Study of Prevalence of Placenta Previa and Circumstances among Pregnant Women in Fallujah Hospital

Eman Gadban Saleh[1], Yousra Abdulaziz Mohammed[2], Mahmood Nezar Mustafa[3], Zahraa Mohammed[4]

[1]PhD. M.D. Lecturer, [2] Lecturer, [3] M.D. Lecturer, College of Medicine, University of Fallujah,
[4]M.D. Resident AL- Fallujah Teaching Hospital, AL Fallujah, Iraq

Abstract

Placenta previa refers to placenta which is totally or partly implanted in lower segment of the uterus. Mortality and morbidity of mother increase with placenta previa due to the increase in the incidence of bleeding during pregnancy. This study aims to define placenta previa prevalence among pregnant women at AL-Fallujah teaching hospital and to determine the risk factors and their association with placenta previa incidence in al-Fallujah city population.

This retrospective cohort study investigated medical registry of 6339 gravid women in al-Fallujah teaching Hospital in Iraq. We find 13 cases of placenta previa (0.21%) amongst the 6339 cases registered. The risk factors that strongly appeared to affect the complication of pregnancy with placenta previa were; advanced maternal age of ≥ 35, parity, previous curettage and previous cesarean section (P<0.01).

The most important pregnancy outcomes of the placenta previa were lost blood of mother more than five hundred cubic centimeter (P = 0.000) and Apgar score of the baby at first minute equal or less than 7 (P = 0.003), Placenta accretta and cesarean hysterectomy (P< 0.01).

These findings are the same as those recorded in other research for Asian, American and European gravid women, with some other detected factors.

Keywords: *Prevalence, Placenta previa, Risk factors, maternal age, Parity, Previous curettage, previous cesarean section*

Introduction

Placenta previa refers to placenta which is totally or partly implanted in lower segment of the uterus. Around 1/3 of the ante partum bleeding is due to placenta previa. The classical features of placenta previa are usually bleeding which could be abrupt starting, recurrent, no pain, apparently no cause [1]. Mortality and morbidity of mother will increase with placenta previa, this is due to raise in the incidence of bleeding during pregnancy, hemorrhagic shock with its sequel as circulatory hypovolemia , anemia, with long staying in hospital. Placenta previa also can be a cause of increasing in the incidence of operative interference, postpartum bleeding and sepsis[1] .

Other risks associated with placenta previa are: around four fold increases in the risk of 2nd trimester vaginal hemorrhage, peripartum hysterectomy, transfusion of blood, and accreta placentae [2].

Placenta previa can be a cause of preterm delivery which is associated with higher incidence of perinatal morbidity and mortality. Preterm delivery is associated with many complications as neonatal sepsis, asphyxia at birth and birth weight less than 10th centile for gestational age. Placenta previa incidence is about 1 in 300 deliveries [1, 3]. Maternal age is related to the risk of placenta previa , women who are 19 years old or less its incidence around 1 in 1500 and for women aged 35 years or more it is 1 in 100 [4]. Multiparty, previous cesarean scar increase the possibility of placenta previa [5]. Incidence

Corresponding author:
Eman Gadban Saleh,
College of Medicine, University of Fallujah
Email: emanghadbansaleh@uofallujah.edu.iq

increases from 1.9% with 2 prior cesareans to 4.1% with 3 or more [6]. "Quick and accurate localization can be accomplished using standard sonographic techniques (American Institute of Ultrasound in Medicine, 2013). This is usually done with transabdominal sonography. If the placenta clearly overlies the cervix or if it lies away from the lower uterine segment, the examination has excellent sensitivity and negative-predictive value, if placental location remains in question, then transvaginal sonography is the most accurate method of assessment It is safe, even when there is bleeding"[1].

It is well known that placenta praevia has correlation with mortality and morbidity of mother as well as neonate so needs particular treatment planning which include limitation of physical performance, capability to get prompt medical care, control uterine contraction, prohibition infection and bleeding, timing caesarian operation and postpartum care [7]. Even with expectant management of placenta previa preterm labor is the main reason for perinatal death [8]. Few of investigators proposed that congenital anomalies are increasing with previa, but this was first confirmed by crane and coworkers [4]. Fetal malformation were increased 2.5 fold, causes for this are unclear [9, 10]. There are many factors on which depend management of placenta previa including presentation, gestational age and the type of placenta previa [11]. If the mother's life is not threatened, expectant management can be taken and will improve the outcome [12]. Placenta accrete which is abnormal placenta adherence is a common term utilized , by definition it is the degree of invasion of placental villi into uterine myometrium; it is an obstetric challenge and now considered as the leading reason for postpartum bleeding and indication for a cesarean hysterectomy [1]. Usually, accreta refer to superficial invasion of myometrium by placental villi , increta refer to deep invasion of myometrium while percreta refer to invasion of myometrium reaching the uterine serosa and more invasion, more risks for hemorrhage and morbidity of mother[3]. Predisposing factors for placenta accreta could be uterine curettage, surgery by hysteroscope, myomectomy ablation of endometrium, and embolization of uterine artery [3], but a previous cesarean operation consider the most remarkable risk factor for the occurrence of placenta accreta [5] and the continual increase in the cesarean operation rates throughout the world insures that accretas will stay a bothersome clinical matter. The risk for accreta occurrence is significantly increased if gravid woman has a history of a prior Cesarean operation and the placenta previa at same time [5].

