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Placenta Previa; Review Article

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ABSTRACT
In placenta previa, the placenta totally or partially covers the internal os of the cervix. It forms a major risk factor for postpartum hemorrhage and can lead to morbidity and mortality of the mother and newborn. Given the situation, it is necessary to deliver the baby via caesarean section to ensure its safety. Even though most cases are diagnosed with sonography, some pregnant women may present to the emergency hospital in the second or third trimester with painless vaginal bleeding. In the presence of placenta previa, a woman's risk of having placenta accreta spectrum may also increase (PAS).This spectrum of conditions include placenta accreta, increta, and percreta. Uncontrolled postpartum hemorrhage caused by placenta previa or PAS may necessitate blood transfusions, hysterectomy leading to infertility, or intensive care unit admission (ICU), or possibly lead to death.
Keywords: Placenta

INTRODUCTION

Placenta previa is a pregnancy issue caused by an aberrant placentation that is close to or covers the internal cervical os, and it typically manifests when third-trimester vaginal bleeding is painless. However, because of technological advancements, the detection of placenta previa with ultrasonography often diagnosed earlier in the course of pregnancy. Placenta Previa often comes in three distinct forms: entire, partial, and marginal [(1)].

Classification:

Placenta previa is categorized as "complete," "partial," or "marginal" depending on how much of the placenta could be felt through the cervix. The introduction of conservative care with blood transfusion created a need for a more precise diagnosis by locating the placenta utilizing imaging techniques.

To diagnose placenta previa, Transvaginal sonography (TVS) is now the standard in the field (transabdominal ultrasound should be reserved for screening of patients with suspected placenta previa). Using the location of the placenta's edge by TVS in relation to the internal cervical os,it is referred to as "marginal," "partial," and "low-lying.", which is safe even when there is bleeding.

To decide whether a Cesarean Section (CS) is necessary and to treat antepartum hemorrhage, the precise distance between the previa and the cervix must be known. The majority of current research have issues with the possibility that CS might make an unnecessary judgement because to assessment rather than concentrating on clinical features, of the distance alone.

A new classification based on TVS data of placenta previa (performed within 28 days of term) might be:

(1) > 20 mm from internal os: No CS needed.

(2) 11 to 20 mm: Lower chance of bleeding and need for CS{grey zone}.

(3) 0 to 10 mm: Greater likelihood of bleeding and need for CS.

(4) Overlap of the internal os by any distance: CS is indicated.

When circumstances like an unstable lying or considerable haemorrhage are present, the solely calculated distance between the placental edge and the os should not take the role of clinical judgement. Better predictions the possibility of bleeding prior to and during a successful vaginal birth, as well as labour can be made with more information. selecting women who would be qualified to participate in a labour trial, determining the risks of outpatient therapy, and checking for placenta accreta when placenta previa are present are all advantages of diagnosis by TVS. TVS should be routinely utilised whenever there is uncertainty regarding the precise placental position to determine the likelihood of haemorrhage [(2)].

