

## Evaluation of Etiological Factors for Late Pregnancy Bleeding in Tertiary Care Centre

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### Abstract

*Aims and Objectives:* 1. To study prevalence of various etiological factors involved in late pregnancy haemorrhage.

2. To find out relative frequency of various causes of bleeding during late pregnancy.

*Materials and Methods:* 1. This is observational retrospective study performed within span of 1 year (August 2014 to July 2015) in Department of Obstetrics and Gynaecology in ACPM Medical college, Dhule.

2. Total number of 200 women with bleeding per vaginam during pregnancy were enrolled in the study.

The patients who presented with vaginal bleeding were divided into:

1. Early pregnancy bleeding < 20 weeks
2. Late pregnancy bleeding > 20 weeks

In this article, since the demographic profile, etiology, risk factors involved, maternal & perinatal morbidities and mortalities associated with early and late pregnancy group are drastically different, so the cases in this study are divided into two groups- EARLY (< 20 weeks) & LATE (>20 weeks), and late pregnancy group studied separately in terms of all variables.

*Results:* In this study, 66% patients presented with early pregnancy bleeding and 34% with late pregnancy bleeding. Late pregnancy bleeding due to abruption was 59%, 29.32% was due to placenta previa, 1.47% was due to vasa previa, 2.9% due to uterine rupture, 2.9% due to abnormal placentation and rest 4.41% constitutes causes due to distal genital tract/gynaecological bleeding.

*Conclusion:* When pregnant women have bleeding, it may cause stress and anxiety for the mother-to-be about the outcome of pregnancy. So, it is necessary to diagnose and manage obstetric hemorrhage to prevent maternal or fetal mortalities and morbidities.

**Keywords:** Hemorrhage; Abruptio Placentae; Placenta Previa; Etiological Factors.

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### Introduction

“The patient is the centre of medicine universe around which all our works resolve and towards which all our efforts tread.” - J. B. Murphy (1857 – 1916)  
Maternal mortality is one of the indices of health care

in our country. It is estimated that globally, every minute a mother dies due to complications of pregnancy or labour [1]. Obstetric haemorrhage is one of the leading causes of maternal mortality and accounts for 25% of maternal deaths. It is also the most preventable cause of maternal mortality. Prompt

diagnosis, resuscitation and management are essential to save the mother and fetus [2].

Vaginal bleeding after midpregnancy is associated with maternal and fetal risks. Maternal morbidity may be caused by acute hemorrhage and operative delivery, and the fetus may be compromised by utero-placental insufficiency and premature birth [3].

### Antepartum Haemorrhage (APH)

Antepartum haemorrhage is defined as bleeding from the genital tract after the 20th week of pregnancy and before the onset of labour Occurs in approximately 2-5% of pregnancies.

#### Causes

- Placenta praevia
- Abruptio placentae
- Distal genital tract / gynaecological bleeding
- Unclassified bleeding
- Abnormal placentation
- Abnormal placental shape
- Vasa praevia [5]
- *Causes of Distal genital tract / gynaecological bleeding are:*
  - Cervical
- Heavy show / onset of labour
- Carcinoma
- Polyps
- Ectropion / inflammation
- Cervical malignancy
- Vaginal
- Tumours e.g. condylomata
- Inflammation
- Trauma \* consider domestic violence
- Vulva
- Varicosities
- Trauma \* consider domestic violence
- Tumour
- Inflammation
- Non-genital tract
- Haematuria
- Rectal[6].

### ● *Placenta Praevia*

Placenta is inserted wholly or partially in the lower uterine segment (RCOG 2011). Placenta previa is a placental implantation that overlies or is within 2 cm (0.8 inches) of the internal cervical os [7]. When the edge is 2 to 3.5 cm (1.4 inches) from the os, the placenta may be described as low lying [8].

#### *Risk Factors*

- Large placental area e.g. multiple pregnancy
- Advanced age
- High parity
- Deficient endometrium due to pre-existent
- Uterine scar (previous caesarean section)
- Endometritis
- Manual removal of placenta
- Curettage (especially for miscarriage or termination of pregnancy)
- Ubmucous fibroid
- Placenta praevia with an anterior placenta and previous caesarean section significantly increases the risk of placenta accrete
- Perinatal mortality and morbidity are proportional to how much of the placenta is placed centrally over the internal cervical os, i.e. how much of the placenta is adherent to the lower uterine segment
- 16 % of cases of placenta praevia are associated with IUGR (especially in case of multiple episodes of bleeding) [5].

