

MANAGEMENT OF PATIENTS WITH PREVIOUS CAESAREAN SECTION

by

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From time to time it is necessary to review the clinical application of science to the art and practice of obstetrics. This is especially true in those fields where clinical judgement takes precedence over strictly scientific information, as is the case in the management of patients previously delivered by caesarean section.

to institution (Table 1). The highest incidence of 7.5 per cent is reported by Mayer and Countiss (1959). In Gordon's (1954) 1937 series the incidence was 1.99 per cent, while in his 1954 series it is 5.02 per cent. Dugald Baird (1955) reports an incidence of 0.8 per cent in the years 1938-42 and one of 2.9 per cent in the

TABLE I
Incidence of Caesarean Section

Sr. No.	Name of author	Number of		Incidence per cent
		Deliveries	Caesarean sections	
1	Mayer and Countiss (1959) ..	30,889	2,323	7.5
2	Arnold and MacCain (1955) ..	27,772	197	0.713
3	Hall et al (1958)	85,553	3,816	4.46
4	Gordon C. A. (1957)			
	(a) 1937 series	Not mentioned		1.99
	(b) 1954 series	Not mentioned		5.02
5	Dugald Baird (1955)			
	(a) 1938-1942 series	Not mentioned		0.8
	(b) 1951-1954 series	Not mentioned		2.9
6	N. W. Maternity Hospital			
	(a) 1931-35	22,170	105	0.47
	(b) 1956-60	47,276	902	1.90

Incidence of caesarean section has gone up during the last 25 years, mainly because of the safety of the operation. It varies from institution

years 1951-54. At the Nowrosjee Wadia Maternity Hospital, Bombay, the incidence has increased from 0.47 in 1931-35 to 1.9 per cent in the years 1956-60 (Graph 1).

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During the 5 year period of study, from 1st July 1958 to 30th June 1963, there were 49,620 deliveries, out of

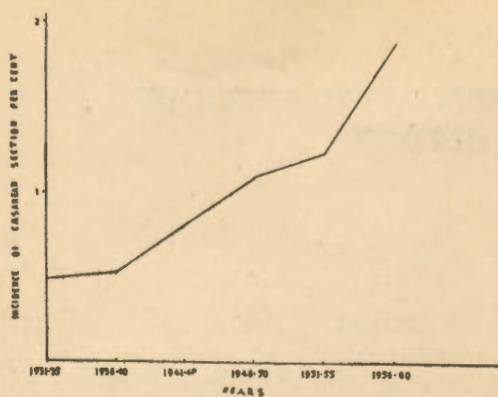


Fig. 1

which 1,035 were by caesarean section. Thus the incidence was 2.08 per cent.

As the incidence of caesarean section is increasing, more and more cases of previous caesarean section come up for confinement. It is of prime importance to remember that the growing incidence of caesarean section is largely due to a pyramiding of this operation, a previous caesarean section leading to another.

et al. (1958) give an incidence of 43.6 per cent. During the last 5 years, out of 1,035 caesarean sections performed at the hospital, 272 were done on patients who had undergone one or more previous caesarean deliveries. Thus the incidence is 26.28 per cent. This low incidence reflects the trend in management of patients with previous caesarean section at our hospital.

During the period of study, 568 patients were admitted to the hospital with a history of previous, one or more, caesarean sections (Table 3). Two hundred and seventy-two were delivered by repeat caesarean section, while 277 were delivered vaginally. In 19 patients the scar gave way, resulting in uterine rupture. Thus 48.76 per cent of the patients delivered vaginally. Table 4 gives the incidence of vaginal delivery reported by various authors. Lawrence (1953) has given an incidence of 22.9 per cent, but since in

TABLE II
Incidence of Repeat Caesarean Section

Sr. No.	Name of author	Number of		Incidence per cent
		Caesarean sections	Repeat C. S.s	
1	Bryant (1956)	1,472	1,014	68.81
2	Hess (1958)	574	340	52.2
3	Powell et al (1958)	443	193	43.6
4	Schmitz and Towne (1950)	559	197	35.2
5	Browne & Sutherland (1952)	265	89	33.0
6	Waters (1958)	2,036	552	26.7
7	N. W. Maternity Hospital From 1st July 1958 to 30th June 1963	1,035	272	26.28

