

SURGERY, GYNECOLOGY AND OBSTETRICS

SOME COMMENTS ON THE TEACHING AND PRACTICE OF OBSTETRICS¹

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IN the curricula of medical schools, the time assigned to the department of obstetrics is no more than that given many other departments dealing with phenomena restricted in occurrence, the duration of which extends over a far longer period and in which there is rarely any element of emergency. Moreover in this allotted time there are at present included many phases basically as closely allied to the medical and surgical field as to the obstetrical.

The abnormalities arising in pregnancy, of the type demanding attention in prenatal clinics, often require as wide a knowledge of essential medical technique as do labor and its problems; and the abnormalities seen in post-natal clinics demand surgical knowledge for proper interpretation and care. The importance of medical and surgical knowledge would justify the prevalent limitation of teaching time in the practice of obstetrics if that time allotted to this subject was utilized solely for making understood the phenomena peculiar to obstetrics, particularly those of labor. However, as much of the time is taken up now by the primarily medical and surgical phases, the students, in the time remaining, cannot obtain a grasp of the normal and pathological obstetrical phenomena and their rational management, because basically the physiological phenomena are complex and have a great admixture of mechanical elements, and these phenomena are dealt with by the obstetrical department alone.

Obstetrical teaching was the principal topic for discussion at a meeting of this society not long ago. What was the result? If what occurred is taken as an index, there was only a paucity of interest and an absence of ideas adjudged worthy of discussion. Indeed, the principal contribution was a laudation of one course of study in detail as already near the zenith of perfection. The inference seemed to be that there was little need for further search for improved methods. This was depressing,

for this praised method of teaching obstetrics would appear to be just as capable of improvement as are the curricula and methods of most other medical schools, if judged by the product. Information from men in many institutions corroborates the diagnosis of widespread deficiency in obstetrical preparation, whatever the school concerned. The blame cannot be laid upon the students since they show a constantly higher standard of preliminary preparation and mental capacity, and so it must be placed upon the manner and methods of teaching.

Perhaps one difficulty may be that to many teachers, all facts seem to have equal value. The student burdened by the great multitude of obstetrical facts thrust into his charge, is like the overwrought hen trying to brood too many eggs with the result that few hatch because their number exceeds her capacity for keeping them warmed to a germinating temperature. Perhaps teaching departments have been expanded too rapidly, like hospitals, so that size has outrun organization and efficiency, or else like Topsy, they "just grewed." Perhaps the members of other departments of medical teaching are not acquainted with, nor appreciative of, the needs for carrying on effectively this peculiar yet fundamental department of the science and art of medicine, and hence leave us inadequately supported.

More probably, however, it is the summation of many different causes, for which each individual member of this or similar societies, who call ourselves gynecologists and obstetricians, is in part to blame. It is true that not all of us are teachers in medical schools, but every one of us in this field of our especial interest should be an impartor of knowledge about it. We should be teachers of each other, and of those in other fields of medical practice; of internes trying to correlate earlier studies by the direct observation and care of actual patients with responsibility for them; of students laying foundations in the class-

¹Read before the Chicago Gynecological Society, June 19, 1925. (For discussion, see p. 150.)

room, laboratory, and clinic; of nurses and social workers; as well as of the public at large. Teaching is of definite value to the one endeavoring to impart knowledge as well as to the recipient of the effort. Right methods aid so greatly that our own society would greatly benefit by conscious effort to discover and practice them. It would seem that most of us fail to question ourselves frequently enough about what we know, how available we have our knowledge arranged, and how we can best utilize it. Too much of our time is used in trying to make understood, by words alone, novel and unshown phenomena. How many medical names mystify the student as well as the layman because in their experience there is nothing to which the strange word can be properly attached? Therefore to "show fully," or demonstrate, should come early and before discussion, that is, it should come before the "shaking apart" or analytic phase of teaching.

Oral presentation is of great benefit in that it enables emphasis to be placed on the varying value of facts and permits grouping them in new relationships so that old truths are seen in new vistas and acquire additional interest. Oral teaching should not supplant but should supplement and illuminate the printed word. Obstetrical texts exist in abundance, valuable for reference and often encyclopedic. Perhaps they are too voluminous for the classroom and too complex to be grasped by the beginner. Quiz compends also abound to reduce the beginner from the status of student to that of parrot. Is there not a need for handbooks or "introductions" that will broadly outline the topography of this division of medicine, correlate its outstanding features, give wide horizons, and form the framework which the individual may later elaborate from personal experience and study?

