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"SANE" OBSTETRICS*

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No other division of medicine is fraught with greater dangers to the patient and anxiety to the physician than that of obstetrics. The eclamptic convulsion, the terror of hemorrhage, the devastating ruptured uterus, are only a few of the apparently insurmountable obstacles with which the obstetrician has to contend. The radical treatment of eclampsia, the innovation of prophylactic forceps and version operations in order to shorten labor have all had their disciples. Some are still adherents to these methods, but most have retreated, sadder though wiser practitioners. We shall attempt to rationalize the problem of obstetric risk through an analysis of a group of cases, relatively small to be sure, but sufficient for the end in view.

The material is taken from the ward service of the senior author at the Bronx Hospital, where 1,569 mothers were delivered of 1,584 babies.

The class of patients cared for varied from the extremely poor to the comfortable middle class. Most of these were Jewish.

The expectant mother was required to register with the antepartum clinic before the seventh month of gestation. She was seen at intervals of two weeks up to the last month of gravidity and every week from then on to the time of delivery. This antepartum care consisted of a general physical examination, mensuration, dietetic regulation, as well as reinstallation of neglected personal habits, such as care of the bowels and cleanliness. The appearance of signs of toxemia, blood dyscrasia and the like was promptly met with more frequent observations in the clinic, or, when necessary, hospitalization.

There were 1,441 normal deliveries. Operative delivery, or, as Duncan terms it, "artificial" delivery, was done in 143 cases, a frequency of 9.1 per cent.

The operative deliveries consisted of the following: low forceps, 58; mid forceps, 61; high forceps, 2; version, 16, and cesarean section, 6.

The greatest majority of low forceps operations were done in primiparas, the indications for which, in order of their frequency, were:

(a) Maternal distress and prolonged labor (first and second stages).

(b) Fetal distress (character of fetal heart as to rate, rhythm and quality, in addition to the mere appearance of meconium,

the latter alone not being considered as an indication to terminate labor).

(c) Consummation of labor by shortening the second stage in cases of preeclampsia and eclampsia.

(d) Contracted outlet (rigid coccyx and outlet contractions in funnel pelvis).

(e) Cardiac complications and placenta praevia.

The sixty-one midforceps operations are divided into two groups: (a) head anterior at time of operation, 32, and (b) head in posterior position at time of operation, 29.

For the first group the Elliot blades were used, as a rule, with the occasional use of the Kielland forceps, which may be employed for occipito-anterior as well as for occipitoposterior and mentoposterior positions. The indications were strict and ran a parallel to those for low forceps, with the additional indication of midplane contraction. For the twenty-nine cases of occipitoposterior position, persistent and requiring rotation, the Kielland forceps were used exclusively.

The occipitoposterior position was encountered 319 times (a frequency of 20.14 per cent), i. e., at the first examination. Spontaneous rotation occurred in 268 cases, (84 per cent): 160 out of 201 right occipitoposterior (80 per cent), and 108 out of 118 left occipitoposterior (92 per cent). Persistence of occiput posterior occurred 51 times (16 per cent); 22 of these (15 right and 7 left), 43 per cent of persistent occiput posterior presentations, or 7 per cent of all occiput posterior presentations, delivered as such; 20 delivering spontaneously, 1 requiring mid forceps, and 1 requiring the aid of low forceps. Twenty-nine of this group of 51 cases (23 out of 41 right occipitoposterior 50 per cent, 6 out of 10 left occipitoposterior 50 per cent, 57 per cent of persistent occiput posterior, or 9 per cent of all cases of occiput posterior required rotation before delivery.

The high forceps operation was done twice. In the two instances the pelvis were of the relative assimilation type. The term relative assimilation is applied to a pelvis with ample measurements, in which engagement fails to take place. Repeated observations have led us to the conclusion that engagement does not occur because of an exaggerated tilt of the pelvis with an overhanging promontory. This is not an uncommon occurrence in the short, thick-necked, squat type of patient and is frequently associated with a persistent occiput posterior position. We have since discarded the operation of high forceps and replaced it with cesarean section.

Podalic version and extraction was employed sixteen times for the following indications: (a) occult prolapse of the cord, 1; (b) prolapsed arm, 1; (c) placenta praevia, 2; (d) transverse presentation, 9; (e) mentoposterior presentation, 1, and (f) failure of forceps in persistent occiput posterior (contracted pelvis), 2.

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In this series there was one maternal death, three stillbirths and two neonatal deaths.

Cesarean section was resorted to 6 times in 1,569 cases, a frequency of 0.4 per cent, or 4 per thousand. The indications were as follows: (a) central placenta praevia, 3; (b) contracted pelvis, 1; (c) cardiac disorders, 1, and (d) to obtain living baby in moribund mother with cerebral hemorrhage, 1.

The death of this moribund mother was the only one in this group.

Perineal lacerations were sustained in 40 per cent of the cases; 75 per cent of these were first degree, 24.25 per cent were second degree, and 0.75 per cent were third degree. The third degree lacerations (three cases) were in primiparas, and healing occurred by first intention following immediate and extensive repair of the perineal floor.

Episiotomy was performed nine times: eight unilateral and one bilateral.

Bagging was resorted to eight times for the following indications: (a) occult prolapse of the cord, 1; (b) marginal placenta praevia, 1, and (c) transverse presentation with ruptured membranes, 6.

The largest bag possible was used in all cases to avoid a repetition of the procedure in the same patient. Peeling away of the placenta because of the presence of the bag was never observed.

