—Short Communication—

Influence of Placental Position on Outcome in Patients with Placental Abruption

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Abstract

We retrospectively analyzed the clinical significance of placental position in patients with placental abruption by comparing cases in which the placenta was implanted on the anterior wall of the uterus (n=17) and those in which the placenta was on the posterior wall (n=12). There were no significant differences in clinical features of patients or pregnancy outcomes between the two groups. In this study, all patients with an anterior-wall placenta received a diagnosis of placental abruption prenatally, whereas only 8 patients (67%, p=0.01) with posterior-wall placenta received a diagnosis of placental abruption prenatally. Serious consideration should be given to the diagnosis of placental abruption in patients with a posterior-wall placenta.

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Key words: prenatal diagnosis, placental abruption, placental position, posterior wall

Placental abruption, or premature separation of the normally implanted placenta is a serious and potentially life-threatened obstetric complication for both mother and child. With major placental abruption, the woman is shocked well beyond the apparent amount of blood loss and requires urgent hospitalization[1]. In 1999, a review by Chamberlain and Steer[1] indicated that the placenta in such cases is usually implanted on the anterior wall of the uterus, but is sometimes implanted posteriorly when the abruption is less painful and not severe enough to cause maternal shock; however, the fetus may still be at risk. To date, however, there have been few studies of the effects of placental position on the diagnosis or the outcome of patients with placental abruption. In this study, we retrospectively analyzed the clinical significance of placental position in patients with placental abruption by comparing cases in which the placenta was implanted on the anterior wall and those in which the placenta was implanted on the posterior wall.

We reviewed the clinical records of 8,912 deliveries at our hospital from January 2002 through June 2006, and identified 67 patients (0.75%) with placental abruption, defined as complete or partial separation of a normally implanted placenta by evidence of retro-placental bleeding. The present study included 29 patients meeting the following criteria: (1) those with singleton pregnancy delivered at ≥22 weeks' gestation excluding patients referred to our hospital after the onset of symptoms of placental abruption and (2) those with placental position confirmed on the anterior (anterior group: n=17) or posterior wall of the uterus (posterior

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Table 1 Clinical features of the patients with placental abruption

	Anterior group	Posterior group	*P* value*
N	17	12	
Symptoms			
Abdominal pain	12 (71%)	5 (42%)	0.11
Vaginal bleeding	12 (71%)	5 (42%)	0.11
Signs			
Spasm of the uterus	6 (35%)	5 (42%)	0.72
Cardiotocogram findings			
Frequent contractions	7 (41%)	5 (42%)	0.98
NRFS	15 (88%)	10 (83%)	0.71

Values are expressed as n (%).
*Fisher's exact test.
NRFS, non-reassuring fetal status.

Table 2 Obstetric complications and outcome of pregnancies

	Anterior group	Posterior group	*P* value*
N	17	12	
Delivery mode			
Cesarean	17 (100%)	12 (100%)	1
Blood loss (m*l*)	870 ± 630	1,100 ± 580	0.31
Blood loss ≥ 1,000 m*l*	6 (35%)	6 (50%)	0.43
DIC	2 (12%)	1 (8%)	0.77
Transfusion required	2 (12%)	1 (8%)	0.77
**Stage Ⅲ	7 (41%)	3 (25%)	0.37

Values are expressed as n (%) or mean ± SD.
*Student's *t*-test or Fisher's exact test.
DIC, disseminated intravascular coagulation.
**Stage Ⅲ based on report of Page et al. (1954)[4].

group: n=12). Maternal symptoms, obstetric complications, prenatal diagnosis and outcome of pregnancy were recorded. Statistical comparisons between the two groups were analyzed with Student's *t* test, Welch's *t* test, and Fisher's exact test as appropriate. Differences with p values <0.05 were considered significant.

There were no measurable differences in maternal age (30.5 ± 4.6 vs. 33.4 ± 4.3 years, p=0.09), parity (0.8 ± 1.1 vs. 0.5 ± 0.8, p=0.39) or gestational age at delivery (34.0 ± 4.5 vs. 36.5 ± 2.6 weeks, p=0.08) between the patients of anterior and posterior groups.

Table 1 shows the clinical features of patients with placental abruption. **Table 2** shows the obstetric complications and outcome of pregnancies, while **Table 3** shows the neonatal outcomes. In this study, all patients underwent Cesarean irrespective of fetal demise. There were no measurable differences in these valuables between the two groups. All patients in the anterior group were prenatally diagnosed as having placental abruption, while only 8 patients (67%, p=0.01) were diagnosed as placental abruption in the posterior group. The other 4 patients (33%) were prenatally diagnosed as having non-reassuring fetal status with unknown cause.

The excessively frequent uterine contractions produced prostaglandin release and the abnormal pattern of the fetal heart rate secondary to fetal hypoxia has been considered a typical clinical presentation in patients with placental abruption[1]. In 33% of the present cases showing placenta implantation on the posterior wall of the uterus, however, these findings did not contribute to prenatal diagnosis of placental abruption. Recently, ultrasound examination has been recognized as a useful adjunct for the diagnosis and evaluation of

Table 3 Neonatal outcome

	Anterior group	Posterior group	*P* value*
N	17	12	
Weight (g)	2,150 ± 910	2,590 ± 750	0.18
Fetal demise	4 (24%)	4 (33%)	0.56
Surviving neonates			
n	13	8	
Apgar'1 < 4	4 (24%)	0 (0%)	0.07
Apgar'5 < 4	2 (12%)	0 (0%)	0.21
Umbilical artery pH <7.1	6 (35%)	1 (8%)	0.09

Values are expressed as n (%) or mean ± SD.
*Student's *t* test and Fisher's exact test.

placental abruption[2,3]. The major ultrasonic findings in placental abruption are visualization of a retroplacental hematoma and increased thickening of the placenta[3]. The extravated blood infiltrating the uterine wall behind the placenta is thought to cause increased uterine tone, which is associated with uterine rigidity; the most dependable sign of placental abruption. In cases of placental implantation on the anterior wall, the diagnosis of placental abruption may be easily established by the previous ultrasound examinations[1]. However, in cases showing placental implantation on the posterior wall, it may be difficult to observe placental conditions behind the fetus on ultrasonography.

Our findings support the consensus that placental abruption is a serious complication of pregnancy regardless of placental position. Thus, serious consideration is needed to diagnosis placental abruption in patients showing placental implantation on the posterior wall of the uterus.

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