The incidence of repeat caesarean section reported by various authors is shown in Table 2. Bryant (1956) has reported 68.81 per cent. Powell

hospitals at Leeds, "Once a caesarean always a caesarean" was the dictum followed, these are the patients delivered vaginally inspite of

TABLE III
Management of Patients with Previous Caesarean Section

Year	Total No. of previous C. S. admitted to hospital	Delivered by repeat Caesarean section	Vaginal delivery				Rupture uterus
			Total No.	Spont. Vaginal delivery	Forceps delivery	Cranio-tomy	
1st July 1958 to 30th June 1963	568	272	277	238	35	4	19

TABLE IV
Incidence of Vaginal Delivery in Cases of Previous Caesarean Section

Sr. No.	Name of author	Total No. of cases	Total No. of vaginal deliveries	Incidence per cent
1	Lawrence (1953)	849	195	22.9
2	Dalal and DeSa Souza (1958)	268	87	32.56
3	Wilson (1952)	498	167	33.6
4	Cosgroove (1950)	500	179	35.8
5	Fleming (1956)	295	118	41.5
6	Menon (1962)	712	324	45.3
7	Narvekar (1956)	55	30	54.5
8	Present series	568	277	48.76

the obstetrician. Nature was benevolent to these women. In Narvekar's (1956) series 54.5 per cent patients delivered vaginally but his series is too small.

Previous Classical Caesarean Section

Management of patients with previous caesarean section depends on the type of operation. Hence patients with previous classical caesarean section are studied separately. In the present series there were 28 cases with previous classical scar. This low incidence of classical caesarean section is due to the fact that at our hospital this approach is used only when the lower segment cannot be reached due to adhesions, fibroids,

etc. and when classical caesarean section is employed the patient is preferably sterilised. Out of the 1,035 caesarean sections performed during the last 5 years, only 2.76 per cent were with a classical incision.

The outcome of labour and pregnancy in cases of previous classical caesarean section is shown in Table 5. Repeat caesarean section was performed on 14 patients, i.e. 50 per cent. Twelve patients had ruptured uteri. Thus abdominal delivery was required in 92.85 per cent of the patients. The one, delivered by Malmström's vacuum extraction, was a third para, aged 30 years and had had two previous caesarean sections, first a lower segment caesarean section for

TABLE V
Previous Classical Caesarean Section and Present Outcome

Total No.	Ruptured uterus	Lower Segment Caesarean sections	Classical Caesarean sections	Malmström's vacuum extraction	Normal delivery
28	12	12	2	1	1
	42.85%	50% (2 were sterilised)	(1 was sterilised)	7.14%	

cephalo-pelvic disproportion, and the second a classical section for previous caesarean section and cephalo-pelvic disproportion. She had paid only one antenatal visit. She was to be submitted to an elective caesarean section, but she came in labour with membranes ruptured few hours before admission and the cervix fully dilated, with the anteriorly rotated head just below the spines. The labour was terminated by a Malmström's vacuum extraction. This patient thus escaped a repeat section.

The patient who had normal vaginal delivery gave history of a classical caesarean section, followed by a full-term forceps delivery and

two full-term normal deliveries.

Out of these 28 patients, 23 had only one classical scar while 5 had two or more scars. Nine patients with one classical scar and 3 with two or more scars had rupture of uterus. Thus when patients had only one classical scar, in 39.13 per cent of cases, scar had given way, while those who had two or more scars, chances of rupture of uterus are 60 per cent. Out of these 28 patients 7 had both lower segment as well as classical scars, two of which had rupture of uterus. In both only the classical scar had given way while the lower segment scar remained intact.

