LOW-LYING PLACENTA IN BASRA: FETOMATERNAL OUTCOME

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ABSTRACT

Objective: To study the maternal and foetal complications of low-lying placenta at the main referral hospital in Basrah.

Methods: This is a case control study of 598 pregnant women attended the ultrasound department at Basra Maternity & Child Hospital, from December 1998 to June 2000; 182 cases with low-lying placenta and 416 control.

Results: When the low-lying placenta compared with the control group, there is a significant increase in the incidence of obstetrical & neonatal complications. These include abortion, preterm labour, abnormal lie, and presentation, caesarean section, postpartum haemorrhage and caesarean hysterectomy. Neonatal complications include preterm babies, babies with low birth weight and Apgar score. Perinatal deaths mainly caused by Respiratory Distress Syndrome constitute 6.9%. Type I & II praevia carries a lower risk of antenatal, postnatal, & foetal complications than type III & IV. There was no maternal death among the study group.

Conclusion: Low lying placenta, especially major degree, have a high incidence of obstetrical complications, the most important of which are preterm labour and massive ante-partum and postpartum haemorrhage. There is increased incidence of neonatal complications, mainly prematurity, small for gestational age and perinatal deaths. There was no relation noted between placenta praevia and congenital anomalies of the newborns.

INTRODUCTION

The human blastocyst implants in the endometrial lining of the uterus seven days after ovulation[1]. A blastocyst that implants very low in the uterine cavity is likely to form a placenta that lies in close proximity to the internal cervical os, so called low lying placenta[2]. A placenta so located may abort, be carried toward the fundus or remain wholly or partially in the lower uterine segment at or after 28weeks gestation[3]. The aetiology of low lying placenta remains obscure, but many risk factors are associated with such a low placental implantation[4]. It is generally accepted that there is an increasing incidence of mortality and morbidity of the mother and fetus as the placenta becomes more centrally placed[5]. In this study, I have reviewed the cases of low lying placenta between December 1998 to June 2000 in Basrah Maternity and Children Hospital; the main referral hospital in the southern governorates of Iraq, which is affiliated with Basrah Medical College.

The aim of this study is to determine the foetal and maternal morbidity and mortality in association with low lying placenta.

PATIENTS AND METHODS

This is a prospective case control study including a total of 781 pregnant women attended the ultrasound department at Basra Maternity Hospital, from December 1998-June 2000. From the 781 patients & control, only 598 cases had completed follow-up. All obstetrical cases with a history of vaginal bleeding at or after 14 weeks of gestation or had an ultrasound scan performed for other reasons at a comparable gestational age were enrolled in this study. The number of the control i.e. with normally situated placenta was (416). A complete history and examination *(include vaginal speculum examination for the cases with vaginal bleeding to exclude incidental causes)* were performed. Asymptomatic cases which were diagnosed by routine ultrasonography were included in this group of study and had similar management. All patients had a blood work done including blood type and Rhesus factor, blood sugar, haemoglobin and haematocrit and urine analysis. Cases with low lying placenta (182) were divided into symptomatic (139) and asymptomatic (43) according to the presence or absence of vaginal bleeding. The management of each patient depends on the stability of her condition. Those who were stable were kept in the hospital as long as they have vaginal bleeding. Patients with haemoglobin below 8gm/dl-were transfused. Other patients received iron therapy. Follow up of patients with initial ultrasound of low lying placenta was done every 4-6 weeks.

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The last ultrasound was performed at 36 weeks of gestation, if the pregnancy did not end by preterm delivery or abortion. The placenta according to ultrasound scan was described as anterior, posterior or anteroposterior. British classification used to classify low lying placenta[4]. For the control group, where the placenta had the initial ultrasound of normally situated placenta, follow up was done by ultrasound scan at 28 and 36 weeks to confirm placental position, if the pregnancy did not end by preterm delivery or abortion. Babies of both groups were examined by paediatrician for gestational age, weight, Apgar score and for any evidence of congenital anomalies. Transfer to neonatal special care baby unit (SCBU) was done if needed. The significance of differences between the groups under study was made by Chi square test and Z-test as appropriate. Statically significant results were defined as $P<0.05$ and $P< 0.01$.