TABLE 1.—Operative Deliveries

Operation	Number	Frequency, per Cent	Maternal Death	Neonatal	
				Death	Stillbirth
Low forceps.....	58	3.7	0	0	2
Mid forceps.....	61	3.9	1	0	4
High forceps.....	2	0.1	0	0	0
Version.....	16	1.0	1	2	3
Cesarean section.....	6	0.4	1	0	0
Totals.....	143	3.1	3	2	11

Of the face presentations there were four cases; three right mento-anterior, delivering spontaneously as such, and one right mentoposterior, requiring version and extraction. In private practice we have used the Kielland forceps to advantage for the mentoposterior position.

Fifty-six of fifty-eight breech presentations were treated conservatively, allowing the labor to proceed until the buttocks had passed through the vaginal orifice, from which point manual help by the operator completed delivery. This procedure was followed for both the footling and frank breech. In only two cases was it necessary to break up a frank breech in order to consummate delivery. Of these fifty-eight cases there were only five stillbirths and one neonatal death. The cause of stillbirth in two cases was not determined, while prematurity, maceration and craniotomy on an after coming head of a large baby were the causes of stillbirth in the remaining three. The sole neonatal death was attributed to atelectasis, death taking place ten hours after delivery.

Placenta praevia was encountered seven times, four of the marginal type and three of the central.

MARGINAL

(a) Secundipara, seven months gravid, left hospital against advice after bleeding had been controlled.

(b) Primipara, six months gravid, delivered by version and extraction, followed by manual removal of placenta; stillbirth.

(c) Secundipara, at term, manual dilatation, version and extraction of a living baby.

(d) Tertipara, at term, bagging, version and extraction of a living baby.

CENTRAL

Two secundiparas and one primipara at term; all three were operated on by cesarean section in the classic manner, mothers and babies making uneventful recoveries.

Retained placenta occurred four times. One placenta was delivered spontaneously after a two hour wait; one was expressed by the Credé maneuver after a six hour wait, and two were removed manually, both being of the adherent type. The manual removals were made necessary by the advent of profuse hemorrhage, the one immediately after delivery, and the other fifty minutes after delivery.

Postpartum hemorrhage followed the delivery of the placenta in nineteen cases which are here grouped under the headings of atony of the uterus, placenta praevia, adherent placenta, cervical laceration and blood dyscrasia.

Eleven cases of hemorrhage were due to atony of the uterus. Four were successfully treated with pressure, solution of pituitary, and a preparation of liquid ergot. Seven were treated by uterine packing. There were two deaths, one due to catastrophic hemorrhage immediately after a normal delivery, the other on the third day post partum following a difficult instrumental delivery, due, no doubt, to some embolic phenomenon resulting from severe trauma.

Placenta praevia was the cause of the postpartum hemorrhage in one case, which required manual removal and uterine packing. Recovery was uneventful.

Two cases of adherent placenta causing postpartum hemorrhage were treated by manual removal and uterine packing, with recovery.

There were three cases of severe cervical laceration resulting in postpartum hemorrhage; two were difficult forceps deliveries and one was a spontaneous delivery. One of the patients delivered by forceps required suturing, but she developed an enormous vulval hematoma two days later and, as a result of this secondary hemorrhage, died. The other two patients were treated by uterine, cervical and vaginal packing and made uneventful recoveries.

Blood dyscrasia as a factor in postpartum hemorrhage appeared twice: one in the form of a splenic anemia, and the other as a purpura hemorrhagica. The first was treated by repeated uterine packing, transfusions and splenectomy. The latter was treated by uterine packing and transfusions but not splenectomy because of the poor operative risk. Both patients died in spite of all forms of desperate attempts to succor them.

Premature separation of the placenta was encountered in two patients. The first, after an eight months' gestation, responded to rest in bed and morphine, later giving birth to a living child. The second, after an eight and one-half months' gestation, going into spontaneous labor, was delivered of a monstrosity by version and extraction. The placenta was attached to the meningocele of an acrania by means of the amnion, thus resulting in the premature separation of the placenta with the onset of descent, and a consequent extension of the head producing a face presentation. The mother made an uneventful recovery.

Only two cases of uterine anomaly were found in the entire series. Bleeding occurred from the non-gravid side of a bicornate uterus at monthly intervals from the second to the fifth month inclusive in one patient. She later delivered spontaneously, both herself

and the baby making uneventful recoveries. The other, a mother with a uterus didelphys, was not so fortunate. When she was six months gravid, she developed an acute peritonitis with a streptococcal bacteremia. This condition was secondary to a thrombosis of the blood supply to the right ovary, which was gangrenous. The day following laparotomy, she went into labor, delivered a stillborn child and died the following day. The blood culture was positive for *Streptococcus hemolyticus*. The portal of entry of the infection was never definitely determined.

TOXEMIA OF PREGNANCY

Under the heading of toxemia of pregnancy we divide the cases into three main groups: preeclampsia, nephritic toxemia and eclampsia; the last named being again divided into antepartum, intrapartum, postpartum and combined eclampsias.