TABLE VI
Indications for Previous Classical Caesarean Section and Present Outcome

	Total No.	Repeat Caesarean sections	Rupture of uterus	Vaginal delivery
Recurrent				
1 Cephalo-pelvic disproportion ..	14	8	5	1
Non-recurrent				
1 Placenta praevia ..	5	Nil	5	Nil
2 Uterine inertia ..	2	2	Nil	Nil
3 Transverse lie ..	2	1	1	Nil
4 Cervical dystocia ..	1	1	Nil	Nil
5 Post-maturity ..	1	1	Nil	Nil
6 Not known ..	3	1	1	1

The *indications* for previous classical caesarean section are taken as a reliable guide in the selection of the method of management of a subsequent labour (Table 6). Recurrent indication, viz. cephalo-pelvic disproportion, was present in 14 cases, out of which 1 delivered by Malmström's vacuum extractor, as just explained, while 5 had rupture of uterus. Seven cases out of the 14 with non-recurrent indication had uterine rupture. All 5 patients, on whom classical caesarean section was done for placenta praevia, had ruptured uteri, 3 during pregnancy and 2 during labour.

Previous Lower Segment Caesarean Section

There were 540 patients with a history of previous lower segment caesarean section. The outcome of pregnancy and labour is shown in Table

7. Two hundred and fifty-eight were delivered by repeat caesarean section, while 275 delivered per vaginam, and 7 had uterine rupture. Out of these 272 patients, 34 had forceps delivery, while 4 patients admitted with absent fetal heart sounds, were delivered by craniotomy. All these 4 patients would perhaps have undergone repeat caesarean section if seen earlier. Thus 50.94 per cent of the patients were delivered vaginally. The incidence of rupture of lower segment caesarean scar was 1.29 per cent.

How the management of pregnancy and labour is affected by the number of previous caesarean sections is shown in Table 8. Four hundred and eleven patients were admitted with previous one caesarean section. Two hundred and twenty-nine, out of these 411, i.e. 55.71 per cent, were delivered vaginally. Eighty patients had two caesarean sections. Majority,

TABLE VII
Previous Lower Segment Caesarean Section and Present Outcome

Total No. of previous Lower Segment Caesarean Section	Delivered by repeat Caesarean Section	Vaginal delivery			Ruptured uterus	
		Total	Spontaneous delivery	Forceps delivery		Cranio-tomy
540	258 (47.77%)	275 (50.94%)	237	34	4	7 (1.29%)

TABLE VIII
Number of Lower Segment Caesarean Sections and Present Outcome

No. of previous Caesarean Section	Total	Repeat Caesarean Section		Vaginal delivery		Rupture of uterus	
		Number	Per cent	Total No.	Per cent	Total No.	Per cent
One ..	411	177	43.06	229	55.71	5	1.21
Two ..	80	66	82.5	12	15	2	2.5
Three and more ..	14	13	92.86	1	7.14	Nil	Nil
Unknown ..	35	2		33			

i.e. 82.5 per cent, required repeat caesarean section. When the patient had 3 or more caesarean section scars only one out of 14 delivered vaginally.

Another factor, which is helpful in deciding the management, is whether the patient had any vaginal delivery before the last caesarean section. Table 9 shows the obstetric career of these 540 patients before the last caesarean section. In 35 patients past

weighed 8 lbs. while the present baby weighed 7 lbs. 12 ozs. Two hundred and nine patients gave history of vaginal delivery before the last caesarean section. Out of these 94 were delivered vaginally. It can also be seen that out of the 113 who were taken up for repeat caesarean section, only 42, i.e. about one-third, had full-term live births in the past. As against this, out of the 94 who were