Methods

Ethical approval was taken from AL Fallujah teaching hospital, a retrospective rehearsal was done for in-patient medical register of gravid women with singleton pregnancy (running state respectively) who were gestational age 28 week and delivered at AL-Falluja Hospital was studied. Last menstrual period (LMP) was used for estimation of the gestational age or dating US (ultrasound) for women with unknown or uncertain LMP. The cases which were excluded include multiple pregnancies, uncertain gestational age which is not approved by US dating and women with incomplete medical record. Location of placenta was determined before the delivery by US during the 3rd trimester at 28 weeks' gestation /or during the operation, visualization of placenta previa during cesarean delivery, including 2 types of placenta previa which are placenta covers the internal osseous partially or completely (previously, these were classified as total centralis or partial centralis) and low-lying placenta which refer to implantation in the lower uterine segment (placental edge does not cover the internal osseous but lies within a two centimeters wide perimeter around the osseous)[1]. We reviewed prenatal record of all pregnant women in our sample population, their labor and delivery visits in order to extract the maternal medical and obstetric complications and demographic features, as well as factors related to placenta previa. The variables which are evaluated including age of the mother at time of delivery, parity, prior cesarean operation, uterine curettage, obstetric complications, underlying disease, weeks of pregnancy at birth, Apgar score and gender of newborn. We performed Statistical analysis using the IBM SPSS statistics 26.Inc for Windows. At first a descriptive statistics for each variable was done which included frequencies for categorical variables and average value with standard deviation for continuous variables. Chi-Square Test of Independence (also called Chi-Square Test of Association) which determines whether there is an association between categorical variables (i.e., whether the variables are independent or related) was used to compare cases with and without placenta previa. *P* value of 0.01 or less was considered highly statistically significant in this study.

Results

Data used for this study was medical records of

6339 pregnant women collected between October 2018 and March 2019 from AL-Fallujah teaching hospital. It was found that placenta previa affected 13 (0.21%) of the 6339 pregnancy cases analyzed in this study. It was noticed that the placenta previa prevalence is higher among women whom age was more than 35 years or were multiparous, or had a previous cesarean labor, or had previous obstetrical complications. Table 1shows the main characteristics of the study population. At delivery the mean maternal age was 26.5 ± 6.65 years old, while nearly half of the study population was nulliparous (52.6%), on the other hand the percentage of delivery after 37 weeks of gestation was the predominant and comprises (88.1%). For the methods of labor, 62.7% were normal vertex labor, 24.5% for emergency cesarean operation, 10.1% for elective cesarean section and 2.7% for vaginal breech assisting mode. The baby mean weight at birth was 3,049.9 ± 496.1 grams. Table 2 indicates the factors that are related to placenta previa. Major differences were noted among pregnancies with and without placenta previa for the following factors maternal age, parity, previous curettage and previous cesarean operation where these factors showed strong association (*P* value <0.01) with placenta previa.

Table 3 displays the frequency of different maternal complications and pregnancy outcomes in women with and without placenta previa. Generally, it was noticed that complications included placenta accreta, cesarean hysterectomy, 1-minute and 5-minute Apgar score less than 7, and neonatal intensive care unit admission, are more possible to happen to cases with placenta previa. Also it can be observed from table 3 that lost blood of mother more than five hundred cubic centimeter (*P* = 0.000), placenta accretta (*P* value = 0.000), previous cesarean hysterectomy (*P* value = 0.000) and Apgar score at 1st minute (*P* value = 0.003) were strongly related to placenta previa.

Table 1. Basic characteristics of 6339 pregnant women

Variable	Mean ± SD or N (%)
Age(year)	26.5 ± 6.65
Gestational age at birth (weeks) pre-term <37 term ≥37	 754 (11.9%) 5585 (88.1%)
Parity 0 ≥1	 3334 (52.6%) 3005 (47.4%)
Mode of delivery Spontaneous vertex labour Emergency cesarean operation Elective cesarean operation Vaginal breech assisting	 3975 (62.7%) 1553 (24.5%) 640 (10.1%) 171 (2.7%)
Baby birth weight (g)†	3049.9±496.1
†= low birth weight less than 2500 gram	