There were twenty-four cases of preeclampsia (primiparas, 10; secundiparas, 7; tertiparas, 2; quartiparas, 3; quintiparas, 2, and sextipara, 1). A number of patients, to whom it was advised, refused hospitali-

TABLE 2.—Postpartum Hemorrhage

Cause	Num-ber	Treatment		Deaths		Cause of Secondary
		Medical	Surgical	Pri- mary	Sec- ondary	
Atony of uterus...	11	Pressure, solu- tion of pitu- tary, prepara- tion of liquid ergot, 4 cases	Uterine packing, 7 cases	1	1	Embolus
Placenta praevia...	1	.....	Manual removal, packing	0	0	.....
Adherent placenta	2	.....	Manual removal, packing	0	0	.....
Cervical laceration	8	.....	Cervical suture, 1; packing, 2	0	1	Vulval hematoma
Blood dyscrasia... (a) Splenic anemia	2	Transfusion	Packing, splenec- tomy	..	1	Progres- sive anemia in both cases
(b) Purpura hem- orrhagica	.....	Transfusion	Packing	..	1	.....
Totals.....	19	Packing was done in 14 cases	.....	1	4	.....

zation but improved with proper care at home. Three patients were hospitalized, two of whom remained with improvement, ultimately being delivered of living children, while the third left the hospital against advice on the tenth day of her hospital stay, refusing further treatment. The remaining patients were treated in the antepartum clinic, sent home with instructions to go to bed, and advised as to dietetic and eliminative correction. This group of twenty-four patients gave birth to twenty-four babies, nineteen of which were living and remained alive (four of eight months' gesta- tion, and fifteen at term); three were stillbirths (seven and a half months' gestation), and one was born macerated (approximately eight months' gestation).

Under the heading of nephritic toxemia, we list two cases of old nephritic disease with hypertension in a secundipara and a tertipara, neither of which presented any subjective symptoms, and one case of cerebral accident resulting from a chronic nephritis with arteri- osclerosis in a secundipara. The first two patients were carried along on strict dietetic and eliminative regimens, coming to term and delivering spontaneously, leaving the hospital in good condition after a ten day stay, with no subjective symptoms, though still showing a hyper-

tension, albumin and casts in the urine. They were referred back to the medical clinic for further obser- vation and treatment. The cerebral accident occurred in a secundipara, who was admitted with unilateral paralysis and in a moribund state. The life of this mother was so far beyond redemption that a cesarean section was decided on to salvage a living baby. The classic operation was performed and a living baby obtained, though the mother died a few hours later.

Eclampsia menaced eight mothers: two antepartum, two intrapartum, three postpartum and one combined antepartum and postpartum.

In the antepartum subgroup of two cases, each patient had three convulsions, was treated by the Stroganoff method, improved, went into labor, and was delivered spontaneously of a living child, both mothers making uneventful recoveries.

In the intrapartum subgroup of two cases, one patient had had an eclampsia with her first baby eighteen months before but refused admission for observation with her second pregnancy, coming to the hospital only when she was in labor, at which time her blood pressure was 200 systolic and 120 diastolic. She was allowed to progress, the blood pressure being taken every fifteen minutes. Toward the end of her second stage, her arterial pressure rose to 230 systolic and 140 diastolic. Preparations were immediately made to con- summate labor with forceps, when she suddenly went into a violent convulsion. Prompt anesthesia and rapid forceps delivery resulted in the birth of a living child. The mother had no more convulsions and was dis- charged from the hospital in ten days with a blood pressure of 140 systolic and 85 diastolic, and a normal urine. The other case was in a primipara, who had had one convulsion during the second stage, was immedi- ately delivered of a living child, and made an unevent- ful recovery.

In the postpartum subgroup of three cases, one case in particular drives home a definite lesson. Any case of toxemia bordering on the eclamptic is never out of danger until the period of parturition and the puer- perium have passed. The fact that a threatened eclampsia has passed the period of parturition does not necessarily mean that that particular case of threatened eclampsia may not become an actual eclampsia. And when this does occur, there is not infrequently the ful- minating, catastrophic type of eclampsia. This mother, a tertipara, had been coming to the antepartum clinic regularly. When she was seen in her eighth month, it was noted that her arterial pressure had risen from 120 systolic and 60 diastolic to 140/90, and her ankles had become slightly edematous. She was immediately placed on a regimen of dietetic and eliminative cor- rection. Her improvement was prompt. When at term, she delivered spontaneously after a six and a half hour labor. Thirty minutes postpartum she had one violent convulsion, passed into a state of coma, and died. The baby lived. The second patient was delivered of a living child by the natural forces and had two convulsions post partum but recovered. The third patient had four postpartum convulsions follow- ing delivery of an eight month premature infant but also recovered.

In the combined group there was one case. A primi- para was admitted to the hospital with a blood pressure of 180 systolic and 120 diastolic, complaining of dizzi- ness, headache, spots before the eyes and edema of the extremities. The urine boiled solid albumin and had many hyaline and granular casts. She had two

convulsions before labor began and one convulsion post partum. Labor began spontaneously and ended with the birth of a 7½ months living premature infant. Both mother and baby made uneventful recoveries.

CARDIAC CASES

This group we divide into the pseudocardiac cases, embracing the functional murmurs and neurocirculatory asthenia; and the true cardiac cases, embracing the various lesions of the heart, singularly or in combination.

The symptom complex of so-called neurocirculatory asthenia presented itself in a tertipara. She went to

physician to have her pregnancy interrupted when she was in the fifth month. This she refused. The cardia was enlarged to the posterior axillary line on the left side. Five days before the onset of labor she was admitted in acute decompensation. Liberal use of morphine, together with digitalization by the Eggleston method, served to reestablish her compensation. She went to term and delivered spontaneously, after having refused cesarean section with sterilization. Her puerperium was uneventful.