### ● *Abruptioplacenta*

It refers to bleeding due to the untimely separation of a normally sited placenta from its attachment to the uterus before delivery. It may be described as-Concealed, Revealed and Mixed [9]. Abruptio is the most common cause of serious vaginal bleeding, occurring in 1 percent of pregnancies. Neonatal death occurs in 10 to 30 percent of cases [10]. Approximately 50 percent of placental abruptions occur before 36 weeks' gestation, resulting in adverse outcomes secondary to prematurity [11]. The incidence of abruption increased between 1979 and 2001, possibly as a result of rising rates of hypertension and stimulant abuse and increased diagnosis by ultrasonography [12]. While the exact causes of placental abruption are unknown, some factors have been associated with their occurrence.

*These factors include*

- Grand multiparity
- Pregnancy induced hypertension or pre-eclampsia
- Chronic hypertension
- Premature rupture of membranes
- Pregestational diabetes
- Substance abuse, particularly cocaine use
- Hydramnios
- Blunt force trauma
- Smoking
- Uterine fibroids
- Multiple gestation
- Extremes of maternal age
- Vascular abnormalities in the placental bed
- History of placental abruption
- Uterine anomalies
- Thrombophilias
- Sudden decompression of the uterus
- Circumvallate placenta [13]

#### ● *Abnormal Placentation*

Normal placental implantation involves invasion of the trophoblasts into the decidual layer lining the endometrial cavity as well as into some of the uterine vasculature. Abnormal placentation is where the trophoblasts continue to invade into the myometrial layers.

Types – placenta accreta, placenta increta, placenta percreta [14].

#### ● *Abnormal Placental Shape*

- *Circumvallate Placenta:* Abnormality of placental shape resulting from chorioamniotic membrane insertion toward the centre rather than the edge of the placenta. It is associated with increased risk for placental abruption, preterm birth, preterm rupture of the membranes [14].
- *Circummarginate Placenta:* When no plication of the membranes occurs, it is called a circummarginate placenta.

- *Bilobed Placenta:* Two roughly equal sized placental lobes are separated by a segment of membranes and the umbilical cord may insert in either of the lobes, or more commonly, in a velamentous fashion, in between the lobes.
- *Succenturiate Lobe:* The presence of one or more small lobes of placental tissue located in the membrane at a distance to the main placenta. The umbilical cord most commonly inserts into the dominant lobe. A placental artery and vein extend from and within the membrane of the main placenta to each lobe then divide into smaller vessels supplying individual cotyledons. Complications associated with multilobed placentas include fetal compromise, antenatal bleeding, postpartum haemorrhage, placenta praevia and risk of infection in cases of retained placental tissue [15].

#### ● *Vasa Praevia*

Vasa praevia describes fetal vessels coursing through the membranes over the internal cervical os and below the fetal presenting part, unprotected by placental tissue or the umbilical cord. Even in the absence of bleeding, vessel compression may result in compromise of the fetal circulation [16].

*Risk factors-*

- In vitro fertilization
- Low lying and second trimester placenta praevia
- Marginal cord insertion
- Multiple gestation
- Succenturiate-lobed and bilobed placentas [17]

The history, a physical examination, ultrasonography for placental location, and a brief period of observation usually differentiate minor from serious causes of vaginal bleeding [3].

Evaluation with a sterile speculum may be performed safely before ultrasonographic evaluation of placental location; however, digital examination should not be performed unless ultrasonography excludes a placenta praevia [5].

#### **Aims and Objectives**

1. To study prevalence of various risk factors involved in late pregnancy haemorrhage.
2. To find out relative frequency of various causes of bleeding during late pregnancy.

### Materials and Methods

1. This is observational prospective study performed within span of 1 years (August 2014 to September 2015) in the Department of Obstetrics and Gynaecology in ACPM Medical college, Dhule.
2. Total number of 200 women with bleeding per vaginal during pregnancy, irrespective of gestational age were enrolled in the study.

The patients who presented with vaginal bleeding were divided into:

1. Early pregnancy bleeding < 20 weeks
2. Late pregnancy bleeding > 20 weeks

#### Inclusion Criteria

- Women carrying a singleton gestation.

- Planned to deliver at the study site.
- Women intended to carry pregnancy to term.