TABLE IX

Obstetric Career before the Last Lower Segment Caesarean Section

	Total No.	Repeat Caesarean section	Vaginal delivery	Ruptured uterus
Total cases	540	258	275	7
History not available	35	2	33	Nil
No delivery in the past	235	90	141	4
All previous deliveries by Caesarean Section	61	53	7	1
Vaginal delivery in the past	209	113	94	2
(a) Craniotomy	11	10	1	Nil
(b) Still-birth	65	44	20	1
		(12 forceps delivery)		
(c) Intracranial trauma	13	12	1	Nil
(d) Premature delivery	13	5	8	Nil
(e) Full-term live births	107	42	64	1
			(59.8%)	

history was not available. Out of the 235 patients who had no delivery before the last caesarean section 141 i.e., 60 per cent., delivered vaginally. There were 61 patients who had all their previous deliveries by caesarean section. Only 7 of these delivered vaginally. Of these 7 patients, one had a macerated still-birth, 2 delivered prematurely, 2 had spontaneous vaginal delivery, while the remaining 2 had forceps delivery. One of these last two had rotation with Leff's forceps and extraction with axis traction forceps. This patient had 2 sections in the past. Both the babies

delivered vaginally, 64, or two-thirds, had full-term live birth in the past. Lastly out of the 107 patients who had full-term normal deliveries before the caesarean section, nearly 60 per cent could be delivered vaginally.

Obstetric history after the last caesarean section is more helpful than the obstetric history before it. (Table 10). Four hundred and four patients had had no delivery after the last caesarean section. Out of these, 162, or 40.1 per cent, delivered per vaginam. One hundred and one patients gave history of vaginal delivery after the last caesarean section

TABLE X
Obstetric Career after the Last Lower Segment Caesarean Section

	Total No.	Repeat Caesarean section	Vaginal delivery	Ruptured uterus
Total cases	540	258	275	7
History not available	35	2	33	Nil
No delivery after last Caesarean Section ..	404	237	162	5
H/o. Vaginal delivery	101	19	80	2
(a) Craniotomy	2	2	Nil	Nil
(b) Still-birth	8	2	6	Nil
(c) Premature delivery	8	4	3	1
(d) Full-term live births	83	11	71	1
			(85.5%)	

and 80 of them delivered vaginally; of these, 71, i.e. 85.5 per cent, of the 83 patients who had had full-term live births previously delivered vaginally. Thus if the patient had full-term normal delivery after her last caesarean section, she stands a good chance of repeating the performance.

The *indication* for the previous caesarean section is one of the most important factors in determining the management of the case. (Table 11).

In 54 patients the caesarean section was performed for placenta praevia. Out of these 54, 52 delivered vaginally. Malpresentation was the indication for caesarean section in 44 patients, out of which 31 delivered vaginally. In 18 patients caesarean section was done for cord prolapse. Ten out of these 18 delivered normally.

Cephalo-pelvic disproportion was the commonest indication, as seen in 318 cases. Out of these, 104 patients,

TABLE XI
Indications for Previous Lower Segment Caesarean Section and Present Outcome

Sr. No.	Total No.	Repeat Caesarean section	Vaginal delivery	Ruptured uterus
1 Cephalo-pelvic disproportion ..	318	210	104	4
2 Placenta Praevia	54	2	52	Nil
3 Malpresentation	44	13	31	Nil
4 Cord prolapse	18	8	10	Nil
5 Bad obstetric history	11	7	4	Nil
6 Uterine inertia	6	2	3	1
7 Tightening of internal os	5	3	2	Nil
8 Vesico-vaginal fistula	1	1	Nil	Nil
9 Growth in vagina	1	1	Nil	Nil
10 Unknown	63	3	61	2
11 Miscellaneous	16	8	8	Nil
Total	540	258	275	7

i.e. 32.7 per cent, delivered vaginally. Thus even when the indication was of the recurrent type, one-third of the patients could be delivered from below. Very often a combination of factors makes caesarean section imperative in the patient. Often in cases of mild cephalo-pelvic disproportion, caesarean section is forced

of babies cannot be ruled out. Thus it is important to know the weight of the baby at the time of the last caesarean section. From this point of view the weight of the babies of 30 patients, who had previous caesarean section for cephalo-pelvic disproportion and who were delivered vaginally this time are studied. (Table 12). Eight

TABLE XII
*Difference in Weight of Babies of Previous Caesarean Section
and Present Vaginal Delivery*