(d) A double mitral and aortic stenotic murmur was elicited in a secundipara, who was admitted to the hospital in acute decompensation with enlargement of the

TABLE 3.—*Toxemias of Pregnancy*

Toxemia	Number	Convulsions	Treatment		Previous Eclampsia	Premature			Term			Maternal Death
			Expectant	Operative		Lived	Still-born	Died	Lived	Still-born	Died	
Preeclampsia.....	24	.....	Dietetic Eliminative Correction	.....	0	4	5	..	15	..	..	0
Nephritis.....	2	.....	2	1 cesarean section	0	..	..	..	3	..	..	1
Eclampsia												
(a) Antepartum.....	2	3 each	Stroganoff	.....	0	..	..	..	2	..	..	0
(b) Intrapartum.....	2	1	Stroganoff plus forceps in both	.....	1	..	..	..	2	..	..	0
(c) Postpartum.....	3	1, 2, 4	Stroganoff	.....	0	1	..	..	2	..	..	1
(d) Combined.....	1	3	Stroganoff	.....	0	1	..	..	..	..	..	0
Totals.....	35		31 Expectant	1 Operative	1	6	5	..	24	..	..	2

term after a prolonged period of rest in bed and delivered spontaneously, mother and baby making uneventful recoveries.

The functional systolic murmur, heard over the left base of the heart and nonradiating, was observed twice in primiparas and once in a secundipara. All three went to term, delivering spontaneously without any untoward complications.

Of the true cardiac lesions, there were the following:

(a) Mitral regurgitation was observed in ten cases, in primiparas seven times and in secundiparas three times. Nine went to term, eight of whom delivered living children spontaneously and one was aided by a

cardia to the right and left. Compensation was reestablished with the aid of morphine and digitalis. Twelve days after admission, she was delivered by cesarean section and sterilized under spinal anesthesia. She left the hospital two weeks later well compensated.

Solution of pituitary was used for two purposes. In the first place, as a routine procedure, in 1 cc. doses following the completion of the second stage, to aid and abet the separation of the placenta and to arrest postpartum hemorrhage. In this series of cases we did not find a single instance in which this procedure was the cause of a retained placenta, as has been reported by so many authors. In the second place, it has been used judiciously and conservatively, as well as cautiously,

TABLE 4.—*Cardiac Patients in Pregnancy*

Lesion	Number	No History of Decompensation	History of Decompensation	Decompensation on Admission	Treatment		Maternal Death	Neonatal					
					Expectant	Operative		Premature			Term		
								Lived	Stillborn	Died	Lived	Stillborn	Died
Mitral regurgitation.....	10	10	..	..	10	1 low forceps	0	1	..	..	9	..	..
Mitral stenosis.....	1	1	..	..	1	.....	0	..	..	..	1	..	..
Double mitral.....	2	1	1	1	2	.....	0	..	..	..	2	..	..
Double mitral aortic stenosis	1	..	1	1	..	Cesarean-1	0	..	..	..	1	..	..
Totals.....	14	12	2	2	13	2	0	1	..	..	13	..	..

low forceps operation. One patient, a primipara, had a partial separation of the placenta in the eighth month, went into labor, and gave birth to a living child. None of these mothers showed signs of decompensation, although they presented evidence of cardiac hypertrophy.

(b) Mitral stenosis was found once, in a tertipara, with no impairment of compensation. She went to term, gave spontaneous birth to a living child, and was discharged from the hospital in good condition.

(c) The double mitral lesion occurred twice, both in secundiparas. The one, with no history of decompensation, went to term, delivered spontaneously and made an uneventful recovery. The other gave a history of decompensation and had been advised by her family

to promote labor pains of a lagging uterus, after complete dilatation, with engaged head, and in the absence of dystocia.

PELVIC ABNORMALITY

Under the heading of pelvic abnormality are two groups, the relative and the true abnormalities of the pelvis. Under the latter heading appears generally contracted pelvis, the rigid coccyx, funnel pelvis, simple flat pelvis, and chondrodystrophic pelvis. By relative abnormality reference is made to the "relative assimilation" pelvis. Although the inlet and outlet measurements were apparently normal in this subgroup, yet the marked protuberance of the high or low promontory was sufficient to cause interference with the progress of labor, by deflecting the presenting part, thus caus-

ing it to override the symphysis, allowing access to the true pelvis, only by the process of asynclitism. The occipitoposterior position was not infrequently associated with this type of pelvis.

Under the heading of generally contracted pelvis we had two cases, both in primiparas with vertex presentations, delivering spontaneously of small babies.

There was one case of rigid coccyx in a primipara, in which low forceps and episiotomy was the method employed to consummate delivery of a small child.

In the subgroup of funnel pelvis we had two cases, both in primiparas. The first was delivered by mid forceps with episiotomy, mother and baby making uneventful recoveries. The second was in an elderly primipara with a persistent occiput posterior. She sustained a severe second degree laceration as a result of a midforceps operation, followed by a postpartum hemorrhage. On the third day post partum she developed a huge vulval hematoma and, as a result of this secondary hemorrhage, died before transfusion could be given.

A simple flat pelvis was encountered twelve times: eight in primiparas, two in secundiparas, one in a tertipara and one in a quartipara. Six primiparas

of these babies weighed from 5 to 6½ pounds (from 2.3 to 2.9 Kg.) there were two cases in the simple flat group, in a secundipara and in a tertipara, which were delivered spontaneously of a 7 pound 11 ounce (3.5 Kg.) and an 8 pound 8 ounce (3.8 Kg.) baby, respectively. This is made possible by a moldable head, a mobile pelvis, and the mechanism of asynclitism. It is also of value to point out the fact that previous delivery by the vaginal route of a fairly large baby does not preclude some form of dystocia in a subsequent delivery.