#### Exclusion Criteria

- Women carrying multiple gestation.
- Women using assisted reproductive technologies to conceive.
- Women not intending to carry pregnancy to term.

### Result

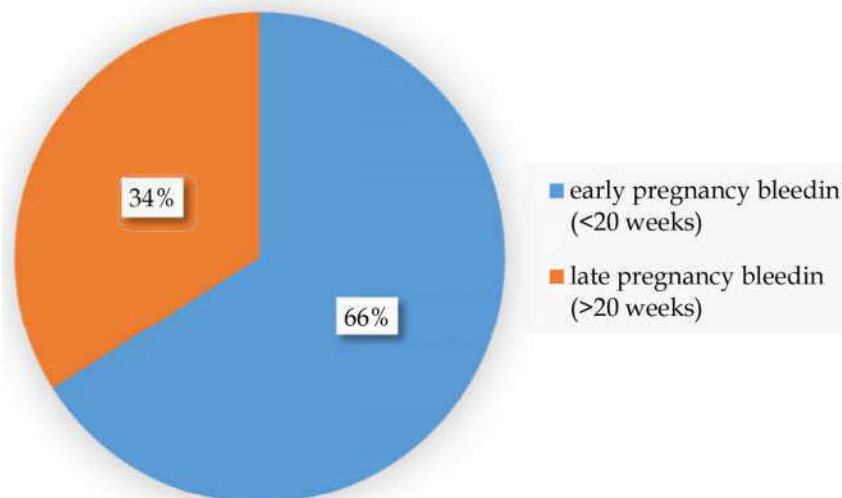
Since the demographic profile, etiology, risk factors involved, maternal & perinatal morbidities and mortalities associated with early and late pregnancy group are drastically different, so the cases in this study are divided into two groups- EARLY (< 20 weeks) & LATE (>20 weeks), and late pregnancy group studied separately in terms of all variables.

**Table 1:** Incidence of pregnancy affected by vaginal bleeding

Total ANC Admission	No. of Cases with ANC Bleeding	Incidence	
		%	Per 1000
1126	200	17.8	178

**Table 2:** Incidence of vaginal bleeding

	No. of Cases (%)	%	Incidence Per 100
Early Pregnancy (<20 Years)	132 (66%)	11.7	117
Late Pregnancy (>20 Years)	68 (34%)	6	60



**Table 3:** Distribution of cases according to age of patient

Age (Years)	No (n 68)	%
<20 Years	6	8.8
21-25 Years	10	14.7
26-30 Years	15	22.0
31-35 Years	24	35.3
>35 Years	13	19.1

Maximum number of cases were concentrated in 31- 35 years of age.

**Table 4:** Distribution of cases according to gravidity

Gravida	No.	%
Primi	21	30.9
Multi	47	69.1

Maximum number of cases were multigravida.

**Table 5:** ANC care of late pregnancy bleeding

Cases Distribution	No. (n=68)	%
Abruptio Placentae	40	59
Placenta Previa	20	29.32
Uterine Rupture	2	2.9
Vasa Previa	1	1.47
Abnormal Placentation	2	2.9
Distal Genital tract bleeding	3	4.41

Majority of cases were unbooked and booking status was minimal with late bleeding group.

**Table 6:** Cases distribution

Cases Distribution	No. (n=68)	%
Abruptio Placentae	40	59
Placenta Previa	20	29.32
Uterine Rupture	2	2.9
Vasa Previa	1	1.47
Abnormal Placentation	2	2.9
Distal Genital tract bleeding	3	4.41

**Table 7:** Risk factors detected for late pregnancy bleeding

Risk factors	No. of Cases	%
Prior LSCS	24	35.2
Medical Illness	11	16.2
Prior Preterm Birth	8	11.8
Smoking	3	4.4
Prior miscarriage	12	17.6
None	10	14.7

## Discussion

Vaginal bleeding at any stage of pregnancy is an alarming event, generating significant concern in both the patients and doctors. It can be potentially life threatening situation. It is important to identify risk factors early in prenatal period, so that appropriate measures can be taken to ensure the wellbeing of mother and child [18].