Why should we not standardize more of our technical vocabulary dealing with the definite phenomena and facts of obstetrics? Is it not strange that even here in our society it is often difficult to grasp the exact meaning of technical terms because their use is restricted to one or another teaching group? Why should anyone's vanity prevent the co-ordination of terms and definitions that please him with

those used by others for like things? This society might well be a clearing house for this purpose and certainly students would benefit by having an authoritative list of such synonyms, as would we ourselves for teaching purposes. When there are several differing sets of terms for such basic facts as the relations in space between mother and fetus, of which the average student knows only the set preferred by his teacher, it is no wonder that misunderstanding results when he goes out from such instruction.

The graduates of all our schools seem to have learned lists of facts without having discussed their interrelationship or usable value. Perhaps hypotheses are too often taught as if they were established beyond dispute. In the recent examination for Cook County internship, the obstetrical questions were based upon a definite group of facts assembled to represent a clinical case. It was astonishing how many candidates used these clinical facts merely as a point of departure, springing immediately to some quiz class assemblage of data which they discussed extensively with no further interest in the governing conditions furnished.

I fear we teachers also are to blame in personal example. When a patient arrives at the Cook County Hospital in the third day of active labor, with a diagnosis of carcinoma of the cervix (later not confirmed by laboratory findings), with the membranes ruptured for 48 hours, with signs of fetal life not obtainable for at least 24 hours (the fetus being later found macerated) with only a 2 centimeter dilatation of the os, with a maternal pulse rate of 100 at entrance which continues to rise thereafter, and with the fetal presenting part still above the inlet, we may, I think, be justified in speaking of this as a neglected case. If such a case were received from the hands of a midwife or indeed from a general practitioner we would use it to illustrate oft-quoted evils, but she was received after being 3 days in the care of a well organized teaching dispensary.

Again when from another teaching clinic a patient is received after 24 hours in labor with membranes ruptured, but with the os still far from being completely dilated, with a history

of attempted operative delivery by forceps, although the presenting part is still above the inlet, when no valid reason for operative interference is found after her admittance except this unsuccessful invasion of the birth canal, and when she delivers herself spontaneously about 4 hours later with no indication for interference in the intervening time, should we be satisfied with our teaching? When a patient, after 3 previous deliveries cared for by midwives without noticeable disability resulting, passes through a teaching clinic from students upward, finally to emerge after laparotomy without her uterus, because a laceration in the introitus from an attempted forceps extraction had caused hæmorrhage and dismay, should not each of us become diligent in acute observation and analysis, confer about possible improvement, and cease throwing stones at those who conscientiously question dictums, who want to be shown the validity of new methods before abandoning time tested ones? When recent graduates have frequent unattended births, "precipitate labors" as they delight to call them, because they cannot or do not judge aright the rate of progress in cases relatively normal in all factors, who show much greater familiarity with infrequently needed procedures of still disputed worth than with the simple maneuvers almost constantly required, does it not behoove all of us to look for adequate correctives for such faulty results?

THE PRACTICE OF OBSTETRICS

The obstetrical division of the Cook County Hospital has 4 visiting staff members, each of whom teaches in a different medical school. The service of the house obstetricians is relatively short and there are several different ranks in varying parts of the division, but without continuity. These house obstetricians, coming from various schools, use different nomenclature and obstetrical procedures. Their services do not overlap so that there is little opportunity to secure continuing uniformity of technique. One result of this is that the records do not lend themselves well to statistical use.

During the residency of Dr. J. H. Gernon from January 1 to July 1, 1924, we attempted

to tabulate and analyze all cases of interest. These were culled from a total of 1,268 maternity cases, of which 1,008 were in Ward 51, 176 were in Ward 50, and 71 were from the venereal segregation ward. In addition there were 13 cases of cæsarean section, which will be reported later by our fellow member Dr. Henry F. Lewis, who is making a detailed study over a much longer time.