MATERNAL MORBIDITY

In a series of 1,046 successive cases including normal and abnormal deliveries, the gross morbidity was 8.13 per cent. The net morbidity was 6.77 per cent. The standard of morbidity used in this group was a temperature of 100.4 F. on any two days post partum excluding the day of delivery. There were seventy patients who had elevation of temperature attributable to obstetric causes. Rise of temperature as a result of nonobstetric causes occurred 22 times due to the following: acute otitis media, 1; acute cholecystitis with lithiasis, 1; grip, 7; bronchitis, 6; pyelitis, 6; *Streptococcus hemolyticus* bacteremia with

TABLE 5.—Pelvic Abnormality

Pelvis	Number	Parity	Presentation	Delivery				Mat. Deaths	Fetal Term			Cause of Maternal Death
				Spontaneous	Forceps	Version	Cesarean		Lived	Stillborn	Died	
Generally contracted	2	I, I	Both vertex	2	.....	..	..	0	2	..	..	
Rigid coccyx.....	1	I	Both vertex	..	Low, 1	..	..	0	1	..	..	
Funnel.....	2	I, I	Both vertex	1	Mid, 1	..	..	1	2	..	..	Vulval hematoma
Simple flat.....	12	I, 8 II, 2 III, 1 IV, 1	11 vertex 1 transverse	8	Low, 1 Mid, 1	2	..	1	10	2	..	Embolus
Chondrodystrophy..	1	I, 1	Vertex	..	.....	..	1	0	1	..	..	
Totals.....	19	17 vertex, 1 transverse		11	Low, 2 Mid, 2	2	1	2	16	2		

delivered spontaneously, one required mid forceps, and one version and extraction after the failure of forceps. The last patient was delivered of a stillborn child, the mother dying on the second day post partum while talking to some visitors. Death was probably due to an embolic phenomenon, as a result of trauma sustained at the time of delivery. Of the secundiparas, one delivered spontaneously and one required the aid of low forceps. The tertipara delivered spontaneously, while the quartipara required version and extraction for a transverse position with prolapsed arm.

There was only one absolute contraction of the pelvis. This was found in a case of chondrodystrophy. Delivery was effected by elective low cervical cesarean section and resulted in the birth of a live baby, the mother making an uneventful recovery.

The casualties in this group of pelvic abnormalities consisted of two maternal deaths, one macerated fetus, and one stillbirth. In retrospect it must be noted that in two deaths, one in a patient with a simple flat pelvis with a stillbirth and one in a patient with a funnel pelvis with a live baby, though delivery by the vaginal route proved possible, yet cesarean section might have proved the better choice of delivery. We probably carried a point too far in favor of the vaginal route in these cases, for cesarean section would probably have given us two live mothers and another live baby.

We must also not lose sight of the fact that, even in contracted pelvis, the delivery of a fairly large baby by the vaginal route is not impossible. Although most

gangrene of ovary and acute primary peritonitis ante partum, 1.

The net morbidity for 957 normal deliveries was 5.02 per cent. In the 89 operative deliveries that were done in this series of 1,046 cases, the net morbidity was 25 per cent; or the morbidity in operative obstetrics is more frequent than the morbidity in normal obstetrics in the ratio of 5:1.

MATERNAL MORTALITY

There were 9 maternal deaths in this series of 1,569 cases, or a percentage of 0.00573, indicating a frequency of 5.73 per thousand. These deaths were attributable to four preventable and five nonpreventable causes. Under the heading of preventable causes are listed:

- Eclampsia.
- Embolic phenomenon following severe trauma from delivery by version after the failure of forceps in a flat pelvis.
- Postpartum vulval hematoma following difficult delivery with postpartum delivery.
- Postpartum hemorrhage.

Under the nonpreventable causes of death are listed:

- Antepartum cerebral hemorrhage in a case of chronic arteriosclerosis with nephritis.
- Streptococcus hemolyticus* bacteremia, ante partum.
- Splenic anemia.
- Purpura hemorrhagica.
- Acute intestinal obstruction.

There was therefore a net mortality of 4 in 1,569 cases, or a percentage of 0.00254, indicating a frequency of 2.54 per thousand.

Of the 1,569 mothers delivered, all deaths due to preventable causes but one occurred in operative deliveries, giving a mortality of 0.0007, or 0.7 per thousand for 1,426 normal deliveries. The deaths in operative deliveries were 3 in 143 cases, or a percentage of 0.02127, or 21.27 per thousand. Therefore the mortality risk in operative deliveries is to that in normal deliveries in the ratio of 30:1.

INFANT MORTALITY

Out of 1,584 babies born to these 1,569 mothers (thirteen pairs of twins and one set of triplets accounting for the discrepancy) there were thirty-eight stillbirths, an incidence of 2.4 per cent or 24 per thousand. There were eleven neonatal deaths, or a secondary infant mortality rate of 0.7 per cent, or a frequency of 7 per thousand.

The combined primary and secondary infant mortality of forty-nine cases gives a total infant mortality rate of approximately 3.1 per cent, or 31 per thousand. The total mortality in nonoperative cases due to all causes was 36 in 1,441 cases or a mortality risk of 2.5 per cent. Therefore the infant mortality risk in operative cases is to that in nonoperative cases in the ratio of 3.6:1.

COMMENT

If the reader up to this point has been convinced that we are making a plea for conservative rather than for radical obstetrics, we hope that he will quickly disillusion himself, though not entirely. The plea is rather for sane obstetric practice. Extremes in any field of medicine present too many loopholes to stand criticism. That these extremes are often a means to an end, there is no denying. That such extremes can be tempered with good judgment, thus nullifying their faults when applied to practice, there is also no denying.

