the UK, 26 weeks in Spain and Italy while in Nigeria the age of fetal viability is 28 weeks of gestation. Causes of miscarriage include morphologic/genetic/chromosomal abnormalities, immunological and endocrine factors, structural uterine anomalies, cervical incompetence, maternal infections and toxins. It is classified into threatened miscarriage, inevitable miscarriage, incomplete miscarriage, septic miscarriage, missed miscarriage and complete miscarriage. Miscarriage has profound and tremendous psychologic and emotional effects on mothers before or during subsequent gestations. Every effort must be made to show understanding and empathy.

Keywords: pregnancy loss, maternal health, miscarriage, women's health, introduction

1. Introduction

Miscarriage also known as spontaneous abortion is the termination of pregnancy before the age of fetal viability or expulsion of fetus or embryo weighing less than 500g. It occurs naturally without any human intervention and complicates about 15–20% pregnancies globally. The age of fetal viability varies from country to country depending on the level of technological development and fetal salvage rate. The age of fetal viability in Norway is 16 weeks, in Australia its 20 weeks, 24 weeks in the UK, 26 weeks in Spain and Italy while in Nigeria the age of fetal viability is 28 weeks of gestation. Causes of miscarriage include morphologic/genetic/chromosomal abnormalities, immunological and endocrine factors, structural uterine anomalies, cervical incompetence, maternal infections and toxins. Miscarriage can be classified into threatened miscarriage, inevitable miscarriage, incomplete miscarriage, septic miscarriage, missed miscarriage, complete miscarriage and recurrent miscarriage. It profoundly affects the women. This chapter methodology derives from a synthesis of the available literature under the MESH search term miscarriage and focus group discussion of women attending a tertiary health facility in Southern Nigeria.

2. Miscarriage and maternal morbidity

Miscarriage can profoundly affect the health and wellbeing of the mother, either from the complications of the process itself or from the complications

arising from the treatment and management of the condition or both depending on the stage of the pregnancy, the abortion type, the management instituted, the facility, the skill/expertise and quality of the care giver and the mother's pre-pregnancy/pre-miscarriage health condition.

The complications can arise early, during or just after the process or manifest much later following the abortion process, also depending on several factors.

2.1 Early morbidities

2.1.1 Hemorrhage

Genital bleeding during or following miscarriage may be slight especially in early 1st trimester, but can also be severe and torrential with disastrous consequences in the second trimester when there is increased risk of placenta retention. This may occur more commonly in the developing countries like Nigeria where mothers may not present to health facilities for optimal management due to ignorance, illiteracy, poverty, non-availability or poor accessibility to health care facilities especially women in remote areas. Even when they do, they may present late to the health facility, at that further complications including severe anemia, sepsis, shock etc. may have set in, worsening maternal health and making management difficult in resource poor setting.

Management entails controlling the bleeding with use of oxytocics and delivery of the placenta by skilled and experienced care provider either by careful controlled cord traction or piece meal removal with sponge holding forceps and antibiotic therapy.

2.1.2 Anemia

Anemia may occur more commonly from hemorrhage or occasionally from sepsis due to hemolysis or both. Management of anemia in developing countries, especially when severe, may be particularly difficult because of the problems enumerated earlier. Even when mothers access health facility, there may not be blood banking services or when available may not be functioning optimally because of endemic problems of electricity and corruption with its negative multiplier effects in sub-Saharan Africa.

2.1.3 Septic incomplete abortion

Incomplete miscarriage occurs when some of the products of conception have been expelled while some are still retained in the uterus. This may cause bleeding which may range from mild to severe, causing blood loss anemia that may require blood transfusion. When bleeding is severe and not properly managed in time, post abortal pituitary necrosis resulting in Sheehan's syndrome may occur, which later causes infertility which causes infertility later.

When some of the products of conception have been expelled and some retained, as may happen at gestational age 10 and above, this becomes substrate for microbial colonization and eventual infection. This infection may become severe causing systemic effects like fever, vomiting and prostration. Long term complications will include Asherman's syndrome, chronic pelvic inflammatory disease, frozen pelvis and infertility as discussed in late maternal morbidities. Septicemia may occur and if not properly managed may result in multiple organ injury with sequelae.

2.1.4 Post-abortion sepsis

Post abortion sepsis usually results from complete miscarriage managed with inadequate or without prophylactic antibiotics. It may also occur if incomplete miscarriage is evacuated in an unhygienic environment or by unskilled care provider.

Mothers may present days, weeks or even months following miscarriage with varying degrees of abdominal pain, vaginal discharge or subfertility. These can be distressing and negatively affected maternal health. This can lead to loss of man hours in work place, school resulting in economic loss. Marital disharmony may also arise from infertility especially in sub-Saharan Africa where high premium is placed on child bearing. There is also a huge burden on health care delivery occasioned by these health challenges.