Before taking up the results of this analysis let me present a tabulation derived largely from statistics obtained from the department of health of the City of Chicago, of which Dr. Herman N. Bundesen is commissioner. These statistics were from a survey of Chicago hospitals, instituted by Commissioner Bundesen's advisory committee of prenatal activities. These statistics showed the number of spontaneous and operative deliveries cared for by each hospital during the year 1923. The present tabulation consists of those figures reduced to the rate per 1,000 to afford a better comparison. Only seven hospitals are cited, chosen both because of the number of patients they cared for and because their obstetrical services are distinct. All seven hospitals are represented in this society. The sum total of all the 74 hospitals included in this survey was reduced to the same basis and added. Our cases at Cook County Hospital have been reduced to the same scale and appended to this tabulation.

NORMAL AND OPERATIVE DELIVERIES IN HOSPITALS

Figures = Number per 1,000 Cases

Spontaneous	Forceps		Cæsarean	Version	Extraction	Breech Interfer.	Destructive
	Low Extraction	High					
953†	13	3	8	4	4	15	1/3
763	163	10	26	12	12	10	2
764	184	0	10	20	0	16	4
845	104	13	10	14	12	0	2
837	107	13	13	6	18	5	1
741	174	0	19	20	20	25	0
766	135	0	42	2	15	39	2
761	146	34	19	11	12	14	3
905‡	30	7	11	28	*	15	4

†Health Department figures.

‡Our service.

*All versions were followed by extraction.

We realize that the figures in our table give very limited information. The number of spontaneous births in 4 hospitals substantially agree. The rates above the average of spontaneous births at Cook County Hospital,

shown on the top and bottom lines may probably be explained by the fact that the women were largely of the European peasant type.

The operative births show variations somewhat dependent upon the personal point of view of the staffs. In low forceps cases the rates vary, the lowest rates being in those hospitals with the greatest number of spontaneous births. This may be due to more rigid indications for interference. Certainly in the Cook County Hospital, we believe that the number of such deliveries might well be considerably increased if the progress of labor were more closely followed and the obstetrical acumen of the house staff had been sharpened by more efficient preparation. In this tabulation low forceps include also the mid or median type and we regret that this division cannot be shown, for it is our belief that true low forceps (outlet forceps with complete internal rotation) imposes far less strain upon the patient than mid-forceps in which internal rotation is not as yet completed. The returns for delivery by high forceps show three hospitals in which this operation apparently is taboo, three other hospitals with close agreement in rate, while the Cook County Hospital has a still lower record. The rate from the sum total of the 74 hospitals shows such a marked increase over any of these seven that our interpretation would be that the station of the head was not well known in many cases; in other words that difficult mid-forceps may have been included in the high forceps classification. The cesarean section rates show three hospitals with rates far above the other four; and the lowest rate is in exact agreement with the average from the total 74 hospitals. The highest rate occurs in that hospital with the smallest number of other methods used for delivery when the presenting part is still above the inlet. In version, two hospitals are markedly above the others in rate as well as above the average of the 74 hospitals, and our appended figures for the series we are reporting is the highest of all. The rates of the seven hospitals based upon the total number of high forceps, cesarean section, version, and extraction cases vary very little.

Three hospitals show the same number of extractions and versions, which is what we

would expect. One hospital shows no extractions following versions, while two hospitals show such an increased number of extractions that our interpretation is that the questionnaire was misunderstood, for these same hospitals show a correspondingly decreased rate of breech interferences. The rates for breech interferences show that in the smaller hospitals there must be less hesitation in interfering with spontaneous progress. Destructive operation rates show two hospitals that exceed the general rate of all 74. When we remember that these 74 hospitals include a large number absolutely forbidding destructive operations unless the fetus be assuredly dead, it would seem that some explanation should be forthcoming to account for this high rate. In one of these hospitals no high forceps were used; perhaps this is the explanation of the increased number of destructive operations. The other high rate occurs in our series and later will be considered in detail.

We now come to our particular series and it may be of interest to show the basis of our analysis.

SCHEME USED TO ARRIVE AT FIGURES
SHOWN IN TABLE

Service.....
Name.....

PREGNANCY

Date delivered.....
Race.....
Duration..... Para.....
Pelvic measurements
 Interspinal.....
 Intercristal.....
 Intertrochanteric.....
 External conjugate.....
 Diagonal conjugate.....
Type of pelvis and degree of disproportion.....
Presenting part.....
Position.....
Station.....
Systemic complications, i.e., cardiac toxæmia, etc.....

LABOR

If onset induced, method.....
Character of uterine contractions
 First stage.....
 Second stage.....
Duration
 First stage.....
 Second stage.....
 Third stage.....
 Total.....