We have presented an analysis of a series of cases treated conservatively. By conservatively we mean the weighing of indications for operative intervention before its application. The only prophylactic form of obstetric procedure that was employed in this series of cases was the antepartum treatment accorded every patient, the closer watching and observation accorded to the particular patient showing signs of toxemia, threatened miscarriage, premature delivery or premature placental detachments, and the routine use of solution of pituitary following the completion of the second stage. The use of low and mid forceps, as well as version and cesarean section for absolute indications only, the conservative treatment of eclampsia, breech presentation and occiput posterior presentation resulted in an operative incidence of only 9.1 per cent.

Such infrequent use of operative obstetrics has amply rewarded our efforts with a net maternal morbidity of only 6.77 per cent; a net maternal mortality of only 0.254 per cent, or 2.54 per thousand; a primary infant mortality rate of 2.4 per cent or 24 per thousand, and a secondary infant mortality rate of 0.7 per cent, or 7 per thousand.

Such figures are not presented with a subtle purpose of braggadocio for obstetrics as practiced by one institution but rather as an example of what can be accomplished by so-called sane obstetrics. The female of the species has not been created and dedicated to the ultimate purpose of being a subject to the practice of fadists, be they sponsors of prophylactic forceps, delivery

by routine version, or preachers of the gospel of cesarean section as the easiest way out. Let us not burn in effigy the physical capabilities of the mother of today to withstand the rigors of labor and damn her as a poor decrepit weakling alongside our mothers of yesteryears. Our female generation of today is as well adapted, if not better, both physically and mentally, to bear the brunt of childbirth. If the element of humane treatment must be entered alongside the column of childbirth in our ledger, what greater humaneness can we extend to the suffering mother than to conduct her through her trials and tribulations as sensible guides, without undue haste, and with sure step. The rational use of morphine and the proper help in the proper time is the sort of salvation of which the mother of today, in the long run, will be most appreciative.

To what qualifications does the obstetrician justify his existence, if not to guide and direct the expectant mother through her period of anxiety, to the best of his good judgment, and with the least possible risk to her? The obstetrician's haste may prove the mother's tragedy, not only to herself but to those near and dear to her, as well as to society in general. A little patience with an occiput posterior presentation will more than reward the attending physician with a successful outcome of his labors, and the mother with a living child and retention of her physical well being. To wit, out of 319 occiput posterior presentations, only 51 were persistent, out of which only 29 required rotation, a frequency of 9 per cent of all occiput posterior presen-

TABLE 6.—Obstetric Risk

Operative Normal	Morbidity Risk 5:1	Mortality Risk 30:1	Infant Mortality Risk 3.6:1
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tations. The terrible desire to pull on a footling, or break up a breech before complete dilatation, not infrequently results in disaster. Most breech presentations will be propelled far enough by natural forces to make their ultimate delivery one of simplicity, if only the accoucheur has the temerity to wait. In only two cases out of fifty-eight did we find it necessary to break up a breech in order to effect delivery. Haste to deliver a second baby of twins before the uterus has had a chance to readjust itself to its diminished content will often result in tragedy, for the grim specter of postpartum hemorrhage is thereby invited to a feast. What matters it if the obstetrician must give up another few hours of his valuable time waiting for the other of the maternal fruit, when the welfare of a mother is at stake? The same gospel of waiting can be applied in the same way to the third stage of labor.

When bagging becomes necessary, it is to the benefit of the mother that the largest possible bag be used the first time in order to avoid a repetition of the procedure. For, as Williams has shown, the frequency of infection becomes increasingly greater with the number of times the uterus has been entered from the outside.

The treatment of eclampsia should be begun in the antepartum clinic; yes, the first time that the patient is seen by her physician. Such treatment should consist of purely preventive medicine; and so we can diminish the need for curative medicine. Once an eclampsia is encountered, there is no excuse for the physician to become stricken with a panicky desire to empty the uterus. To date, our conservative treatment for eclampsia still holds out the greatest hope; and if

it does not prove better than the radical treatment, at least it has proved just as efficient.

The mother who is a cardiac patient is not necessarily doomed. Most cardiac patients, with proper care of their general physical condition, and special care to conserve their compensation, will go through their pregnancies and labors with flying colors. The cardiac patients who require special treatment are those with histories of previous decompensation. This group usually embraces those cases with mitral stenosis, or multiple valvular and myocardial lesions. In advising a cardiac patient as to future pregnancies, the physician must bear in mind the reduced life expectancy in such patients. If she is an old primipara, it must be borne in mind that her already short life expectancy will no doubt run the gantlet of further abbreviation if she is allowed to become gravid.

The most important part of the treatment of contracted pelvis is the recognition of the contracted pelvis. How many a mother was allowed to pound away for days, when delivery by the vaginal route was practically an impossibility in her case. A fair test of labor is always in order. Failure to engage does not necessarily signify cesarean section. A small enough baby will allow of successful delivery by version. It must be remembered, before section is considered, that in the best hands, cesarean section entertains a far greater primary mortality than delivery by the natural routes. The low section in its various modifications (Beck, De Lee), the Latzko, will save many a mother that might be lost by the classic operation. The reasons for this have been gone over so frequently that it would be superfluous to repeat them. One's judgment receives its greatest test in that portion of obstetrics which deals with the abnormal pelvis. Mistakes have been made and will be made so long as the human element enters into the making of such decisions. One must, much to one's chagrin, ascribe certain failures of judgment to the law of averages. Most obstetricians, no doubt, recall such errors in their past experiences. Again, a careful weighing of the pros and cons, without due haste, will serve to diminish the percentage of error.

CONCLUSIONS

1. The expectant mother should have the benefits of "sane" obstetrics, rather than conservative or radical obstetrics.

2. Such "sane" obstetrics can be maintained within the sphere of the incompetent though sincere physician and of the competent though overenthusiastic physician, by education of the former as to his limitations and of the latter as to the limitations of his *modus operandi*.

