

RELATIONSHIP BETWEEN PLACENTA PREVIA, PLACENTA ACCRETA AND FETAL GROWTH AT ELSHATBY MATERNITY UNIVERSITY HOSPITAL

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Introduction

Poor vascularization and tissue oxygenation in the area of a Cesarean scar is associated with local failure of re-epithelialization and decidualization , which has an impact on both implantation and placentation, as well as a possible effect on placental development and, subsequently, fetal growth. Furthermore, recent studies have suggested that pregnancies complicated by placenta previa are at higher risk of delivering a small-for-gestational-age (SGA) neonate and are associated with a higher incidence of placental vascular supply lesions. Several authors have found that spiral artery remodeling is reduced in PAS. Incomplete transformation of the spiral arteries and lesions associated with maternal vascular malperfusion are commonly found in placenta-related disorders of pregnancy, such as FGR and pre-eclampsia, suggesting that PAS placentation in a pregnancy complicated by placenta previa may have an even greater impact on placental development and function. Placenta previa and PAS disorder are both associated with high risks of prenatal and perinatal maternal complications but there are limited data available on their possible impact on fetal growth.

Aim of the work

The objective of this work was to study the incidence of intrauterine growth restriction (IUGR) or small for gestational age (SGA) in pregnancies complicated by placenta previa or placenta accreta versus controls with normally situated placenta at El-Shatby Maternity University Hospital.

Subjects and Methods

This prospective cohort study was conducted on 140 pregnant women at ELShatby Maternity University Hospital who were admitted after signing their informed consent. 70 patients had placenta previa spectrum and 70 had normal situated placenta as a control group. 1stgroup will be subdivided into Placenta previa group that are not morbidly adherent during cesarean section, where spontaneous placental separation occurred with Intravenous infusion of oxytocin and placenta previa group that are morbidly adherent during cesarean section (placenta accreta), where spontaneous placental separation did not occur with intravenous infusion of oxytocin. Inclusion criteria were Pregnant women of 20-40 years old, singleton pregnancy, gestational age more than 24 weeks and ultrasonographic examination showing no gross congenital anomalies. Exclusion criteria were any medical history of pregnancy associated disorders, history of previous IUGR, ultrasonographic examination showing gross congenital anomalies during antenatal care, Multiple gestation, smokers and body mass index is more than 35. All cases underwent Fetal weight measurement by ultrasound , Doppler of umbilical and middle cerebral artery and birth weight measurement.

Results

As regards to Doppler findings (Umbilical artery PI and MCA PI), measured for cases < 34 weeks of gestation and ≥ 34 weeks of gestation, they were not significantly different between the 3 studied groups with p value > 0.05 (Table 1).

Table (1): Comparison between the three studied groups according to Doppler findings in those less than and more than 34 weeks of gestation.

		Group A		Group B	F	P
		A1	A2			
<34	UA PI	(n = 3)	(n = 6)	(n = 8)	0.672	0.527
	Min. – Max.	0.80 – 1.28	0.76 – 1.23	0.77 – 0.99		
	Mean ± SD.	0.99 ± 0.26	0.99 ± 0.18	0.90 ± 0.08		
	Median (IQR)	0.88(0.84 – 1.1)	0.96(0.87 – 1.2)	0.92(0.83 – 0.98)		
	MCA PI	(n = 3)	(n = 6)	(n = 8)	1.053	0.375
	Min. – Max.	1.45 – 1.90	1.45 – 2.23	1.80 – 2.12		
	Mean ± SD.	1.74 ± 0.25	1.88 ± 0.32	1.96 ± 0.09		
	Median (IQR)	1.88(1.7 – 1.9)	1.97(1.5 – 2.1)	1.98(1.9 – 2)		
≥34	UA PI	(n = 22)	(n = 39)	(n = 62)	0.424	0.655
	Min. – Max.	0.61 – 1.18	0.60 – 1.20	0.69 – 1.12		
	Mean ± SD.	0.85 ± 0.17	0.84 ± 0.14	0.86 ± 0.12		
	Median (IQR)	0.82(0.70 – 1.0)	0.83(0.73 – 0.94)	0.86(0.77 – 0.92)		
	MCA PI	(n = 22)	(n = 39)	(n = 62)	2.607	0.078
	Min. – Max.	1.15 – 2.84	1.20 – 2.35	0.94 – 2.32		
	Mean ± SD.	1.72 ± 0.39	1.63 ± 0.24	1.57 ± 0.25		
	Median (IQR)	1.63(1.5 – 2)	1.65(1.5 – 1.8)	1.60(1.4 – 1.7)		