Placental birth	
Spontaneous.....	
Expression.....	
Manual removal.....	
Subsequent uterine treatment.....	
Laceration or episiotomy	
Repair.....	
Result.....	

COMPLICATIONS OF LABOR

Lack of progress.....	
Stage of delay.....	
Inertia of uterus	
Rigid cervix.....	
Bag of waters unruptured after first stage.....	
Bag of waters ruptured early first stage.....	
Dry labor.....	
Oligohydramnios.....	
Polyhydramnios.....	
Constriction ring.....	
Abnormal presentation.....	
Threatened rupture of uterus.....	
Maternal hæmorrhage	
Antepartum.....	
Intrapartum.....	
Postpartum.....	
Signs of exhaustion	
In mother	
Uterus.....	
Pulse.....	
In fetus	
Meconium.....	
Heart tones.....	
Caput succedaneum.....	
Forelying funis.....	
Prolapse of funis.....	

OPERATIVE DELIVERY

Hours in labor.....	
Clinical—Stage of interference.....	
Condition of cervix.....	
Dilatation of os.....	
State of bag of waters.....	
Station of presenting part.....	
Operation preparatory to extraction.....	
Delivery operative method.....	
Anæsthetic used and duration.....	
Immediate maternal result.....	
Remote maternal result.....	

CHILD

Cord about neck.....	
Short cord.....	
Asphyxia	
Livid.....	
Pallid.....	
Resuscitation method.....	
Injury or deformity.....	
Final result.....	
Sex.....	
Weight.....	

REMARKS ON PUERPERIUM

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The arrangement shown in our schema has proved of great interest to us and we suggest its careful consideration by others. If in each hospital a summary of all labors were entered on such a form, as soon as each labor was finished; and particularly if the different varieties of delivery were separated and on distinct sheets, a mine of information would be quickly amassed having great worth, especially if the terms therein were standardized so that they represented like things.

Out of the 1,268 cases already mentioned, 22 were delivered by low forceps, 15 by mid-forceps and 9 by high forceps, 35 by version and extraction. There were 20 breech presentations in which manual extraction was done. There were 15 breech presentations in which some manual aid was given and 1 in which birth was completely spontaneous. There were 6 pubiotomies done, 5 destructive operations on the offspring, and 13 cæsarean sections. Of 8 pairs of twins, one pair required operative delivery. There were 86 protracted labors of over 24 hours' duration, but with spontaneous birth.

The 122 operative interferences give a percentage of 9.5 which coincides with the tabulation rate already made in comparison with the other hospitals; 67 (5 per cent of the total) were of serious nature. In the protracted yet spontaneous labors numbering 86 cases, 58 were in primiparæ, in 55 the fetus was in occiput left anterior position, in 11 the pelvis were justo minor in type, in 1 justo major, in 7 flat, and in 2 there was high blood pressure. There were 3 cases of lues, in 2 of which the fetus was macerated. Among the abnormal conditions were 84 cases of delay in the first stage and 2 in the second stage; delay occurred in 53, with the head distinctly high. The cause of delay in 47 cases was inertia, in 9 cases, signs of maternal exhaustion as indicated by rising maternal pulse. There were rigid cervixes in 4 cases, dry labors in 15, rupture of the bag of waters early in the first stage in 9, and oligohydramnios in 14. Four babies showed marked caput succedaneum. Four episiotomies were done and there was one tear of the second degree. There were 2 cases of artificial rupture of the bag of waters, 1 of dilatation by hydrostatic bag, and 1 of

manual rotation. In 11 cases scopolamine-morphine was given to banish memory, in 6 small doses of morphine during the labor, and in 1 digitalis. (We would call particular attention to the number of cases of oligohydramnios because we have found this condition a fertile source of delay. In our opinion it exceeds dry labor in importance because it has received scant attention and therefore is rarely diagnosed although it results in the same difficulties that dry labor may cause.) Of 2 cases delivered spontaneously, 1 was admitted after attempted delivery by high forceps outside. The pelvis was flat in type and the maternal pulse rather high; and the head was already well advanced. The baby died in 6 days from a depressed skull fracture which was elevated after birth. The other patient came in in active labor, with a face presentation and near the end of the first stage. The face was converted to a vertex and the birth of a 10 pound baby in good condition occurred without further delay. In several cases the labor was of considerable duration. The only reasonable explanation is that the condition of both mother and child remained good throughout, for no fetal or maternal deaths resulted. I may here note that all scopolamine-morphine cases reported are from one service.

