

DYNAMIC PLACENTATION DEMONSTRATED BY ULTRASONOGRAPHY

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SUMMARY

The dictum of aggressive management of placenta previa spread and remained pre-eminent until 1945 and advocated a more conservative approach in selected cases. This rational approach to the management of patients is possible today because of placental localisation by ultrasonography. There has been an implicit assumption made in all placental localization, regardless of technique, that the position of the placenta is fixed and constant. It is now clear that this assumption is not warranted. The position of the placenta can change with respect to external landmarks due to changes in uterine position, and it can change with respect to internal landmarks due to progressive uterine enlargement. The ultrasonographic evidence presented here indicates that the placenta can migrate within the uterus away from an internal landmark, the cervix, during the course of gestation. The apparent placenta previa in mid-trimester may convert to a normal implantation by term.

Introduction

Ultrasonography has become the preferred technique for the localization of the placenta as it is rapid and accurate apart from being safe and simple in imaging the uterus and its contents. It allows visualization of the size, shape and location of the placenta. It also visualizes the uterine cervix permitting a rather precise determination of the degree of separation of the placental edge and the internal cervical os. The use of ultrasonography in the diagnosis of placenta previa over the past many years has led to the obser-

vation, on serial examinations, of the occurrence of placental migration. This phenomenon consists of a progressively increasing separation, in some cases, of the lower placental margin and the internal cervical os during the course of gestation. The occurrence of placental migration necessitates a revision of our current concepts of placental attachment and development of a new hypothesis of dynamic placentation, first proposed by King (1973).

Aim of the study

This study was carried out with the aim of studying the new hypothesis of placental migration.

From: Nowrosjee Wadia Maternity Hospital, Parel, Bombay-12.

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Material and Methods

During the routine ultrasonography examination of patients who had been admitted/referred to the Nowrosjee Wadia Maternity Hospital for complaints of bleeding per vaginum during the second or early third trimester of pregnancy, 76 patients were diagnosed to have a low-lying placenta. The relationship of the lower placental margin to the internal os was carefully estimated by repetitive scanning. The examination was greatly aided by moderate distension of the bladder.

Follow-up examinations were done four or more weeks after the initial examination. In some patients, three or four examinations were carried out over the last half of gestation. Only 49 patients came for follow-up, out of which 4 patients aborted before repeat ultrasonography examinations.

Results

TABLE I
Age

Age (Years)	Cases (49)	Per cent
16-20	3	6.12
21-25	4	8.16
26-30	25	51.02
31-35	17	34.69

TABLE III
Initial Position of Low-lying Placenta

Initial exam. at gestation in weeks	Position of low lying placenta			
	Ant (%)	Post (%)	Lat (%)	Central (%)
12 and more	10.20	10.20	—	6.12
16 and more	4.08	8.16	—	2.04
20 and more	18.36	6.12	6.12	2.04
24 and more	6.12	—	—	—
28 and more	6.12	4.08	2.04	8.16

As per standard teaching, we found that 85% of the cases in the older age group had low-lying placentae.

TABLE II
Obstetric History

Gravida	Cases (49)	Per cent
1	2	4.08
2	5	10.20
3	9	18.37
4	19	38.78
5 and over	14	28.57

The above Table shows that the incidence of placenta previa rose with an increase in gravidity, being highest in the fourth and fifth gravidas.

The initial position of placenta in patients who presented with bleeding per vaginum has been shown in Table III. Forty five per cent patients had an anterior low-lying placenta, whereas 28% had a posterior low-lying placenta and 18% had a central placenta extending either anteriorly or posteriorly.

Four patients aborted before repeat examination. Ultrasonography was repeated anytime between 32 and 36 weeks of gestation, to document the final position of the placenta. This is shown in Table IV below.

TABLE IV
Position of Placenta at Final Scanning

Weeks of Gestation	AF (%)	PF (%)	Position of placenta		Low lying
			LF (%)	CP (%)	
32	4.4	8.8	2.2	4.4	—
34	24.4	8.8	2.2	—	2.2
36	8.8	11.1	2.2	4.4	15.5

AF = Anterior Fundal
PF = Posterior Fundal
LF = Lateral Fundal
CP = Central Previa

It is evident from the above Table that most of the placentae had migrated by 32-34 weeks whereas 9% remained as central placenta previa and 18% were found to be low lying.

TABLE V
Migration of Placenta

Migration	Cases (45)	Per cent
Anterior	23	51.11
Posterior	16	35.55
Lateral	3	6.66
No migration	3	6.66

It can be seen that 51% of the patients showed anterior migration of the anterior low lying placenta, whereas 36% showed posterior migration of the posterior low lying placenta. There were however three patients who showed no migration of the placenta from its initial position.

Discussion

The ultrasonographic evidence presented in this paper indicates that the placenta can migrate within the uterus away from an internal landmark, the cervix, during the course of gestation. The apparent placenta previa in midtrimester may convert to a normal implantation by term. It appears to be reasonably clear

that this migration is due to uterine growth. Enlargement of the uterus to accommodate the growing fetus occurs in a number of ways. The uterine muscle fibres elongate and hypertrophy. The isthmus of the cervix triples its length and is incorporated into the lower uterine segment during the second trimester. During the later third trimester the lower segment further elongates with effacement of the cervix. These changes produce a comparatively rapid enlargement of the uterus in a direction away from the internal os. They have the effect of carrying the margin of the initially low lying placenta away from the internal os towards the fundus of the uterus.

The concept of dynamic placentation may explain not only placental migration but also may help to account for some cases of vaginal bleeding during pregnancy. It may be that the bleeding results from a temporary failure of the placentation process to reestablish attachment of a small portion of the placenta to the uterine wall. Failure of the process on a larger scale may cause some abortions and may be the mechanism by which abruptio placenta develops.

The clinical implication of placental

migration is that the demonstration of placenta previa before late second trimester is an indication for reexamination near term and not necessarily an indication for caesarean section.

Wadia Maternity Hospital for allowing us to present the hospital data.

Reference

1. King, D. L.: Placental migration demonstrated by ultrasonography. *Radiology* 109: 167, 1973.

We thank the Dean of the Nowrosjee

AM = Amniotic Fluid
 PW = Placental Weight
 LF = Fetal Length
 CF = Crown-Rump Length

The average of placental weight was 400 gm. This is in line with the average of 350-400 gm reported by other workers. The average of placental weight was 400 gm. This is in line with the average of 350-400 gm reported by other workers. The average of placental weight was 400 gm. This is in line with the average of 350-400 gm reported by other workers.

TABLE I
 Placental Migration

Case No.	Placental Weight (gm)	Fetal Length (cm)	Crown-Rump Length (cm)
1	400	35	10
2	350	32	9
3	450	38	11
4	380	34	10
5	420	36	10

It was found that 25% of the patients showed anterior migration of the placenta. The average weight of the placenta was 400 gm. The average fetal length was 35 cm. The average crown-rump length was 10 cm.

The average of placental weight was 400 gm. This is in line with the average of 350-400 gm reported by other workers. The average of placental weight was 400 gm. This is in line with the average of 350-400 gm reported by other workers.

The ultrasonographic evidence of placental migration was seen in 25% of the patients. The average weight of the placenta was 400 gm. The average fetal length was 35 cm. The average crown-rump length was 10 cm.

The clinical significance of placental migration is that the demonstration of placenta previa before late second trimester is an indication for reexamination near term and not necessarily an indication for caesarean section.