2.1.5 Shock

Shock could be hypovolemic or cardiogenic from massive hemorrhage or even septic from Gram negative sepsis with its very high mortality rate.

2.1.6 Organ injury

Though more common with induced abortion, uterine perforation can also occur following curettage or manual vacuum aspiration in the management of incomplete miscarriage. In acute state this can cause acute abdomen and may require hospitalization and even laparotomy. This affects maternal health in the short run and even in the long run depending on the nature and severity of the injury.

Bladder and injury to the intestinal injuries have also been reported. A couple times in the Accident and Emergency department of the University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria, patients have presented with large intestine protruding from the introitus through the uterus following manual vacuum aspiration for incomplete miscarriage done by unskilled health care provider.

More often, these will require laparotomy, repair of uterine perforation, bowel resection and anastomosis.

Bladder injury may even be more devastating when genito-urinary fistula manifest with continuous leakage of urine, with its accompanying morbidities- vulva excoriations/ itching, disgusting and nauseating offensive ammoniacal smell, social stigma, subfertility and sometimes marital disharmony and divorce. The emotional and psychological trauma is unparalleled.

2.2 Late morbidities

Some morbidities may not manifest immediately or early but become apparent months or even years following miscarriage or treatment of miscarriage.

2.2.1 PID/frozen pelvis

Pelvic inflammatory disease may complicate poorly treated incomplete miscarriage. This may subsequently lead to chronic PID especially in resource poor settings where people resort to self-management of the condition using sometimes unorthodox methods. They may present with chronic pelvic pain, dysmenorrhea or even amenorrhea depending on the severity, dyspareunia, chronic vaginal discharge and or low back pain. In some instances they may develop tubo-ovarian mass or abscess resulting in frozen pelvis. All these no doubt will negatively impact maternal health.

2.2.2 Asherman's syndrome/infertility

Oligomenorrhea, amenorrhea and subfertility constitute Asherman's syndrome. This results from scarring occasioned by healing from endometritis or healing from overzealous curettage in management of incomplete miscarriage.

2.3 Psychological/emotional morbidities

Prior miscarriage or even just perception of miscarriage can have profound and tremendous psychologic and emotional effects on mothers before or during subsequent gestations.

Studies have shown that compared to women without prior miscarriage, women with previous history of miscarriage had greater state anxiety in the second and third trimesters. Having a living child did not buffer state anxiety in women with a prior miscarriage. Attention to patterns of distress can contribute to delivery of appropriate support resources to women experiencing pregnancy after miscarriage and may help reduce risk for stress-related outcomes.

Just like other stressful experiences, the effects of miscarriage vary considerably across individuals [1], but for many women, miscarriage can be a tragic, and life-altering experience [2] and results in significant suffering [3, 4]. In the last 20 years, research on the emotional and psychological impact of miscarriage has grown, including studies of women who have experienced miscarriage exclusively and mixed-sample studies of various types of perinatal loss including miscarriage, stillbirth, and neonatal death, establishing an empirical foundation for understanding the vivid experiences of miscarriage. Women who experience miscarriage worry about future pregnancies [4] and may perceive a subsequent pregnancy as especially precious and very desirable [5]. Pregnancy after miscarriage can be experienced as emotionally and psychologically distressing [4, 6]. According to descriptive studies of pregnancy following miscarriage, for some women the subsequent pregnancy is perceived as threatening [7] and involves tremendous vulnerability and anxiety related to uncertainty about its outcome [8].

Researchers who included comparison groups of mothers without a prior history of miscarriage have found that women with a history of miscarriage, experience significantly higher state anxiety, pregnancy-specific anxiety, worry, depression, and less attachment to the subsequent pregnancy than women without prior miscarriage [9, 10].

The most prevalent finding is that pregnancy-specific anxiety is higher in those with prior loss [10, 11], but more generalized distress does not differ significantly between the groups [10, 12] of perinatal loss. It has been demonstrated that pregnancy anxiety decreased significantly over the course of pregnancy [7]. focus group discussion with parturients attending antenatal care in Port Harcourt, Nigeria, revealed similar findings. The psychosomatic stress experienced by women who have had a prior miscarriage is better imagined than experienced. The feeling of being responsible for the loss coupled with the premium placed on childbirth leads to profound anxiety, sadness and depression. Understanding and empathy from healthcare providers and family members aided the recovery process.

3. Conclusion

Miscarriage or even just perception of miscarriage can have profound and tremendous psychologic and emotional effects on mothers before or during subsequent gestations. The associated early and long term complications are devastating for women. Every effort must be made to show understanding and empathy.

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