Low forceps cases in this series are those in which internal rotation was complete, so that the obstacle to progress was either bony or soft tissue of the outlet. One of these low forceps was secondary to pubiotomy. Of the 21 primary low forceps, 15 were in primiparæ. All had complete effacement and dilatation of the os, and there were no fetal deaths. The one maternal death in the series resulted from spinal anæsthesia and the delivery of the child by forceps was done only because and after the mother was *in extremis*. Other factors of interest cited in the records are: no co-operation of the patient, 1; rigid perineum, 3; high blood pressure, 1; cardiac pathology, 1; pelvis, flat in type, 1; and justominor, 1. In all cases there was second stage delay. In addition, 1 prolapsed arm and 1 manual rotation received necessary preliminary treatment. There was one case in which the occiput was posterior from mal-rotation. The cases showing inertia were 2; early rupture of the mem-

branes, 2; dry labor, 2; oligohydramnios, 2; postpartum hæmorrhage, 2; signs of maternal exhaustion, 11; of fetal exhaustion, 4; 8 episiotomies were done and there were 5 first degree tears.

Of the 15 mid-forceps cases 1 was secondary to pubiotomy. In all of the 14 cases of primary mid-forceps, the cervix was effaced, but in 2 dilatation of the os was not complete when interference was started. Of the 14, 13 were primiparæ; there was 1 cardiac case, 1 complicated by dermoid cyst, and 1 by multiple fibroids. One was the first of twins. There were 3 deep arrests; 2 had justominor pelves.

Complications in labor: There were no inertia cases, no dry labors, in 3 the membranes ruptured early in the first stage, in 5 oligohydramnios was present. Signs of maternal exhaustion occurred in 11, of fetal exhaustion in 2. One episiotomy was done, in 3 cases there were first degree tears and in 2 second degree tears. The average duration of the low forceps cases was 18 hours first stage, 2 hours 20 minutes second stage, 20 minutes third stage. The average duration of the mid-forceps cases was 21 hours first stage, 2 hours 12 minutes second stage, 16 minutes third stage. To bring together the less serious interferences and the spontaneous abnormal cases, we will add 16 breech presentations. In 1 breech case with spontaneous delivery and a macerated fetus, toxæmia developed. Of 15 breech cases receiving some assistance, 10 were primiparæ, 5 cases were of the footling variety, and in 2 of the cases the babes were macerated.

We now come to that 5 per cent of serious interferences. There were 9 high forceps deliveries, 1 secondary to pubiotomy. Of the 8 primary high forceps cases, 1 was a primipara, 1 was a "neglected" brow with an undiagnosed papyraceous twin weighing about 2½ pounds. In 3 the pelvis was flat in type, in 2, there was delay in both first and second stages, in 5 cases in the first stage, and in 1 case in the second. Inertia was present in 2, dry labor in 2, oligohydramnios in 4, polyhydramnios in 1. Postpartum hæmorrhage needing subsequent intrauterine packing occurred in 2, signs of maternal exhaustion in 5, and of fetal exhaus-

tion in 2; 2 episiotomies were done, and in 2 there were first degree tears. Apart from the neglected case, 2 fetal deaths resulted. One was a 12 pound baby, and 20 minutes were lost in delivering the shoulders; the other was an 8 pound baby delivered with occiput posterior. The mother had received scopolamine-morphine anæsthesia and had worn an abdominal belt for 2½ hours to assist expulsive efforts. Inasmuch as the case of neglect resulted in maternal death in 7 days from general peritonitis, and in the baby's death in 2 days and delivery was by the author, further details are given. After 30 hours' labor in an outside teaching clinic, the patient was admitted to Cook County Hospital upon another service, where she received scopolamine-morphine anæsthesia for 7 hours. At this time I was asked to see the case. The presentation was longitudinal, but the presenting part supposedly vertex was found to be a brow presentation. The uterus had been dry on admission. At this time there was complete effacement of the cervix but a dilatation of only 4 centimeters. Manual dilatation preceded the conversion of the brow to a face, for the retraction of the uterus prevented successful extension of the head. A very slow extraction was done thereafter, for our belief is that the real impediment to fetal exit from the uterus could be safely overcome only by tiring out the constriction ring. After this tedious part was accomplished, extraction through the bony pelvis occurred without incident. The papyraceous twin was delivered 20 minutes later in an intact and distinct sack. The fetal head was markedly molded from its long stay as a brow; but only livid asphyxia was present. The postmortem examination of the mother disclosed no injury of the uterine walls.