RESULTS

Table-1 shows that the low lying group has increased incidence of abnormal lie and presentation (14.6%) compared to only (5%) of the control group at term, the difference was significant ($P<0.01$). The asymptomatic group shows a higher percentage of abnormal lie and presentation (14.6%) than the symptomatic group (12.7%) but the difference was not significant ($P>0.05$). Most of the abnormal presentations were associated with type 3&4 symptomatic placenta praevia.

Table 1. ***The lie and presentation of the fetus at the time of delivery.***

Type of presentation	Low lying placental group		Control group
	*Symptomatic No. %	**Asymptomatic No. %	No. %
Cephalic	96 (87.3)	35 (85.4)	361 (95)
Breech	11 (10)	5 (12.2)	17 (4.5)
Transverse	3 (2.7)	-	1 (0.25)
Oblique	-	1 (2.4)	1 (2.5)
Total	110	41	380

*Symptomatic i.e. with vaginal bleeding
** Asymptomatic i.e. without vaginal bleeding

Table-2, shows that placental migration occurred more in the asymptomatic group (76.7%) compared to (51.1%) in the symptomatic group and the difference was significant ($P<0.01$). The anterior placenta showed the highest percentage of conversion in both groups followed by the posterior and the anterior-posterior groups. Most of the placental conversion in both groups occurred at (32-34) weeks gestation (61.9%) & (63.6%) respectively.

Table 2. ***Placental migration to normal position.***

Placenta	No.	Placental migration No. (%)	Gestational Age				Remain low lying
			< 30 Weeks No. %	*30- 31 weeks No. %*	*32-33 Weeks No. %*	*34-36 Weeks No. %*	
Total Low Lying	182	104 (57.1)	4 (3.8)	17 (16.4)	65 (62.5)	18 (17.3)	78 (42.9)
Symptomatic	139	71 (51.1)	2 (2.9)	10 (14.1)	44 (61.9)	15 (21.1)	68 (42.9)
Anterior	60	39 (65)	1	3	27	8	21 (35)
Posterior	48	26 (54.2)	1	7	14	4	22 (45.8)
Anteroposterior	31	6 (19.4)	--	--	3	3	25 (80.6)
Asymptomatic	43	33 (76.7)	2 (6.1)	7 (21.2)	21 (63.6)	3 (9.1)	10 (23.3)
Anterior	17	16 (94.1)	--	3	13	--	1 (5.9)
Posterior	17	14 (82.4)	2	4	6	2	3 (17.6)
Anteroposterior	9	3 (33.3)	--	--	2	1	6 (66.7)

Table-3, shows that most the common cause of caesarean section in the low lying group is placenta praevia (53.1%), whereas the most common cause of caesarean section in the control group was repeated caesarean section (35.3%). The most common cause of caesarean delivery in the symptomatic group is also placenta praevia (59.6%), whereas repeated caesarean section is most common in the asymptomatic group (57.1%). The low lying placenta showed increased percentage of post partum haemorrhage (13.7%) and blood transfusion (21.4%) compared to the control group (5.2%) & (11.1%) respectively, the difference was statically significant (P<0.01).

