

Major Placenta Previa: Rate, Maternal and Neonatal Outcomes Experience at a Tertiary Maternity Hospital, Sohag, Egypt: A Prospective Study

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ABSTRACT

Introduction: Major degree placenta is a serious health issue and is associated with high fetal-maternal morbidity and mortality. Literature from developing countries is scant.

Aim: To determine the prevalence and maternal and neonatal outcomes among women with major placenta previa (PP).

Materials and Methods: A prospective descriptive study of 52 singleton pregnancies with PP was evaluated in this study. The study was conducted at Sohag University Hospital, Egypt from January through June 2014. Outcome measures, including the prevalence of PP, maternal and neonatal outcomes, and case-fatality rate.

Results: The total number of deliveries performed during the study period was 3841, of them, 52 cases were placenta previa. Thus, the prevalence of PP was 1.3%. The mean of previous

cesarean scars was 2.2 ± 1.4 . Of women with PP, 26.4% (n=14) had placenta accreta. In total, 15.1% (n=8) of women underwent an obstetric hysterectomy. From the total no. of babies, 13.2% (n=7) were delivered fresh stillborn babies. Of the surviving babies (n=45), 20% (n=9) required admission to NICU. The frequencies of bowel and bladder injuries were 3.8% (n=2) and 13.2% (n=7) respectively. There was no maternal death in this study.

Conclusion: The rate of PP is comparable to previous studies, however, the rate of placenta accreta is high. Also, there are high rates of neonatal mortality and intraoperative complications which can be explained by accreta. The study highlights the need to revise maternity and child health services.

Keywords: Complications, Morbidity, Mortality, Prevalence

INTRODUCTION

Placenta previa complicates approximately 0.3–0.5% of pregnancies with no prior cesarean delivery [1]. The risk of developing placenta previa increase progressively with increasing in number of cesarean sections with ≥ 3 cesarean deliveries the chance of having previa is 37% [2]. Other risks for placenta previa include uterine surgery [3], increasing maternal age, high parity [4], multi-fetal gestation [5], and smoking and cocaine use [6].

Studies have shown that placenta previa carries greater risks of surgical complications including obstetrics hysterectomy and massive haemorrhage requiring blood transfusion [7,8].

Surgical injury to the bladder, viscera, and ureters and renal failure may occur [9,10].

Massive obstetrical haemorrhage in placenta previa is associated with severe maternal morbidity and mortality worldwide accounting for 30% maternal deaths in Asia [11]. There are several neonatal complications associated with placenta previa that are often related to prematurity [12].

In high-income countries, haemorrhage from placenta previa is not a major contributor to maternal mortality, where in low-income countries, it is still an important cause of maternal and neonatal morbidity and mortality. Many factors contributed to this increasing mortality including poor utilization of medical services, in addition to the unavailability of blood transfusion and delay in operative intervention due to logistical problems. To lower adverse outcomes of pregnancies complicated by placenta previa, this demands an early action. To prevent serious fetomaternal complications, proper treatment of established haemorrhage should be undertaken, which is poorly existent in low-income countries. Furthermore, in

these countries there is a paucity of researches to generate clinical evidence. The aim of present study was to determine the frequency and fetomaternal outcomes in women with major placenta previa.

MATERIALS AND METHODS

We conducted a prospective descriptive study at Sohag University Hospital, Egypt from January through June 2014 on patients diagnosed with placenta previa to evaluate fetomaternal outcomes. The study was approved by the Institutional Review Board and the Hospital Ethics Committees. Each participant was informed about the objectives and consented. Major placenta previa was diagnosed when the placenta is covering the internal cervical os either partially or completely and passed 28 weeks gestation. The diagnosis of placenta previa was based on ultrasonography and confirmed at cesarean delivery. Calculation of gestational age was determined by the last menstrual periods and first-trimester ultrasound.

The hospital adopted the policy of admitting all patients with placenta previa while awaiting fetal maturity or possible earlier intervention. At admission, each patient had two or more units of cross-matched blood ready for used. Patients who were admitted at or before 34 weeks gestations received 6 mg of dexamethasone, 12 hourly for 48 hours. The department policy for management of PP is an elective cesarean section at the completion of 38 weeks' gestation. Possible intervention before the presumed date is justified in cases with excessive bleeding and signs of labour.

