

Original article

Comparison of Pregnancy Outcome in Placenta Previa *versus* Placenta Abruption

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ABSTRACT

Background and aims. Placenta previa and placenta abruption (abruptio placenta), the two leading and major causes of antepartum hemorrhage, result in substantial maternal and perinatal morbidity and mortality. This study was conducted to compare the fetal and maternal outcome of patients with abruption placenta and placental Previa. **Methods.** This was comparative retrospective case series study was conducted in the Department of Obstetrics and Gynecology, at university Tripoli hospital during the year 2017. After taken ethical approval, and by convenience sampling method, including seventy patients (35 with placenta previa and 35 with placental abruption) who diagnosed by ultrasound. The following data was obtained from the files: the age, gravidity, parity, history of previous abortion, history of bleeding, maternal outcome, mode of delivery, and fetal outcome. Statistical Package for the Social Science version 24 was used for analysis. **Results.** The study showed no significant differences between the two groups in term of gravidity, parity, previous abortion, and the bleeding in previous pregnancies. About 5.7% of Previa groups had Antepartum haemorrhage (APH). Postpartum hemorrhage (PPH) were 11.4% of the Previa group. Only 1 case of the previa group had intrapartum bleeding. 42.8% pregnant women had hypertension in abruption group. Only abruption group had diabetes with percentage of (22.9%), Preterm premature rupture of the membranes (PPROM) was higher in the abruption group (25.7%), while anemia was higher in the Previa group (48.6%). **Conclusion.** Abruption placenta was associated with younger age, hypertension, diabetes, PROM, prematurity, fetal death, and neonatal resuscitation. Placenta previa was associated with older age, anemia, and nursery admission. Early detection, provision of antenatal care, and emergency obstetric care services can reduce the negative effects of APH.

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INTRODUCTION

Antepartum hemorrhage. It is usually defined as bleeding from the birth canal after the 24th week of pregnancy. It can occur at any time until the second stage of labor is complete; bleeding following the birth of the baby is postpartum hemorrhage [1]. It is a major cause of maternal and perinatal morbidity and mortality even in modern day obstetrics and is one of the most frequent emergencies in obstetrics [2,3]. In addition to maternal morbidity secondary to acute hemorrhage and operative delivery, the fetus may be compromised by uteroplacental insufficiency, premature birth and perinatal death (3). It affects 3-5% of all pregnancies [4]. Up to 20% of very preterm babies are born in association with APH, which explains the association between APH and cerebral palsy [4]. The main causes of APH are placenta previa and abruption placentae; however, the exact cause of bleeding in some cases may be undetermined [1]. In a small

proportion where placenta previa and abruption have been excluded, the cause may be related to local lesions of the cervix and vagina, e.g., cervicitis, cervical erosion, genital tumors, vulvar varicosities, ruptured vasa Previa, and heavy show [1,5]. In comparison of pregnancy outcome in placenta previa versus placenta abruption, the maternal effect of abruption depends primarily on its severity, where as its effect on the fetus is determined both by its severity and the gestational age at which it occurs [6]. The most frequent complications being fetal death, growth restriction, severe maternal shock, disseminated intravascular coagulopathy, and renal failure [7]. Moreover, the Placenta previa triples the rate of neonatal mortality, which is mediated mainly through preterm birth [8]. As APH stands out as a serious, life-threatening condition resulting in significant maternal and perinatal morbidity and mortality, it is particularly important to appraise the pattern of this condition in a developing country for better maternal health-care services [1]. There is still limited information in this country there for the study is presented to compare of pregnancy outcome in placenta previa versus placenta abruption. Hence, the aim of the study was to compare the fetal and maternal outcome of patients with abruption placenta and placental Previa.