3. The full cognizance by these two groups of the "obstetric risk" as an actual reality rather than a mere fantasy will temper their judgments, so that the incompetent will not plunge where angels fear to tread, and the overenthusiastic will not belabor the expectant mother with heavy artillery where diplomacy will serve better for her ultimate salvation.

4. The obstetric risk in this study shows that: (a) The morbidity risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 5:1. (b) The mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 30:1. (c) The total infant mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 3.6:1 (including spontaneous deliveries of macerated fetuses, premature infants and monstrosities).

5. The mother of today is as fully equipped, mentally and physically, to undergo the hardships of labor as was the mother of yesteryear. A sound realization of this fact, together with a full cognizance of obstetric risk, will diminish the search for new fads to shorten labor, and thereby result in a diminished maternal and infant morbidity and mortality.

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ABSTRACT OF DISCUSSION

DR. FREDERICK W. RICE, New York: In my opinion the report of the results of 1,500 deliveries from a maternity service is of greater value in judging the methods of management of cases than the consideration of the mortality results. If the results in maternal and infant mortality are to be judged, the records of a great many more deliveries, covering several years, must be made. It will then be possible to know definitely regarding methods of management and that the technic employed during delivery is one that is practical and safe. Every one realizes the dangers when operative deliveries are frequent, especially when the service is strained by the periodic overcrowding observed in all active services. There are many other problems and difficulties which test the management of a maternity service, such as the prevalence of influenza in some years and the eclampsia cases, which vary in number and severity in different years. Most city maternity hospitals have also a constant problem to meet in the variety of races among the patients. The Bronx Hospital is so located that the patients are almost entirely Jewish. It is felt that this is favorable to a lowered mortality. In my service at Bellevue Hospital, all races are represented. This mixture of races means more vigilance and obstetric judgment on the part of the staff, for the individual case. Dystocia and lowered resistance to infection are common among the Negro and Porto Rican women. A large number of our patients are from these races. The mortality rate is directly influenced by the proportion of emergency cases admitted. A hospital so located that it must provide care for many patients seen for the first time in labor must expect to have a higher death rate than the hospital which is able to limit its care to patients who have registered early in pregnancy. The future reports from the Bronx Hospital, I feel, will continue to show a low maternal and infant mortality. An attempt is being made to carry out the principles of obstetrics which should be the ideal of every maternity service. An endeavor is made to have complete care for every patient. As a result of intelligent observation during pregnancy and the prevention or treatment of complications during the early stages when results are always better than when complications are well developed, these operative deliveries are being limited to patients definitely needing them. This is evident from the small percentage of forceps and cesarean operations. I feel that there is no need for a new term or designation for such practice. I feel that obstetrics as carried out is not different from the principles that thoroughly trained obstetricians are teaching and practicing. The occasional exception necessitating radical measures does not justify the use of such a term as *sane obstetrics*.

DR. BENJAMIN H. BREAKSTONE, Chicago: Every once in a while one hears that term "sane" used. What is sanity, especially in this line? Is it a proper thing to let a woman go on and suffer labor and lower her vitality? The high mortality in intervention is caused by waiting too long. If any labor is difficult one should not wait, and rather than go at it blindly with forceps and versions it is much easier on the patient and there is a much lower mortality if a cesarean section is done as an operation of first resort. The reason there is a high mortality is that cesarean section is done as a last resort. I have been doing these things for many years, I have never regretted it, and I never have lost a mother. I believe that I am getting better results than I would by letting the patient go on and have her baby and be lacerated and have her resistance lowered. More than half the patients who have a difficult labor either have heart trouble later as a result of overstraining during labor, or have to undergo repair. The lacerations cause trouble later. Half of the gynecologic operations are performed because physicians still believe in leaving it to nature. Other things

are not left to nature, but physicians call it sane if a woman is allowed to suffer for two, three and four days in labor. I believe that if any labor is difficult the woman should be aided. Recently Dr. Oikow wrote a paper on epilepsy; he stated that, in over 2,000 histories that he had examined, all of the babies that acquired epilepsy later were the products of a difficult labor in which the brain was probably injured. He also looked into some thousand histories of babies born the cesarean way, without a single case of epilepsy, in which the cesarean section was performed early, before the baby's head was all misshapen. I believe that "sane" means that intervention should be done early if intervention is to be done at all. It is not human or scientific to permit the test of labor to go on to the end. Nature is improved on. Nature is not permitted to take her course because she does not always take the best one. I believe the time will come when any woman who is going to have a difficult labor will be subjected to a cesarean operation because a physician can see what he is doing and when the abdominal cavity is open for inspection one often finds the reason why the woman had a difficult labor.

DR. J. P. GREENHILL, Chicago: Two points of view have been presented: one by the authors on so-called sane obstetrics, which represents ultraconservatism, and the other by Dr. Breakstone, who favors extremely radical obstetrics. There is, of course, a middle ground to which most obstetricians belong. I take strong exception to Dr. Epstein's statement that ultraconservative obstetrics is necessarily sane obstetrics and that all sane obstetrics is necessarily so-called conservative or nonoperative. Many women are allowed to have a long, hard labor which may do harm to them and their babies. It cannot be said that these women have been dealt with sanely. It is true that this is called conservative obstetrics, but does it really conserve? There are times when a cesarean section, the most radical of all obstetric operations, conserves the lives of both mother and baby and is therefore a conservative operation. The authors condemned the routine use of prophylactic forceps, podalic version and cesarean section. They are correct in condemning the routine use of any operation, whether obstetric or otherwise; but the results of the frequent use of low forceps operations, call it prophylactic if you will, are practically as good as and sometimes better than spontaneous deliveries. Many times a properly performed low forceps operation, that is, forceps applied when the head is on the perineum, will save a baby's life. It will certainly conserve the mother's energy; it may prevent postpartum hemorrhage and it may prevent morbidity. I would urge that the word "sane" be eliminated from this discussion. Otherwise those who do not permit their patients to labor and labor until they are exhausted simply to avoid an operative delivery but frequently resort to low forceps operations and occasionally to versions and cesarean sections would have their work called insane and I would rather not have that term applied to me.