Table 3. ***Causes of Caesarean Section.***

Causes of Caesarean section	**Type of Low Lying**						**Control Group No. -34 C.S.**
	Symptomatic No. -42 C.S.**			**Asymptomatic No. - 7 C.S.**			
	Praevia Type I & II No. (%)	***Praevia Type III & IV No. (%)***	***Migrate to normal Position No. (%)***	***Praevia Type I & II No. (%)***	***Praevia Type III & IV No (%)***	***Migrate to normal Position No. (%)***	
Repeated C.S.	4(2.8)	--	4(2.8)	1(2.3)	--	3(6.9)	12(35.3)
CPD *	--	--	2(1.4)	--	--	--	9(26.5)
Placenta Praevia	3(2.1)	22(18.8)	--	--	1(2.3)	--	---
Accidental Haemorrhage	--	--	1(0.7)	--	--	--	2(5.9)
Fetal Distress	--	--	3(2.1)	--	--	1(2.3)	5(14.7)
Mal Presentation	1(0.7)	--	1(0.7)	--	--	1(2.3)	3(8.8)
Others	--	--	1(0.7)	--	--	--	3(8.8)

* Cephalopelvic Disproportion ** Caesarean Section

Caesarean hysterectomy occurred in three cases (3.3%) of the low lying group while non in the control one. (Table-4)

Table 4. ***Postpartum Complications.***

Complications	**Symptomatic No.=139**			**Asymptomatic No.=43**			**Control Group No.=416 No(%)**
	Praevia Type I & II No. (%)	**Praevia Type III & IV No (%)**	**Migrate to normal Position No. (%)**	**Praevia Type I & II No.(%)**	**Praevia Type III & IV No. (%)**	**Migrate to normal Position No. (%)**	
PPH	6(4.3)	10(7.2)	3(2.1)	2(4.6)	--	2(4.6)	22(5.2)
Blood Transfusion	8(5.7)	16(11.5)	8(5.7)	2(4.6)	--	5(11.6)	46(11.1)
Caesarean Hysterectomy	1(0.7)	3(2.1)	--	--	1(2.3)	--	--
Abdominal Wound Infection	2(1.4)	2(1.4)	2(1.4)	1(2.3)	--	1(2.3)	5(14.7)

Neonatal complications are shown in (Table-5), in this table (30.5%) of the low lying group ended in preterm deliveries with a birth weight less than 2.5kg. in (40.2%) compared to (8.9%) and (20.8%) respectively, the difference was statistically significant (P<0.01). Babies with Apgar score of less than 7 at one and five min. were also higher in the low lying group compared to the control group (P<0.01).

Table 5. ***Neonatal Complications.***

Complications	Symptomatic No. of babies- 110 *			Asymptomatic No. of babies-44 *			Control Group No. of Babies -391**
	Praevia Type I & II No (%)	*Praevia Type III & IV No. (%)*	*Migrate to normal Position No. (%)*	*Praevia Type I & II No (. %)*	*Praevia Type III & IV No. (%)*	*Migrate to normal Position No. (%)*	*No. (%)*
Prematurity	12(10.9)	9(8.1)	14(12.7)	2(4.5)	2(4.5)	10(22.7)	35(8.9)
Weight less than 2.5kg	14(12.7)	13(11.8)	18(16.3)	2(4.5)	2(4.5)	15(34.1)	81(20.8)
Apgar Score <7 (1 min)	8(7.2)	13(11.8)	15(13.6)	1(2.2)	1(2.2)	11(25)	89(22.8)
Apgar Score <7 (5min)	2(1.8)	2(1.8)	10(9.1)	1(2.2)	1(2.2)	11(25)	49(12.5)

*Set of twin **Two Sets of Twins

The symptomatic group showed a higher percentage of preterm babies, low birth weight and low Apgar score compared to the asymptomatic group but the difference was not significant (P>0.05). The most common cause of perinatal death in the low lying group was respiratory distress syndrome (RDS) in (41.9%) whereas the most common cause of death in the control group was RDS & infection (28.8%) each, the difference was statistically significant (P<0.01). RDS as a cause of death is significantly higher in the symptomatic group than asymptomatic one (Table-6).