METHODS

Study design and data collection

A comparative retrospective case series study, was conducted in University Tripoli Hospital, Tripoli, Libya during the year 2017, data collected from the files of patients. By convenience sampling method, seventy patients (35 with placenta Previa and 35 with placental abruption) who diagnosed by ultrasound. The following data was obtained such as: age, gravidity, parity, history of previous abortion, history of bleeding, maternal outcome, mode of delivery, fetal outcome. APH is defined as bleeding from the genital tract from the time of viability of pregnancy (from 24 weeks of gestation and beyond in this study) for extra uterine survival to the delivery of the baby [1].

Statistical analysis

Statistical analysis was computerized using the Statistical Program for Social Sciences (SPSS version 24) that used for data entry and analysis. Descriptive statistics were used and all results are presented as frequencies, means standard $\pm$ deviation and percentages. Quantitative data were analyzed using student T test. Categorical data were compared using the Chi-square test and Fisher's exact test if appropriate. For numerical data Student T test was used. A P-value of less than or equal to 0.05 was considered statistically significant. This study is ethically approved from health authority and university Tripoli hospital.

RESULTS

A total of 70 patients were diagnosed with APH during the study period, 50% with abruption placentae, 50% placenta previa. The mean age of the Previa group was 28.4 years, higher percent (71.4%) between 21 - 30 years, then the mean of age abruption group was 26.7 years. More than of patients (65.8%) between 21 - 30 years.

As in (figure 1), the relation was statistically not significant with $p = 0.525$. The results showed that the percentage of prim gravid patients were higher in the abruption group (11.4%) than in the previa group (5.7%). Also the multigravidas were as following; (94.3%) in Previa group and (88.6%) in abruption group. But the p value = 0.190.

The results illustrated that the percentage of nulliparous patients were higher in the abruption group (25.7%) than in the Previa group (14.3%). Moreover, the multiparous in the previa group were higher (85.7%) than abruption group were (74.3%). These difference no significant relation between the two groups (p value = 0.098).

About the history of abortion, it was higher in the previa group (28.6%) than in the abruption group (17.1%) p value = 0.205. Regarding the bleeding in previous pregnancies, 5.7% of both groups had antepartum hemorrhage, and Postpartum hemorrhage were as the following (5.7%) in the previa group, (11.4%) in the abruption group. Only one case of the previa group had intrapartum bleeding (P value = 0.557).

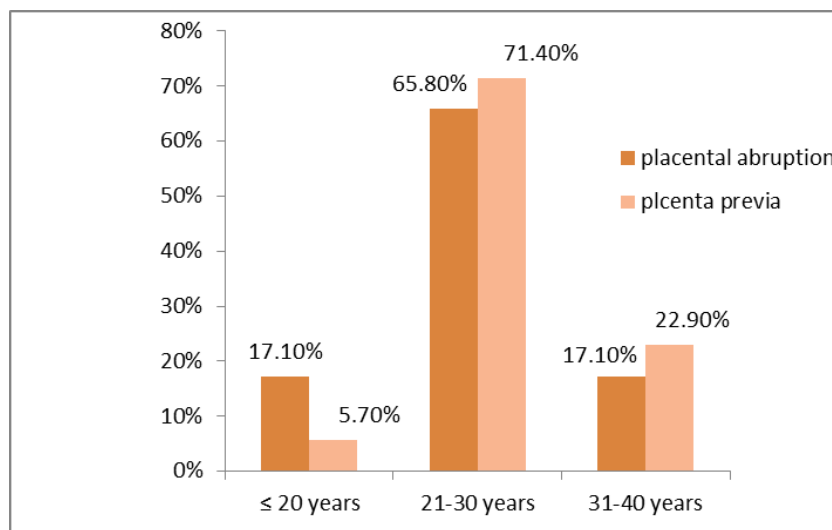


Figure 1. Age distribution of the patients

As in table (1), the mode of delivery of the patients, all of the previa group were delivered by cesarean section. About (62.9%) of the abruption groups were delivered vaginally, while (37.1%) delivery by cesarean section.

Table 1. Obstruct history distribution (N=70).