Difference of weight in ozs.	0-8	9-16	17-24	25-32	33-40	41 and above	Total
Vaginal delivery babies weighing less than caesarean section babies	7	7	2	2	2	2	22
Vaginal delivery babies weighing more than caesarean section babies	4	3	1	0	0	0	8

by maternal or foetal distress. Quite often a trial of labour fails because of persistent occipito-posterior position or inefficient uterine action. All these patients are invariably labelled merely as cephalo-pelvic disproportion. This may be because obstetrician's mind was over-occupied by cephalo-pelvic disproportion from the beginning. McIntosh Marchall has nicely put it as "Caesarean section for disproportion is often a Caesarean section for inefficient uterine action!" Thus it is very important to differentiate mere disproportion from other factors.

Even if the patient had caesarean section for cephalo-pelvic disproportion after full and adequate trial of labour, the possibility of subsequent vaginal deliveries due to smaller size

babies weighed more than the corresponding caesarean babies, the difference being more than 8 ounces in 4 and less than 8 ounces in the rest. The remaining 22 babies were smaller than the corresponding caesarean babies, the difference being less than 8 ounces in 7 and more than 8 ounces in 15. Obviously at least in the latter 15 patients the difference in weight made all the difference between caesarean section and vaginal delivery.

Once it is decided to allow the patient to deliver vaginally, the question of the *strength of the scar* arises. It is very difficult to evaluate the strength of the scar. The type of caesarean section, the number of caesarean sections, surgical technique, suture material, the nature of

convalescence, healing power etc. are the factors that play an important role in deciding the strength of the scar. But none of these factors can be accurately evaluated. Besides, implantation of placenta over the scar and over-distension of the uterus due to hydramnios or multiple pregnancy may weaken the scar.

Two hundred and fifty-eight patients were taken up for repeat caesarean section. Lower segment operation was performed on 239 patients, while classical section was done on 19 patients. Elective caesarean section was performed on only 24 patients. To know the expected date of labour from the class of patients who attend the hospital is very difficult; it is better to wait till the patient goes into labour before performing caesarean section. Thus incidence of repeat elective caesarean section is very low. One hundred and fifty patients were taken up for caesarean section, as soon as the labour pains started. Sixty-four patients were given a short trial of labour. Twenty patients were given a full trial of labour. (Table 13).

was done. Out of 19 classical caesarean sections, only one was left to have a further pregnancy.

There is still a controversy about the number of sections a woman can be safely submitted to. The practice of sterilising a woman after 2 or 3 caesarean sections need not be religiously adhered to. In the past, when caesarean section carried a high mortality, it was not considered sound to submit a patient to more than 3 sections. But today, caesarean section is safe enough for a patient to be left unsterilised at the time of the third section, if she does not have sufficient living children, or if she desires more children. McNally and Fitzpatrick (1956) surveyed 130 patients who had 4 or more sections and found that subsequent pregnancies and labour had no complications. Cosgroove (1950), while discussing the obstetric future of caesareanised patients, comments that, "A woman's child-bearing life is too short for the repeat caesarean section mortality to decrease her life expectancy to any significant degree." Eastman (1959) says that 4 sections

TABLE XIII
Analysis of 258 Cases Requiring Repeat Caesarean Section

Total No. of cases of Repeat Caesarean Section	Elective Caesarean sections	Repeat Section without trial of labour	Repeat Section after short trial of labour	Repeat Section after full trial of labour
258	24	150	64	20

Fifty-four patients, out of the 258, who underwent repeat caesarean section, were sterilised at the time of the repeat section. In 36 patients lower segment caesarean section and sterilisation was done and in 18 patients the classical section and sterilisation

are enough! Out of the 258 cases of repeat caesarean section in the present series 13 were undergoing a fourth or more than the fourth caesarean section. Ten of them were sterilised.