The diagnosis of placenta accreta was suspected in the presence of the following sonographic features: irregularly shaped lacunae of placenta, thinning of the myometrium overlying the placenta, protrusion of the placenta into the bladder, loss of the retro placental space [13]. When such features were reported, the patient was consented for possible hysterectomy.

Variable	Placenta previa (n=52)	Ranges
Age (years)	30.9231±3.67741	22-37 years
gravidity	3.8462±3.8462	2-7 pregnancies
Parity	2.5769±1.10872	0-1 deliveries
Number Of previous CD	2.1538±1.41954	0-5
Antenatal care	5.2500±1.34128	3-9
maternal height	157.1154±7.18292	144.0-173.00
Residence/ rural	17(32.1)	
History of previous abortions	11(21.2)	
In vitro fertilization	10(19.2)	
Placenta accreta	14(26.9)	

[Table/Fig-1]: Clinical and Demographic Data of Women with Placenta Previa
Data are presented as mean±SD and number (percentage)

Demographic data including age, parity, weight, height, residency were recorded. The outcomes of interest were fetal and maternal complications. Maternal complications that were assessed included the cesarean hysterectomies, bowel and bladder injuries, number of units of blood transfused length of hospital stay and wound infections. The reported fetal complications were fetal death, admission to NICU, and prematurity. This study was approved by the Ethics Committee of the College of Medicine, Qassim University.

STATISTICAL STUDY

The statistical package for the social sciences (SPSS Version 20 for Windows) was used for data recording and statistical analysis. The descriptive analysis used included the mean, range, standard deviation, and frequency distribution.

RESULTS

The total number of deliveries during the study period was 3841. Of them, 52 cases had placenta previa. Thus, the prevalence of placenta previa was 1.3%. Of women with placenta previa, 26.9% (n=14) had placenta accreta. The mean age (±SD), gravidity, parity, number of previous cesarean deliveries (CD), and the average number of ANC were 30.9±3.68 years, 3.8±3.84 deliveries, and 2.6±1.1, 2.15±1.4 and 5.3±1.3 visits respectively. In total, the majority were living in urban setting 67.3% (n=35), 21.2% (n=11) had a history of abortion, and 19.2% (n=10) were treated by IVF [Table/Fig-1].

The mean gestational age at delivery and, fetal weight were 37.3±1 weeks, and 3.1±0.28 kg. Of all neonates, 17.3% (n=9) were admitted to NICU.

The adverse outcomes of these pregnancies were as follow, obstetrics hysterectomies were performed in 15.1% (n=8) cases, there were 13.2% (n=7) fresh stillborn babies. Of the surviving babies, 17.3% (n=9) required admission to NICU. Intraoperative bowel and bladder injuries were 3.8% (n=2) and 13.2% (n=7) respectively. The average units for blood transfusion and the length of hospital stay were 2.5±1.8 units, and 5.9±2.8 days respectively. Wound infection occurred 17.3% (n= 9) cases [Table/Fig-2].

DISCUSSION

The rate of placenta previa and accreta in this study was 1.3% and 26.9 % respectively. The rate of obstetrics hysterectomies was 15.1%. In total, 13.2% of neonates were delivered fresh stillborn babies, and of the surviving infants, 17.3% were admitted to NICU. Intraoperative bowel and bladder injuries were reported in 3.8 % and 13.2% of cases respectively. The average units of blood transfusion and the length of hospital stay were 2.5±1.8 units, and 5.9±2.8 days respectively. Wound infection occurred 17.3% cases.

The prevalence of PP complicated approximately 0.3%-0.5% of pregnancies [14]. In a large population-based study, the prevalence of PP was reported as low as 0.28 % [15]. A systematic review showed that the prevalence of PP is influenced by numbers

Variable	Frequency/mean
Obstetrics hysterectomies	8(15.1)
Balder injuries	7(13.2)
Bowel injuries	2(3.8)
Prematurity	7(13.5)
Admission to NICU	9(17.0)
Gestational age at delivery (weeks)	37.3269±1.04264
Fresh stillborn babies	7(13.2)
Wound Infection	9(17.3)
Fetal weight at delivery (g)	3.0923±.28823

[Table/Fig-2]: Maternal and Neonatal Complications.
Data are presented mean ±SD and number (percentage)

of previous cesarean scars, with a rate of 1%, 2.8%, and 3.7% after 1, 3 and 5 cesarean deliveries respectively [2]. In this study, the rate of PP is 1.3% with the number of previous CD mean of 2.2±1.4 (range, 0-5) which is comparable to 1.1% rate in a regional study from Cameroon [16]. This increasing rate of PP indicates that the incidence is on the rise due to changing trends in risk factors especially increasing maternal age and number of cesarean deliveries.