Table 6. ***Causes of Perinatal Death***

Low Lying Placenta	Total Death	RDS	Congenital Anomalies	Placenta Praevia	Accidental Haemorrhage	Infection	Others
Total Low Lying	43	18(41.9%)	7(16.3%)	3(6.9%)	2(4.7%)	12(27.9%)	1(2.3%)
Symptomatic Type I &II	10	4	1	1	--	4	--
Type III& IV	11	5	1	2	--	3	--
Migrate to normal Position	12	6	2	--	1	2	--
Asymptomatic Type I &II	2	1	1	--	--	--	--
Type III& IV	2	--	1	--	--	--	--
Migrate to normal Position	8	2	1	--	1	3	1
Control Group	45	13(28.8%)	8(17.8%)	--	4(8.9%)	13(28.8%)	7(15.6%)

DISCUSSION

In this study, the low lying groups of the placenta have a significantly higher incidence of abnormal lie and presentation when compared with the control group, this finding confirmed by Lira et al in 1995[6]. Caesarean Section delivery was significantly higher with placenta praevia type 3 & 4, where the placenta prevents vaginal delivery. A study done in Boston in 1981 showed that the need for caesarean delivery was significantly higher in patients with low placental implantation, and infants born to mothers with low lying placenta showed a significant increase in prematurity[7], the same findings were observed by New York study in 1989[8]. The incidence of second trimester low lying placenta in the same group was reported as (13.2)[9]. Placental migration occurred in 51.1% of the symptomatic and 76.7% of the asymptomatic group. Most of the placental migration occurred between 32-34 weeks gestation and more in the anterior group than others. These findings go with the study done by Hassan in Baghdad where 52% of the patients has placental migration to normal position toward the end of pregnancy[10]. In the literature 97% of mid trimester low lying placenta was noted to convert to normal position if asymptomatic and 73% if symptomatic[8]. Anterior Placenta in this study showed the highest rate of conversion followed by the posterior one and the least for antero-posterior. These results agree with findings of Gillieson et al, who showed that the location of the placenta on the lower uterine segment indicates a good prognosis for an anterior placenta and less favourable for the other placental sites[11]. In the post partum period, there was increased risk of post partum haemorrhage and the need for blood transfusion; in addition there was increased incidence in performing caesarean hysterectomy. The risk was apparently more in the symptomatic group than the asymptomatic, but the difference was statistically insignificant. These results go with Hassan et al findings in Baghdad[10]. Chattopadhy et al reported five fold increased risk of caesarean hysterectomy[12] and Mcshare reported a significant increase in post partum complications especially haemorrhage and hysterectomy[13]. The majority of the babies were delivered after 37 weeks gestation. Preterm delivery occurred less than 37 weeks was noted more in the symptomatic than asymptomatic group, but the difference was not significant. When comparison was made with the control group, the difference was highly significant. These results compare very favourably with other studies[7,14]. Low birth weight (<2.5kg.), and low Apgar score (<7) of the infants in this study was significantly higher than the control group ($P<0.01$). Neonatal complications were higher in type 3 and 4 than type 1and 2 praevia. Perinatal death was higher in the low lying group, most deaths occurred in type 3 and 4 praevia and the most common cause of death was RDS. These neonatal complications are due to vaginal bleeding which might predispose to preterm delivery. There is a probability of decrease in exchange capacity of placenta especially in the portion over the internal os, together with hypoxia associated with decreased placental blood supply due to vaginal bleeding causing low birth weight & low Apgar score[15]. Many investigators have reported that early and prolonged bleeding from a low lying placenta has an adverse effect on foetal growth resulting in small for date infants[15,16]. Wolf reported that placenta praevia was not an independent factor in small for date infants[17]. The perinatal mortality in this study was 6.9% this is because patients with low lying placenta were admitted to hospital and proper management was taken, most of the neonatal death in this study occurred in patients who came in labour with severe vaginal bleeding. Unfortunately, this figure does not include those babies who die at home after patient's self discharge. Other studies reported different rates of 37% in 1973[18], 8.1% in 1985[19], 7.4% in 1991[20] & 8% in 2000[21]. No obvious congenital anomalies were seen among the studied group, although Brenner suggested that infants delivered to women with placenta praevia were more prone to serious congenital malformation[22].

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