According to EFW by U/S and birth weight, it was found that there was no significant difference between the 3 groups, whether terminated < 34 GA or ≥ 34 GA (Table 2).

As regards the final outcome of the study we found that in group A1(with non-morbidly adherent placenta), the total number of SGA (8%) or IUGR babies (4%) was not significantly different from group A2 with placenta accreta (4.4% & 0.0% for SGA and IUGR, respectively) or group B with normally situated placenta (7.1% & 2.9% for SGA and IUGR, respectively), ^{MC}P 0.678 (Table 3).



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Table (2):Comparison between the three groups as regards EFW by u/s and Birth weight in relation to gestational age in weeks.

		Group A		Group B	F	p
		A1	A2			
<34	EFW by u/s	(n = 3)	(n = 6)	(n = 8)	2.755	0.098
	Min. – Max.	1750.0 – 2000.0	1650.0 – 2280.0	1950.0 – 2170.0		
	Mean ± SD.	1866.7 ± 125.8	1915.0 ± 249.2	2083.8 ± 73.08		
	Median (IQR)	1850.0 (1800.0 – 1925.0)	1875.0 (1690.0 – 2120.0)	2100.0 (2045.0 – 2130.0)		
	Birth weight	(n = 3)	(n = 6)	(n = 8)	3.541	0.057
	Min. – Max.	1780.0 – 2050.0	1620.0 – 2250.0	1900.0 – 2250.0		
	Mean ± SD.	1910.0 ± 135.3	1896.7 ± 247.7	2126.3 ± 108.0		
	Median (IQR)	1900.0 (1840.0 – 1975.0)	1855.0 (1700.0 – 2100.0)	2125.0 (2100.0 – 2205.0)		
≥34	EFW by u/s	(n = 22)	(n = 39)	(n = 62)	2.862	0.061
	Min. – Max.	1770.0 – 3700.0	2050.0 – 3680.0	1700.0 – 3950.0		
	Mean ± SD.	2864.1 ± 464.9	2869.6 ± 438.4	3065.2 ± 467.3		
	Median (IQR)	2960.0 (2550.0 – 3200.0)	2900.0 (2595.0 – 3175.0)	3135.0 (2850.0 – 3350.0)		
	Birth weight	(n = 22)	(n = 39)	(n = 62)	2.412	0.094
	Min. – Max.	1800.0 – 3500.0	2100.0 – 3630.0	1730.0 – 3720.0		
	Mean ± SD.	2785.5 ± 447.6	2874.9 ± 416.5	3000.0 ± 423.6		
	Median (IQR)	2890.0 (2450.0 – 3150.0)	2850.0 (2640.0 – 3150.0)	3050.0 (2800.0 – 3300.0)		

Table (3):Comparison between the three studied groups according to outcome.

	Group A (n = 70)				Group B (n = 70)		χ^2	MC _p
	A1 (n=25)		A2 (n=45)					
	No.	%	No.	%	No.	%		
Outcome								
Normal	22	88.0	43	95.6	63	90.0	2.408	0.678
SGA	2	8.0	2	4.4	5	7.1		
IUGR	1	4.0	0	0.0	2	2.9		

Conclusion

Our study provides evidence that placenta previa/PAS, is not considered as a risk factor for fetal growth restriction when compared to cases with normally situated placenta. Although Placenta previa and PAS affect fetoplacental circulation, this doesn't cause a significant effect on fetal Doppler, including umbilical artery PI and MCA PI, when compared with control group.