Women with a history of cesarean delivery who present with placenta previa or a placenta located at the site of the previous incision should be evaluated for potential placenta accreta with color-flow Doppler by an experienced sonographer [19]. Magnetic resonance imaging of the pelvis may help confirm the diagnosis of an invasive placenta and delineate organ involvement in women with a placenta percreta

[20]. The incidence of placental abruption may be decreased by cessation of tobacco, cocaine, or amphetamine use, and appropriate care for hypertensive disorders of pregnancy [21]. There are no strategies for primary prevention of vasa previa; however, hemorrhage theoretically is preventable with antenatal screening for women at high risk and cesarean delivery at 37 to 38 weeks when vasa previa is present. Screening is carried out with transvaginal color-flow Doppler to identify the presence of vessels in the fetal membranes [22].

Effective management of vaginal bleeding in late pregnancy requires recognition of potentially serious conditions, including placenta previa, placental abruption, and vasa previa. Significant vaginal bleeding from any cause is managed with rapid assessment of maternal and fetal status, fluid resuscitation, replacement of blood products when

necessary, and an appropriately timed delivery. Vaginal bleeding after midpregnancy is associated with maternal and fetal risks. Maternal morbidity may be caused by acute hemorrhage and operative delivery, and the fetus may be compromised by uteroplacental insufficiency and premature birth. Optimal management of late pregnancy bleeding depends on accurate identification of the cause and a timely intervention specific to its severity [3].

Haemorrhage during later half of pregnancy is dangerous arising mainly from placental complications. It often occurs without warning and within no time, a gravida may become exsanguinated to the point of death. Antepartum haemorrhage continues to be a major cause of maternal and perinatal morbidity and mortality even in modern day obstetrics. It is one of the most frequent emergencies in obstetrics occurring at a prevalence of 0.5- 5%.

Maternal complications of APH are malpresentation, premature labour, postpartum hemorrhage, shock, retained placenta. It also includes higher rates of caesarean sections, peripartum hysterectomies, coagulation failure and even death. Fetal complications are premature delivery, low birth weight, intrauterine death, congenital malformations and birth asphyxia. The overall incidence of bleeding during pregnancy reporting to our hospital is 17.8%. The incidence in late pregnancy bleeding group was 6%.

Many studies in recent times reported a lower incidence than this (for late pregnancy bleeding, Arora et al 2001 - 2.53%) [23], probably because many episodes, particularly of lesser severity may not be reported or if reported, they were not documented in the patients record.

Distribution of various cases of bleeding during pregnancy reporting to our hospital shows the predominance of antepartum haemorrhage accounting for 31.5% of the cases, with an overall incidence of 5.6%; which corroborates by Fouzia et. al. 2010 [24]. The high incidence of late pregnancy bleeding, reported in this study, may be because of large number of referred cases to this tertiary care centre, but still this may be an underestimate of actual figure as many such patients fail to reach hospital in time or a multitude of cases do not report to any hospital at all. In late pregnancy bleeding group, maximum number of cases (35%) presented in age group of 31- 35 years with a mean of 33 years while Fouzia et. al. 2010 [24] reported a mean of 30 years, Savita et. al. 2008 [25] and Das et. al. 1975 [36] (26.8 years each).

Other studies reporting such higher incidence of late pregnancy bleeding multipara (around 5-8 times

than that in primi) are- Gilliam et. al. 2002 [27], William et. al. 1993 [28], Ananth et. al. 1996 [29].

Higher order parity was once again proved to be positive risk factor in late pregnancy bleeding group (69.1% in multipara in present study, 92.3% in Fouzia et. al. 2010 [24], 63.01% in Savita et. al. 2008 [25]).

Abruptio placentae accounted for majority of cases in the late group (40%) against placenta previa (29.31%) and rest all other causes of late pregnancy bleeding (11.7%). This is similar as reported by Kedar k et. al. [30] while the study done by Dr. Archana Maurya [31] reported 27% of bleeding due to abruptio placentae and 71% of bleeding due to placenta previa.

## Conclusion

Even with best obstetric care, due to dramatic suddenness, pregnant woman can become exsanguinated due to obstetric hemorrhage. Late pregnancy bleeding is associated with diverse causes and management. It is important predictor of adverse obstetric outcome. Placental abruption and placenta previa were the two most common causes of late pregnancy bleeding.

Many questions need to be explored including optimal timing of delivery, use of corticosteroids, the benefits of tocolytics with bleeding for women with late APH. Complicated cases of antenatal bleeding should be managed with teamwork of obstetrician, physician, anaesthetist and neonatologist. Better antenatal services, increased awareness, improved transportation and improved nutritional status can help to address some of the complications associated with late pregnancy bleeding.

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