DR. T. W. PRESTON, Carlisle, Pa.: Forceps delivery will be necessary as long as girls from 12 to 18 years of age are forced to wear high-heeled shoes, making a deflection of the pelvis and making it almost impossible to deliver a normal baby in a normal sized woman without forceps. In the last twenty years I have delivered by forceps seven times as many babies as I did prior to that time. I call sane obstetrics taking care of the mother. Some books say we should not dilate too much. I dilate when I am first called and wait.

DR. E. D. PLASS, Iowa City: I think something should be said at this session about the pernicious effects of radical obstetrics. So far we have heard the good results of conservative obstetrics; we have been regaled with ideas that the use of radical operative procedures should be looked on as harmless. I have recently completed a survey of cesarean section in this country for the White House Conference. Briefly, that survey has shown that about 1 per cent of all deliveries in this country are accomplished by the abdominal route. The incidence in the hospitals of the country, taking into consideration over 150,000 deliveries in 1929, was 2.9 per cent. The maternal mortality incident to cesarean section in the entire group of cases studied was about 6 per cent. Since those figures were figures from only the better class hospitals and the larger hospitals, I believe it is fair to assume that one patient in ten who is delivered by cesarean section dies, either as a result of the operation itself or as a

result of the condition for which the operation was done. Equally striking was the conclusion that was forced on me that 10 per cent of all the babies born by cesarean section died. Either they were stillborn or died during the early period of life. All the available evidence points to the conclusion that it is not necessarily the fact that one does a cesarean section which leads to mortality but the fact that the people who do cesarean sections cannot be made to understand when they should be done. Those facts have been emphasized from time to time, and yet it seems to have gone completely over the heads of most of the medical profession that there is a legitimate time for cesarean section, a legitimate place for it, and that in that place it is worthy of use, but that many of the indications which have sprung up more recently, those indications which I choose to call convenience indications, are not applicable to abdominal delivery. I believe that two facts should be faced: one, that the maternal mortality in this country is increasing; second, that the wide use of operative obstetrics, particularly of cesarean section, is the largest single contributing factor to this country-wide increase in maternal deaths.

DR. JOHN A. MCGINN, Philadelphia: I think that if men who are doing obstetrics will compare the work in their private practice with the work they are apt to do in the hospital in the wards when the patient is sent in, they will find themselves perhaps a little bit more conservative in the treatment of their own private patients than they are apt to be in the treatment of the patients admitted in ward service when they are using those patients for teaching purposes for the residents and for their assistants. I think it would be wise if communities would do what is being done in New York and Philadelphia. In Philadelphia we realize our responsibility in relation to public health and public activities, and therefore last year we formed a close alliance with every public agency in Philadelphia. In Philadelphia there are more than a hundred extra-medical health agencies. At the present time they have all been brought together under the Philadelphia Health League, and the president of the county medical society becomes president of that league. The league has agreed to further research work along certain lines, and one of the first things which we are investigating under the auspices of the county medical society, with a committee formed from the Philadelphia Obstetrical Society, is this question of maternal mortality, and every death that occurs in Philadelphia in the next three years will be carefully investigated. We shall be able to learn from such a survey just what and why our maternal mortality is. If other communities would take up that work and study particularly just what is happening, at the end of three or five years they would be in a position to draw some valuable conclusions and undoubtedly would be able to reduce the mortality.

DR. H. J. EPSTEIN, New York: Dr. Fleischer and I are thankful to all who have participated in the discussion. If we did not bring out some points that have been mentioned, it was caused by lack of time, which a reading of the entire paper will bring out. We called it "sane" obstetrics to distinguish it from conservative or radical obstetrics. We looked for a term and did not know what to name it. As a matter of fact, we were not conservative in our hospital; we never thought of being purely conservative. We used every modern method toward getting good results. We used the Kielland forceps, the low cesarean operation, version and extraction. One thing we wish to make clear, if we did not, and that is that every method is good in the proper case, but no method can apply to all cases. If somebody is an expert in version, it does not mean that he can apply this to every case that comes to him. When we see a patient exhausted, instead of applying forceps and terminating labor—I beg to differ with Dr. Breakstone—we give her morphine and rest and let her deliver spontaneously. Let me confess to you that in our private work in the hospital we find more intervention than in the ward work. We do not pretend to have material for teaching purposes. Our interns have to be satisfied with eighty-six forceps operations in a year; but when it comes to the question of using any method to hasten delivery, the private practitioners that come to our hospital are the ones who usually resort to any sort of procedure in order to save time. As far as cesarean section is concerned, I can say this: I have known of certain institutions that deliver 1,000 cases a year, 50 of which are by cesarean section, and they "brag"

about it. We had only 6 cesarean sections in over 1,500 cases. True, we did not need the cesarean sections for teaching purposes; we used them only when they were absolutely indicated. In general, I believe that not all cases of intervention should necessarily be classed as radical obstetrics. I would say that "sane" obstetrics consists in using progressive methods to benefit the patient, rather than abusing the patient for the sake of the method.