The findings at laparotomy, at the

291 laparotomies in the whole series, were noted. Nearly one-third of the patients showed adhesions at laparotomy irrespective of whether the previous operation was classical or lower segment. But of the patients who showed adhesions, adhesions were dense in 66 per cent of the previous classical caesarean section group and in 36 per cent of the lower segment caesarean section group. Thus formation of adhesions appears to be an individual tendency, but adhesions tend to be excessive when classical caesarean section is performed.

Rupture of uterus

In the present series, of 568 cases, in 19 patients caesarean section scar had given way, resulting in uterine rupture. Thus the incidence of scar rupture is 3.34 per cent. Out of these 19 scar ruptures, 12 occurred in previous classical caesarean group and 7 in previous lower segment caesarean group. Thus the incidence of rupture of the classical scar is 42.85 per cent while that of lower segment scar is 1.29 per cent. In Krishna Menon's (1962) series, the incidence was 5.3 per cent, 11.5 per cent of classical scars having given way, while 2.7 per cent of lower segment scars had ruptured. Eames (1953) gives the incidence to be 2.6 per cent in classical caesarean section and 1.3 per cent in lower segment caesarean section.

All classical caesarean section ruptures were obviously complete. Out of the 7 lower segment scar ruptures 3 were complete and 4 incomplete. In 3, out of the last 4, the rupture was of window type. All these 3 had been given a short trial of labour. Out of

24 elective caesarean sections and 150 patients, who were taken up for operation as soon as the labour pains started, none showed rupture of the scar.

Five classical caesarean section scars and all 7 lower segment scars ruptured during labour. Seven classical scars gave way during pregnancy, one at 10 weeks and 6 between 29 and 37 weeks of pregnancy. Thus if the policy of performing elective caesarean section 10 days prior to expected date of delivery had been followed, all the ruptures of lower segment caesarean section and 5 of the classical operation could have been saved. But this would have meant 279 more abdominal deliveries. Even this policy could not have prevented the 7 classical scar ruptures during pregnancy. It may be emphasized in passing that the early diagnosis of rupture of the lower segment scar is very difficult. In only 2 of the 7 cases in the present series was the diagnosis made before laparotomy.

Nine patients of classical caesarean section scar rupture had only one classical scar, while two had previous classical sections and 1 had 4. As it was shown in Table 8, out of the 411 patients with one lower segment caesarean section, 5 had rupture of the scar, while of 80 patients with two lower segment scars, two had rupture. Thus the incidence of rupture when there are 2 lower segment scars is 2.5 per cent, more than twice that of the one when there is one lower segment scar, which is 1.21 per cent.

Out of the 12 patients with classical scar rupture, in 4 hysterectomy was required, while in 5 suturing of

the uterus, and in remaining 3 suturing with sterilisation was done. In all the 7 patients of lower segment scar rupture, suturing was done, while 2 of them were also sterilised.

Two patients of ruptured scar expired. Both had previous classical caesarean sections; in one hysterectomy was done while in the other suturing was carried out. Thus maternal mortality in rupture of classical caesarean section scar was 16.66 per cent. In lower segment caesarean section scar rupture there was no mortality. Eames (1953) gives maternal mortality in cases of rupture of classical caesarean section scar as 2.5 per cent while that in lower segment scar as nil.

Perinatal Mortality

Perinatal mortality in the present series is shown in Table 14. Two

section was done for central placenta praevia. In the remaining case, foetal heart sounds disappeared during failed trial of labour. Thus 4 stillbirths could theoretically have been prevented by routine elective caesarean section.

There were nine neonatal deaths in the repeat caesarean section group. One set of twins and 3 other babies died of prematurity. One mature baby, weighing 5 lbs. 8 ozs., died on the 10th day of broncho-pneumonia. Two babies were born deeply asphyxiated and died within half an hour of delivery. Both these patients came to hospital in advanced labour. One baby died of intracranial damage. This patient was given a trial of labour. These three neonatal deaths could have been saved by doing elective caesarean section.