A meta-analysis study showed that the rate of PP is influenced by regional variation being higher among Asian countries 1.22% and lower among Europe (0.36%), North America (0.29%) and Sub-Saharan Africa (0.27%) [17]. The later study failed to determine whether this is due to ethnic differences or there might be other hidden factors.

The overall reported incidence of placenta accreta ranges from four per 10,000 deliveries [18] to as high as 90 per 10,000 deliveries [19]. The prevalence of placenta accreta in this study was 26.9% which is considered with average range for prevalence. There is a wide discrepancy in the prevalence of placenta accreta in different studies. All of these studies agreed that the incidence of placenta accreta is rising due to rising rate of primary cesarean delivery. The incidence of placenta accereta ranges from 2% among women with a history of a single prior placenta previa to 39–60% for two or more prior accreta [20,21]. Solheim et al., [22] in a study examining the effect of rising primary and secondary delivery rates on annual incidence of placenta previa, concluded that if cesarean deliveries continue to rise, the annual incidence of placenta previa, placenta accreta, and fetomaternal complications will also rise substantially. This difference in prevalence rates of PP among researchers may be explained by the lack of the general consensus on clinical definition of placenta accreta, increta and percreta. The current definition is based on histological findings after hysterectomy has been performed. Furthermore, most of these studies are retrospective and hospital-based in nature, this results in the overestimation of the true prevalence of placenta accreta, as many of these cases were referred from non-tertiary hospitals.

Although no case fatality was reported in the current study, there was 15.1% rate of hysterectomies to control massive haemorrhage. Mothers who have undergone hysterectomy had placenta accreta and none had placenta previa. The average units of donated blood were 2.5±1.8 units with a maximum of 8 units in some cases. This indicates that liberal blood transfusion and cesarean hysterectomy are important factors in reducing case-fatality rate in women with placenta accreta. Some studies showed that 90% of patients with placenta accreta required blood transfusion and packed red blood cells is needed in 40% of cases. The reported maternal mortality with these measures is as high as 7% [10,23].

Studies have documented a significant increase in maternal complications associated with placenta previa, include severe obstetrical haemorrhage maternal shock, blood transfusions, emergency hysterectomy, infections, and thrombophlebitis. The risk of haemorrhage increases with increasing gestational age from

4.7% at 35 weeks to as high as 59% at 38 weeks [24,25]. In our study, the mean fetal gestational age was 37.3±1.04 weeks (range, 35-39 weeks), and this degree of fetal maturity may explain our high rate of hysterectomy and blood transfusion.

There were 13.2% bladder and 3.8% bowel injuries in the present study. It was found that the bladder is the most frequently involved organ in placenta percreta and is associated with significant morbidity [26]. In a meta-analysis of 54 cases of placenta percreta, bladder injuries were reported as high as 26% [27]. Surgical injuries are due to the invasion of the bladder in placenta accreta together with multiple adhesions as a result of repeated cesarean delivery.

In the present study, prematurity (gestational age <37 weeks) was 13.5%. Unfortunately, we had 13.2% fresh stillborn babies and 17% admission to NICU. In a cohort study consisted of 3,550,842 deliveries comparing neonatal outcomes born to mothers with placenta previa beyond 37 weeks gestation to those delivered to other indications authors found that placenta previa was an independent risk factor for adverse neonatal outcomes [28]. However, it becomes justifiable that the presence of placenta previa itself increases adverse neonatal outcomes when delivered at term. The reasons behind the effect of placenta previa on fetal growth remains matter of much debate among scientists, some argue that placenta previa is not an independent risk factor for impaired fetal growth and no significant difference in birth weight in neonates born to mothers with placenta previa and those delivered to normal placenta locations [29,30].

LIMITATION

The shortcomings of this study are the few number of cases recruited, being a single center study and lack of controls to identify possible risk factors for placenta previa.

CONCLUSION

The rate of PP is comparable to previous studies; however, the rate of placenta accreta is high. Also, there are high rates of neonatal mortality and intraoperative complications which can be explained by accreta. The study highlights the need to revise maternity and child health services.

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