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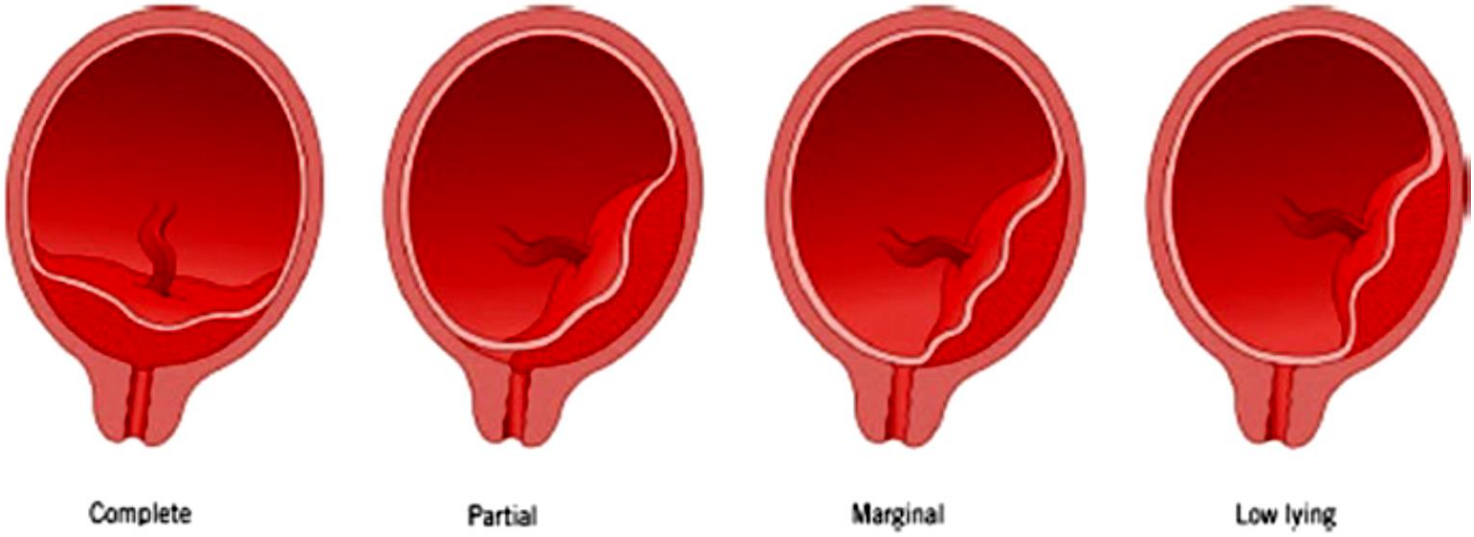

Figure (1): Traditional classification of placenta previa. Complete type totally overlies the internal os. Partial type only partially overlies a dilated cervix but does not overlie the cervix with increasing dilation. Marginal type just reaches the internal os. Low-lying type is in the lower segment but does not reach the internal os (generally considered to be within 5 cm of the internal os). [(2)].

Incidence:

0.4% of deliveries are complicated by a placenta previa. [(3)]. Croatia and Israel have both reported placenta previa rates of 0.4% [(4)].

However, the stated incidence is influenced by the placenta previa definition, the gestational age of diagnosis, and the diagnostic accuracy [(5)].

For instance, **O'Brien** [(6)] **certain** studies included low-lying placenta cases, whereas others did not. Because transabdominal US has a high risk of false-positive results, transvaginal US (TVUS) is resulting in a substantially lower incidence of placenta previa. Mid-trimester is when the incidence is highest. At 20 weeks, 90% of placenta previa instances are resolved by term. As a result, placenta previa is more common the sooner patients are delivered. The incidence of placenta previa would have decreased if the earlier pregnancies had been permitted to carry on to term in more instances.

Pathophysiology: A disorder known as placenta previa causes abnormal implantation (i.e. into the lower uterine segment rather than the corpus or fundal region).Despite without knowing the exact etiology, it is assumed that endometrial scarring causes the condition because it seems to occur more commonly in women who are older, multiparous, and have had prior caesarean sections or uterine curettages. This may result in aberrant endometrial tissue, poor vascularization, a thinner myometrium, and an unfavorable position for implantation, according to theory. It is likely that the embryo is drawn to healthier tissue, in this case the lower uterine segment's intact endometrium [(7)].

Etiology:

The cause of placenta praevia itself is still largely unknown and can simply be a natural accident. A variety of risk factors raise the possibility of having placenta praevia [(1)].

Risk factors:

Table 1 lists the risk factors for placenta previa. (I) [(1)].

Risk factors for placenta previa [1]:

- Previous or recurrent abortions.
- Previous uterine surgery, uterine insult, or injury.
- Non- white ethnicity.
- Low socioeconomic status.
- Smoking.
- Infertility treatment.
- Multiparity (5% in grand multiparous patients).
- Multiple gestation.
- Short interpregnancy interval.
- Previous caesarean delivery, including first subsequent pregnancy following a caesarean delivery.
- Advancing material age (>35)
- Previous placenta age (>4-8%)
- Cocaine use.

Prior cesarean delivery:

The uterine cavity being surgically disturbed could be a potential source of placenta previa. The most frequent surgical treatment used in obstetrics and gynecology is a caesarean delivery, which is known to permanently harm the myometrium and endometrium. The uterus was damaged and scarred during the caesarean operation, which is the cause. The placenta will implant poorly as a result of this. Although not significant, It's possible that something other than a lower segment caesarean section caused the harm. The placenta's affinity to and adhesion to the scar from the caesarean section is the other reason [8].