Out of the 279 babies, including 4

TABLE XIV
Perinatal Mortality

	Repeat C. S.		Vaginal delivery		Ruptured uterus		Total
	Previous L.S.C.S.	Previous Cl. C.S.	Previous L.S.C.S.	Previous Cl. C.S.	Previous L.S.C.S.	Previous Cl. C.S.	
Total births ..	259 (1 twin)	14	279 (4 twins)	2	7	12	573
Still-births ..	6	0	21	0	3	9	39
Neonatal deaths ..	9	0	9	0	0	1	19
Gross perinatal mortality ..	5.79%	0	10.75%	0	42.85%	83.33%	10.12%

hundred and fifty-nine babies, including one set of twins, were born by repeat caesarean section. Out of these, 6 were still-born. Three patients admitted with absent foetal heart sounds, one due to cord prolapse, were taken up for caesarean section as craniotomy was considered hazardous, in view of the grossly contracted pelvis. In 2 cases repeat caesarean

sets of twins, born vaginally (in lower segment caesarean section group), 21 were still-born. Out of these 21 stillbirths, 3 were macerated stillbirths, 1 was an anencephalic monster, a pair of twins weighed only 1 lb. 2 ozs. each, and two were due to accidental haemorrhage. The remaining 13 stillbirths could have been avoided by repeat caesarean section.

There were 9 neonatal deaths in the vaginal delivery group, 7 babies (2 sets of twins) weighed below 3 lbs. and died of prematurity. The remaining 2 babies which were born deeply asphyxiated after a trial of labour, could have been salvaged by repeat caesarean sections.

Thus, the policy of routine elective performance of caesarean section would have, at least theoretically salvaged 17 still-births and 4 neonatal death. This would have meant 275 more abdominal deliveries; besides, this policy would certainly have resulted in some foetal loss due to prematurity as a result of mistakes in the estimation of the period of gestation.

Out of the 12 babies of classical caesarean section scar rupture 2 went home alive, 9 were still-born and one died of prematurity on the third day. Thus perinatal mortality was 83.33 per cent. In lower segment caesarean scar rupture 4 babies were alive and 3 were still-born. Thus perinatal mortality is 42.85 per cent. The foetus has better chance of survival in cases of rupture of lower segment scar than in cases of rupture of classical scar.

The gross perinatal mortality in the entire series was 10.12 per cent. It is nearly double (10.75%) in the vaginal delivery group than in the repeat caesarean section group (5.79%).

Maternal Mortality

There were 6 maternal deaths in the series. Out of these, 3 patients died in the repeat caesarean section group, one died of pulmonary embolism on the fourth day and one died

on the table, due to a rupture of an aneurysm of the thoracic aorta. The remaining one was transferred from outside after a long trial of labour; the lower segment was very thin and friable and was very difficult to suture. Patient went into shock on the table and died on the third day. Thus maternal mortality in repeat caesarean section was 1.13 per cent. During the same period, there were 18 maternal deaths in 763 primary caesarean sections giving a mortality rate of 2.36 per cent. Quite often death of the mother occurred not because of the operation but because the operation had to be performed on women, whose condition was low due to haemorrhage, sepsis, severe anaemia, toxæmia, etc. Besides patients with previous caesarean section are likely to be submitted to repeat section more readily and at an earlier stage of labour than patients undergoing primary caesarean section. These factors partly explain the lower mortality in the repeat caesarean section series.

Amongst the 277 vaginal deliveries, there was only one maternal death. This patient died of shock following manual removal of placenta, necessitated by profuse post-partum haemorrhage. The placenta was multilobed, membranous and firmly adherent to the uterus. Exploration of the uterus after manual removal of placenta showed no rupture. Post-operatively the patient suddenly collapsed and expired after 27 hours. Post-mortem was not available.

There were two maternal deaths in 19 cases of ruptured uterus. In both these cases the classical scar had given way, in one during labour and in the

other during the 34th week of pregnancy. In the former hysterectomy was carried out, and the patient died of uraemia on the 6th day. In the latter case the uterine wound was sutured, the patient expired 3 hours after the operation (? due to shock).