Variable	Placental abruption	Placental pervia	P value
Gravity			
Primigravida	4 (11.4%)	2 (5.7%)	0.190
Multigravida	4 (11.4%)	33 (94.3%)	
Parity			
Nulliparous	5 (14.3%)	9 (25.7%)	0.098
Multiparous	30 (85.7%)	26 (74.3%)	
Abortion			
Yes	10 (28.6%)	6 (17.1%)	0.205
No	25 (71.4%)	26 (82.9%)	
Bleeding			
Antpartum hemorrhage	2 (5.7%)	2 (5.7%)	0.557
Intrapartum hemorrhage	0	1 (2.9%)	
Postpartum hemorrhage	2 (5.7%)	4 (11.4%)	

As in fig (2), regarding maternal outcome, the prevalence of hypertension was higher (42.8%) in the abruption group than Previa group were (5.7%). These differences statically significant relation $p = 0.0001$. While diabetes mellitus reported only in abruption group were (22.9%). Furthermore, the premature rupture of membrane was higher in the abruption group (25.7%) than the Previa group (05.7%). Whereas the anemia was higher in the previa group (48.6%) than the abruption group (28.6%).

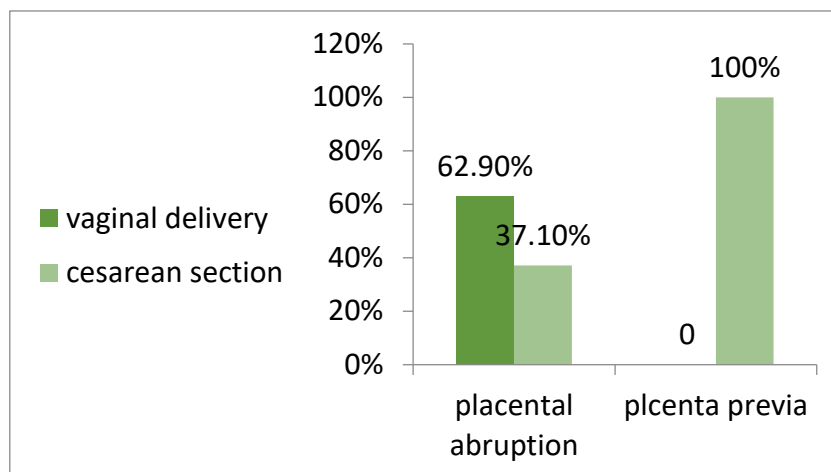


Figure 2. Mode of delivery distribution

About fetal outcomes, the results demonstrated that 2 cases (5.7%) in the Previa group died compared to 13 cases (37.1%) of the abruption group. While neonates needed resuscitation, the highest percentage reported in (85.7%) in the abruption group, and lowest in the previa group (54.3%). However, nursery admission was almost near the same between the two groups were (42.9%) in the previa group and (40.0%) in the abruption group). The respiratory problem reported about 20% of both groups, the Prematurity were seen in (42.9%) in the previa group versus (54.3%) of the abruption group. The relation was statistically significant p value < 0.05 , as shown in table (2).

Table 2. Fetomaternal outcome distribution

Variable	Placental abruption	Placental pervia	P value
Maternal outcome			
Hypertension	15 (42.8%)	2 (5.7%)	0.0001
Diabetes	8 (22.9%)	0 (0%)	
PROM	9 (25.7%)	2 (5.7%)	
Anemia	10 (28.6%)	17 (48.6%)	
Fetal outcome			
Alive	22 (62.9%)	33 (94.3%)	0.005
Dead	13 (37.1%)	2 (5.7%)	
Nursery admission	14 (40%)	15 (42.9%)	
Resuscitation required	30 (85.7%)	19 (54.3%)	
Respiratory problem	7 (20%)	7 (20%)	
Prematurity	19 (54.3%)	15 (42.9%)	

Premature rupture of membrane (PROM)

DISCUSSION

Antepartum hemorrhage is an important obstetric entity. The associated high of maternal and fetal morbidity and mortality is very challenging for the obstetricians. Various studies have been conducted to identify the high risk population with an objective to improve the fetomaternal outcome. In spite of defining the risk factors which are high parity, advancing maternal age, rupture membranes, hypertension, and previous scarring of uterus, the outcome remained poor [1].