Table 2. Factors associated with placenta previa

Variable	Placenta previa N (%)	Non-placenta previa N (%)	P value
Maternal age (years) <35 ≥35	(6) 46% (7) 54%	(5272) 83.3% (1054) 16.7%	0.000*
Parity Nullipara Multipara	(2) 15.4 % (11) 84.6%	(3363) 53.2% (2963) 46.8%	0.006*
Previous curettage No Yes	(7) 54% (6)46%	(5625) 88.92% (701) 11.08%	0.000*
Previous cesarean section No Yes	(4) 30.8% (9) 69.2%	(4429) 70% (1897) 30%	0.002*
Medical complications † No Yes	(10) 76.9% (3) 23.1%	(5946) 94% (380) 6%	0.010
Obstetric complication ‡ No Yes	(5) 38.5% (8) 61.5%	(3762) 59.5% (2564) 40.5%	0.123
Smoking No Yes	(13) 100% (0) 0%	(6256) 98.9% (70) 1.1%	0.703

†= pregnant women who had underlying of medical disease such as; thalasemia, thyroid disorder, respiratory disease, heart disease, autoimmune disease and other diseases

‡ = pregnant women who present with obstetric complication such as; gestational diabetes, pregnancy induced hypertension

Table 3. Pregnancy outcomes of study population

Variable	Placenta previa N(%)	Non-placenta previa N (%)	P-value
Gestational age (weeks) <37 ≥37	(1) 7.7% (12) 92.3%	(632) 9.99% (5694) 90.01%	0.782
Gender of baby female male	(6) 46% (7) 54%	(3153) 49.8% (3173) 50.2%	0.790
Placenta accretta No Yes	(6) 46% (7) 54%	(6324) 99.97% (2) 0.03%	0.000*
Cesarean hysteractomy No Yes	(8) 61.5% (5) 38.5%	(6322) 99.94% (4) 0.06%	0.000*
Estimated blood loss (mL) ≤ 500 > 500	(6) 46% (7) 54%	(5693)90% (633) 10%	0.000*

Cont... **Table 3. Pregnancy outcomes of study population**

Apgar score at first minute ≤ 7 >7	 (3) 23.1% (10) 76.9%	 (316) 5% (6010) 95%	0.003*
Apgar score at fifth minute ≤ 7 >7	 (1) 7.7% (12) 92.3%	 (63)1% (6263) 99%	0.016
Small for gestational age No Yes	 (11) 84.6% (2) 15.4 %	 (5630) 89% (696) 21%	0.614
NICU admission No Yes	 (12) 92.3% (1) 7.7%	 (6206) 98.1% (120) 1.9%	0.102

NICU = neonatal intensive care unit, mL= milliliter
* = significant at 0.01 level

Discussion

Currently, one of the most popular causes of antepartum hemorrhage which might lead to maternal death is placenta previa. This is the reason why it should be diagnosed earlier in order to improve maternal outcome. This condition is usually diagnosed either by using transvaginal ultrasonography or transabdominal sonography [1, 8]. Some of the most associated factors to this condition are previous cesarean delivery, multiparity, previous curettage, and maternal age [1, 6, 12-13].

The results of this study showed similarity to the prevalence of placenta previa in the population of Asia and in the same span of previous research [4, 5, 10, 13-15]. It was found that previous history of previous curettage, previous cesarean operation, multiparity and maternal ages were strongly associated with placenta previa [10]. The effect of maternal age on the prevalence of placenta previa is probably due to the aging of uterus and the influence of recurrent pregnancies [10]. This inference is of clinical importance for women who are delaying childbearing and decide to have children at a later or future time[10].On the other hand, unlike previous research, common risk factors like smoking was proved to be not related with placenta previa in our study. The reason behind this is that it is uncommon for Iraqi women to smoke as it is obvious from data only 70 of 6339 pregnant women had been reported having experience of smoking.

The results showed that the relation between parity and the incidence of placenta previa is significant; the explanation of this might be because Fallujah families are having more than 3 children.

Although our results showed that preterm delivery before 37 weeks' and small birth weight are not related to placenta previa, it is known that placenta previa can be a cause of preterm labor and delivery which is considered an important reason of perinatal morbidity and death particularly lung immaturity and asphyxia at birth. This might be explained by the early diagnosis of placenta previa which might lead to permanence of pregnancy to term with no complication. Nevertheless, it is hard to confirm that the association of these factors same as previous research[16].

There were some limitations identified in this study. First, the percentage of placenta previa may have been underestimated because of the inaccurate birth certificates and data of hospital discharge, thus since our study is hospital-based it may not represent the prevalence of placenta previa in al- Fallujah community. The second limitation is that this study might lack for some information, for example, factors like total weight gain, uterine fibroids the use of reproductive technology, working throughout pregnancy, and body mass index.

Conclusion

In this study the effect of risk factors on the frequency of placenta previa was examined. It was found that the prevalence of placenta previa was 0.21% among Fallujah city pregnant women population. Previous uterine curettage, previous cesarean section, maternal age and multiparity showed to be strongly associated with placenta previa.

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