The lower uterine segment's physiological development may be slowed down by the uterus's scarring. As the pregnancies develop, these obstruct the uppermost section of the placental migration. Uterine evacuation history may function similarly to a previous uterine scar [9]. Manual placenta removal has been recognized as a risk factor for placenta previa. This also affects the uterus by leaving scarring [10].

Early in the 1950s, the first finding was made that linked a previous caesarean birth to a higher incidence of placenta previa. In England, 25% of births made by the National Health Service (NHS) in 2010 had caesarean sections, and rates for both emergency and primary CS have been expanding. The risk of placenta previa in a pregnancy after a CS delivery has been documented. is between 1.5 to 6 times higher than after a vaginal delivery. An overall odds ratio of 2.7 was discovered in a meta-analysis of papers from before 2000 that looked at prior CS as a potential placenta previa risk factor. However, studies with superior confounder adjustment had a lower overall odds ratio [11].

In England, having a caesarean section after the first delivery raised a woman's likelihood of having a placenta previa by 60% with the delivery that follows. There was no evidence that CS affected placenta previa rates was affected by the interval between pregnancies or by various groups of women [12].

Prior abortion:

According to some theories, surgical abortion techniques including sharp curettage (SC), dilation, and vacuum aspiration (VA) (D&C) may leave the uterus scarred and atrophied, making it difficult for the placenta to develop normally in subsequent pregnancies. According to reports, women who have had a past induced abortion or several abortions a 1.3–2.7 times higher chance of developing PP [13].

Multiple induced abortions, especially those carried out by dilation and curettage (D&C), have been linked to an elevated risk of PP. As a result, pregnancies in women with a history of several such procedures may require closer monitoring to help prevent any negative side effects that may come along with this disease. The implications of these findings may be more important for countries that continue to frequently carry out induced abortions using the D&C technique (such as parts of Africa and Southeast Asia), particularly if there is a lack of resources to treat complications related to PP or post-abortion infections. It's crucial to remember that just 3% of foreign abortions are carried out in the US [14].

Maternal age:

Sheiner *et al.* [9] revealed that women over the age of 40 had a 3.1 odds ratio for placenta previa in a case-control study. Even though parity increases with age, this link persists when parity is taken into account.

Multiple pregnancies:

Due to the larger placental mass encroaching over the lower uterine section Placenta previa is more likely to occur in multiple pregnancies [15].

Prior placenta previa:

Placenta praevia mothers are ten times as likely to experience it again in a later pregnancy. This is believed to be connected to poor decidual vascularization. [16].

Complications:

0.5% of all pregnancies are complicated by a previa placenta. Identification of placenta previa early has grown thanks to technological developments in ultrasonography, although some Studies have shown that many of these early diagnoses disappear before delivery.

In fact, an early ultrasound revealed that 90% of placentas were "low lying." are never detected again during a recap scan in the third trimester. However, placenta previa problems in both the mother and the fetus are frequently recorded. There is a list of placenta previa complications in table (1) [1].

Table (1): Complications of placenta previa [1].

Neonate	Maternal
♦ Increased risk for infant. ♦ Low birth weight (<2500). ♦ Jaundice. ♦ Abnormal fetal presentation. ♦Neonatal respiratory distress syndrome. dueto preterm. ♦Admission to the neonatal intensive care unit (NICU). ♦ Longer hospital stay. ♦Fetal intrauterine growth retardation (IUGR). ♦Fetal anemia and Rh isoimmunization. ♦Neonatal mortality rate: as high as 1.2% in united states. ♦Neurodevelopmental delay and sudden infant death syndrome.	♦ Placental abruption. ♦ Preterm delivery. ♦ Higher rates of blood transfusion. ♦Increased incidence of postpartum endometritis. ♦Hemorrhage, including rebleeding (planning delivery and control of hemorrhage is critical in cases of placenta previa as well as placenta accreta, increta, and percreta). ♦Mortality rate (2-3%) in US,the maternal mortality rate is 0.03%,the great majority of which is related to uterine bleeding and complication of disseminated intravascular coagulopathy.

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