The results of this study indicate that there is no statistical difference between placenta previa and placental abruption regarding the age of the patients. The mean age of the previa group was higher than in the abruption group. The result was in agreement with Gadgi et al in which the mean age of the previa group was 27 years and the mean age of the abruption group was 26 years [9]. On other hand, higher in the study was done by Takai et al. showed that; the mean age of the two group was equal to 30 years (10). In fact, the advanced maternal age has also been strongly associated with an increasing incidence of placenta previa. The incidence of placenta previa after age 35 years reported to be 2.0%.

A further increase to 5.0% is seen after age 40 years, which is a 9-fold increase when compared to females younger than 20 years [11,12].

Regarding the past obstetric history, the present study showed no significant differences between the two groups in term of gravidity, parity and previous abortion. The previa group had more rates of multigravida, multipara and positive history of abortion. And disclosed as in Jharaik study [13]. But the results were reverse the study result of Gadgi that showed that parity and abortion was more associated with abruption group than the previa group [9]. However, there's multifactorial causes of antepartum heamorrhage such as, maternal age (> 35 years), Multiparity, multiple gestation, short interpregnancy interval, previous uterine surgery, and previous cesarean delivery [1].

The maternal complications and/or outcome observed from this study included, hypertension and diabetes more in abruption placenta group. The current study reported premature rupture of membrane (PROM) was higher in the abruption group than in the previa group. Only anemia was higher in the previa group. The hypertension has also been found to be the most consistent predisposing factor associated with abruptio placentae [14]. The result of Jharaik showed that the difference between the two groups in terms of hypertension in current pregnancy, 71% of the women with abruptio placenta had hypertension in the index pregnancy whereas only 19% of the placenta praevia had hypertension (13). Moreover, other studies concluded that the clinician should be aware of the significant association between preterm premature rupture of membranes and the risk for subsequent placental abruption, especially in patients with early mid trimester premature rupture of membranes and history of bleedings before rupture of membranes or bleedings during the latency period [14,15].

Regarding the mode of delivery, the study showed that all of the previa group were delivered by cesarean section. 62.9% of the abruption group were delivered vaginally and about 37.1% had cesarean section. The result was similar to Humayun [16] in which all cases of placenta praevia (98%) were delivered by caesarean section and 20% of those with abruptio placenta were delivered by caesarean section. The maternal complications of APH, higher rates of cesarean section hypovolemic shock, disseminated intravascular coagulation, and acute renal failure [15]. Moreover, maternal mortality in the current study was not reported, disclosed to Jharaik study [13], and opposite to previous studies [10] reported due to abruptio placentae and was found to be 2.0% which is comparable to the study by Pandelis [15]. Maternal mortality in other study was due to abruptio placentae and was found to be 2% by Takai et al., [10] which is comparable to the study by Pandelis [15], and lower than study by Sheikh and Khokhar [4] which reported in only 3%.

The absent of mortality in current study indicated that our patients presented early to hospital with good antenatal care. On the other hand, the higher rate was explained due to late presentation of the patients, and lack of emergency services management or unqualified team.

Regarding fetal outcome, the result showed that death, prematurity and neonatal resuscitation occur more in abruption group than in previa group. Nursery admission was more in previa group. The study of Jharaik [13] showed that prematurity was high in placenta previa than abruption placenta. In placental abruption group, 21% baby were delivered before 37 weeks. Also, in the Humayun study [16] prematurity 63.3% abruption placenta, 40% in placenta previa. The same study showed that fetal mortality was the same in placental abruption and in placenta praevia [13].

