

THE INFLUENCE OF PREVIOUS UTERINE SURGERY ON PLACENTAL LOCATION

By

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SUMMARY

It is aimed to study the influence of previous uterine scar on placental implantation site. A total of 616 normal cases and 168 with previous uterine surgery were included. Following previous LSCS Low implantation of placenta occurred in 7.14% cases as compared to 4.22% in cases with no uterine surgery. Anterior placenta was also noted to occur more commonly in cases following caesarean section as compared to the control group (45.83% vs 36.36%). Thus it was concluded that the presence of previous uterine scar can influence the implantation site in subsequent pregnancy.

Introduction

Ultrasound is an established technique to localize the placental implantation site in the uterine cavity, Edelstone (1977); King (1973). A standard Obstetrics textbook (Danforth, 1982) makes a note that if there is a uterine scar, the placenta is more likely to be implanted over it. Benner *et al* (1978) showed the incidence of placenta praevia to be higher in women with previous caesarean section as compared to normal women. A subsequent study by Histley (1982) noted that the placental location was not influenced by the existing scar. Thus the present work has been undertaken with an aim to resolve this controversy.

Patients and Methods

The study included 616 normal pregnant patients without prior uterine sur-

gery and 168 cases who had undergone one or more caesarean sections during their past pregnancies. All these cases had good correlation between clinical and ultrasound dating of pregnancy. During the study period we had 2 cases pregnant following metroplasty and one following myomectomy. In two out of these 3 cases the placental implantation site was closely related to previous uterine scar. But, since the number is too small these have not been included in any statistical analysis.

Ultrasonic screening was done using a grey scale real time scanner (ALOKA) operated at 3.5 MHz. All cases had screening with full bladder. Initial mid-line longitudinal scan was done for orientation followed by scanning in various planes. For placental localization all screenings were limited to last four weeks of pregnancy. Placental location site was described according to the presence of the greatest bulk of placental tissue in relation to the uterine section. Four

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main sites i.e. anterior, posterior, fundal and praevia were identified. Anterior location was further divided into anterior fundal, when the placenta is limited to the upper uterine segment and anterior low lying with placental edge dipping into the lower uterine segment. Placenta praevia was also subdivided into anterior, posterior and central categories.

Results

Of 616 normal cases studied 459 were primigravidae and the rest were multipara. The study group included all multiparous patients and 23 of these had more than one caesarean done in the past. All caesareans were done by a lower segment transverse incision. Clinical profile of these patients is depicted in Table I.

TABLE I
Clinical Profile of Patients

	Control group (N = 616)	Study group (N = 168)
Mean Age	27.8	29.2
Parity-Primi	459	—
—Multi	157	168
Mean Gestational Age	37.8	38.2

The results of placental location sites in the two groups are depicted in Table II. Anterior placenta was noted to occur with a greater frequency in cases following previous caesarean section (45.83% vs 36.36%). This difference was statistically significant ($P < 0.01$). In comparison posterior wall and fundal placental implantations occurred in a lesser number of cases following uterine surgery than otherwise. This difference was not significant statistically.

Placenta praevia was noted in 7.14% cases following caesarean section as compared to 4.22% in cases with no previous uterine surgery. The difference was significant statistically ($P < 0.01$).

When various subcategories were taken into consideration (Table II), again it was noted that out of all anterior implantations a greater fraction was encroaching onto the lower uterine segment in previously operated cases. Similarly in placenta praevia cases there was a preponderance of anterior placenta praevia in cases pregnant following lower segment caesarean section, when compared with posterior and central placenta praevias. The difference in the anterior praevia position in normal and previous-

TABLE II
Location of Placenta in Relation to Previous LSCS

Location Site	Normal (N = 616)		Previous CS (N = 168)		Statistical significance
	No.	%	No.	%	
Anterior	224	36.36	77	45.83	P .01
— Fundal	132	21.43	30	17.85	N 3
— Low lying	92	14.93	47	27.98	P .01
Posterior	134	21.75	29	17.26	N.S.
Fundal	232	37.66	50	29.76	N.S.
Praevia	26	4.22	12	7.14	P .01
— Anterior	11	1.78	9	5.37	P .01
— Posterior	11	1.78	1	0.58	—
— Central	4	0.65	2	1.19	—

ly operated cases was significant statistically ($P < 0.01$).

Table III depicts the distribution of various location sites in patients belonging to the control group according to parity. No statistically significant difference was noted in the placental implantation site in multigravidae as compared to primigravidae. When placental implantation site in the study group was compared with 157 multipara belonging to the control group, same differences as noted earlier were observed.

higher percentage of these praevias was noted to be located over the anterior uterine wall. Total anterior implantations were also noted to occur more frequently in cases with previous LSCS, with a greater fraction of these encroaching onto the scar.

This is in contrast to the observations made by Histley and Magnum (1982). They noted anterior placental implantation in 35% cases and low lying placenta in 8% cases irrespective of uterine surgery. No significant difference in the per-

TABLE III
Location of Placenta in Relation to Parity

Location site	Primi (N = 459)		Multi (N = 157)		Statistical significance
	No.	%	No.	%	
Anterior	167	36.38	57	36.30	N S
Posterior	101	22.00	33	21.02	N S
Fundal	172	37.47	60	38.21	N S
Praevia	19	4.14	7	4.46	N S

Discussion

Ultrasound has a particular utility for placental localization. Various etiologic factors for placenta praevia have been identified. Of these an important factor noted by Danforth was presence of a uterine scar. An increased incidence of placenta praevia was noted in patients previously delivered by lower segment caesarean section.

Another large series by Brenner (1978) on study of placenta praevia reported an incidence of praevia to be 18.9/1000 in women with previous LSCS as compared to an incidence of 9.1/1000 in women with no uterine surgery.

In our study we have noted placenta praevia in 7.14% cases following caesarean section as compared to 4.2% in cases without uterine surgery. A significantly

percentage of implantation sites was noted between two groups in their series.

From our study we conclude that previous uterine surgery can influence the location of placental implantation site with almost 6% placentas being implanted directly over the scar and another 30% with the edge encroaching onto the scar. Parity did not have any significant influence on the placental location site.

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