Comments

There are two views regarding the management of cases of previous caesarean section. According to one, it is preferable to do elective caesarean section on these patients, while according to the other each case should be judged on its own merits. Greenhill (1963) believes in doing repeat caesarean section in most of the cases. He permits vaginal delivery in those cases who are in active labour, the baby's head is low down and the cervix is effaced and partially dilated. However, it is an undeniable fact that as many as half of the cases of previous caesarean section can be safely delivered vaginally. If vaginal delivery is to be permitted, it is for consideration as to which cases should be allowed this treatment. The decision will depend on the answers to two questions: (1) Can the patient deliver vaginally if she had no scar? (2) Can the scar stand the strain of labour?

Whether the patient can deliver vaginally or not, the scar being ignored, will depend on (1) the indication for previous caesarean section, (2) her past obstetric history, (3) type of pelvis, and lastly (4) the foetus — its presentation, position and size.

If the patient can deliver vaginally in the absence of the scar, then the evaluation of the scar is important, though very difficult. The site of the

scar is one of the most important factors in deciding on its strength. If the patient has a previous classical scar and she has a 1 in 14 chance of delivering vaginally, she carries a 42 per cent risk of rupture of the scar during either pregnancy or labour. Thus a classical scar is a great liability. To attempt a vaginal delivery when the uterus has a classical scar is to play with fire. It is a gamble with long, long odds. Repeat caesarean section for a previous classical scar should be considered a rational treatment. The undesirability of using a classical incision, unless the patient can be sterilised, follows as a natural corollary. A classical incision should be considered criminal except when the lower segment incision is not feasible or the patient is to be sterilised. In contrast to this the lower segment scar runs no risk of rupture during pregnancy and carries only a 1.29 per cent risk of rupture during labour. Besides half of the patients with previous lower segment scar can be delivered vaginally.

Another factor influencing the strength of the scar is the number of previous sections. As already shown, patients with two lower segment scars are more than twice as liable to rupture as those with one lower segment scar.

Healing power, surgical technique and presence or absence of sepsis are other important factors contributing to the integrity of caesarean section scar. But none of these can be accurately measured or precisely evaluated.

Benzi and Uggeri (1962) suggest hystero-graphy as a valuable method demonstrating defects in the caesa-

rean scar. But this method is not very practicable.

If the indication for the last caesarean section is non-recurrent then nearly 80 per cent of the cases can deliver vaginally. Even if the indication is a recurrent one, 30 per cent of cases can deliver vaginally.

If the patient has a live-birth before the last caesarean section, she stands a 60 per cent chance of delivering vaginally. But if she has a full-term live-birth after the last caesarean section, her chances for vaginal delivery are increased to 85 per cent.

When it is decided to do a repeat caesarean section, should it be done electively or during labour? If the previous scar is classical an elective caesarean section at an opportune time, prior to the onset of labour, should be the right course. If the previous scar is over the lower segment, one can delay the caesarean section until the patient is well advanced in labour and thus it is possible to undertake a trial of labour if considered necessary.

When performing a repeat section on a patient with a previous classical scar it is advisable to do a lower segment incision. The classical scar has proved that it can efficiently stand the strain of pregnancy and can be trusted to behave likewise in future pregnancies too. But if this scar is replaced by a new classical scar, this new scar may rupture during future pregnancy.

Finally, one need not wonder whether our predecessors, half a century back, who practised the doctrine of 'Once a caesarean always a caesarean' were lesser obstetricians or had

greater surgical inclination. Since in those days caesarean section was undertaken only when inevitable, due to grossly contracted pelvis (a classical incision was liberally resorted to; and sepsis widely prevalent), the practice of this doctrine was both sound and fully justifiable. But today, when the use of caesarean section is extended to many a non-recurrent indication, the use of lower segment incision is universal and sepsis has become a rarity, the practice of this historical doctrine should be considered irrational, unsound and callous. Many a patient with a previous caesarean section can be and ought to be delivered vaginally with great safety.

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