The antepartum heamorrhage related to the abruption and placenta per via, lead to changes in the placenta, and because the placenta is the life support system of the fetus. It allows the transport of oxygen and nourishment as well as transfer in to the fetal circulation of antibodies, metabolites, hormones and other substances in the maternal blood stream. Complications involving the placenta, membranes, cord and fetus usually place the fetus at risk and maternal [1].

CONCLUSION

Despite similarities, some patient characteristics and outcomes in APH due to placenta praevia compared to abruption placenta differ. Abruptio placenta was associated with younger age, hypertension, diabetes, PROM, prematurity, fetal death, and neonatal resuscitation. Placenta previa was associated with older age, anemia, nursery admission. Good antenatal care and early diagnosis, and delivered in centers with health services facilities. To avoid series fetomaternal complication.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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مقارنة بين نتائج الحمل في المشيمة المنزاحة وانفصال المشيمة

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الملخص

الخلفية والأهداف. المشيمة المنزاحة وانفصال المشيمة (انفصال المشيمة) ، وهما السببان الرئيسيان والرئيسيان لنزيف ما قبل الولادة ، يؤديان إلى مرضية ووفيات كبيرة للأمهات والفترة المحيطة بالولادة. أجريت هذه الدراسة لمقارنة النتائج الجنينية والأمومية للمرضى الذين يعانون من انفصال المشيمة وبطء المشيمة. **طرق الدراسة.** كانت هذه دراسة مقارنة بأثر رجعي أجريت في قسم التوليد وأمراض النساء في مستشفى طرابلس الجامعي خلال عام 2017. بعد الحصول على الموافقة الأخلاقية ، وطريقة أخذ العينات الملائمة ، بما في ذلك سبعون مريضاً (35 مصاباً بانزاح المشيمة و 35 مصاباً بانفصال المشيمة). (الذين تم تشخيصهم بالموجات فوق الصوتية. تم الحصول على البيانات التالية من الملفات: العمر ، والجاذبية ، والتكافؤ ، وتاريخ الإجهاض السابق ، وتاريخ النزيف ، ونتائج الأم ، وطريقة الولادة ، والنتيجة الجنينية. تم استخدام الحزمة الإحصائية للنسخة 24 من العلوم الاجتماعية للتحليل. **نتائج الدراسة.** أظهرت الدراسة عدم وجود فروق ذات دلالة إحصائية بين المجموعتين من حيث الجاذبية والتكافؤ والإجهاض السابق والنزيف في حالات الحمل السابقة. حوالي 5.7٪ من مجموعات برافيا كان لديهم نزيف قبل الولادة (APH) كان نزيف ما بعد الولادة 11.4٪ (PPH) من مجموعة برافيا. حالة واحدة فقط من المجموعة المنزاحة كان لديها نزيف أثناء الولادة. كان لدى 42.8٪ من النساء الحوامل ارتفاع ضغط الدم في مجموعة الانفصال. فقط مجموعة الانفصال كانت مصابة بداء السكري بنسبة (22.9٪) ، وتمزق الأغشية قبل الأوان (PPROM) كان أعلى في مجموعة الانفصال (25.7٪) ، بينما كان فقر الدم أعلى في مجموعة برافيا (48.6٪). **الخلاصة.** ارتبط انفصال المشيمة بالعمر الأصغر ، وارتفاع ضغط الدم ، ومرض السكري ، وتمزق الأغشية الباكر ، والخداج ، وموت الجنين ، والإنعاش الوليدي. ارتبطت المشيمة المنزاحة بالشيخوخة وفقر الدم والقبول في الحضنة. يمكن أن يقلل الاكتشاف المبكر ، وتوفير الرعاية السابقة للولادة ، وخدمات رعاية التوليد في حالات الطوارئ من الآثار السلبية لـ APH.

الكلمات المفتاحية: النزف قبل الولادة ، انفصال المشيمة ، المشيمة المنزاحة.