There were 35 cases of version followed by manual extraction; 13 of these patients were primiparæ, 19 multiparæ, 3 unspecified. There were 6 cases of antepartum bleeding, 3 from placenta prævia marginalis, 1 from placenta prævia centralis, 1 from ablatio placentæ, and 1 from cervical laceration. In one of the cases of placenta prævia marginalis in which the pelvis was of the justominor type, the fetus presented transversely with a prolapsed hand. There were 7 other transverse

presentations; 2 with a prolapsed arm, and 1 with a prolapsed cord. There were 2 cases with brow presentation, 1 case of toxæmia, 1 of eclampsia, and 1 with signs of maternal exhaustion. One was the second twin. Two pelves were justominor in type and 3 were flat.

The complications of labor include 4 cases of inertia, 2 dry labors, 3 cases of early first stage rupture of the membranes, and 2 of constriction rings. In 5 there was threatened uterine rupture.

The method of treating the antepartum hæmorrhage varied, although all were first stage interferences. In 2 cases of placenta prævia marginalis the bag was inserted and 1 live baby delivered. In 2 cases of Braxton-Hicks version, 1 baby survived, but in the other, a case of placenta prævia centralis, the baby died. In the 1 case of ablatio placentæ a bag and a Spanish windlass were used, and the baby was dead. In 1 case in which the bag and manual dilatation of the cervix were used, the baby was macerated. Of all other cases in the series, 2 babies died in 2 days, 1 baby died in 4 days, 1 baby was macerated, and 1 baby (in the eclamptic case) was dead when received. Three placentæ were manually removed.

We think it only fair to discuss the reason for this large percentage of version and extraction cases actually 35 in number, because out of these 35 cases, 21 are chargeable to one service, the remaining 14 being distributed as equally as possible among the other three services. Twenty of the total number of cases show the classical reasons for interference. Of the remaining 15, all on one service, the reasons for version are not very clear from the records unless one postulates a predilection for this method of delivery. In all of the 15 cases there was skull presentation, in 11 a posterior position of the occiput, in 2 inertia, in 8 ruptured membranes, in 1 a dry labor with a constriction ring after an initial polyhydramnios and here interference was instituted after 56 hours of labor. The mother was in poor condition after delivery but recovered; the baby was one of those who died in 2 days. In 6 of these 15 interferences, manual dilatation before version was done in the first stage. We believe we are not misrepresenting conditions

when we state that the one service in which this last group occurred is headed by an avowed admirer of Potter; and in addition we may say, that on this same service were all the cases receiving scopolomine-morphine, or twilight sleep, as well as all pubiotomies, but one. There the resident in an emergency elected to follow this method. This should be borne in mind when the pubiotomies are analyzed.

The primary manual extractions, which occurred in 20 breech cases, show the following items of interest. There were 6 footling extractions; in 2 cases there was a prolapse of the cord; and in 14 cases, breech presentation, one with prolapse of the cord. There were 10 primiparæ and 10 multiparæ, 2 toxæmia cases, 2 dead fetuses with heart tones not having been heard during the labor, 1 case of intrapartum hæmorrhage from ablatio placentæ occurring before entrance to the hospital, 1 of postpartum hæmorrhage; in 5 cases there were signs of maternal exhaustion, in 1 of fetal; there was 1 case of inertia, 1 with early rupture of the bag of waters. Of the other 3 dead babies, 1 death was the result of ablatio placentæ, 1 the result of marked delay in getting down the feet, 1 was a case of pallid asphyxia with a cleft palate, as already mentioned, in 2 no heart tones were heard at any time in the hospital, 1 fetus being macerated. There was 1 manual removal of the placenta. The most severe of these cases from the maternal standpoint was the one of ablatio placentæ. This patient was received in very poor condition, but recovered.

Pubiotomy was performed in 6 cases, in 2 before the approach of labor. One of the 2 patients was afflicted with tertiary lues; in the other, the pelvic measurements in centimeters were: interspinal, 21.5; intercrystal, 23; intertrochanteric, 27.5; external conjugate, 18; transverse conjugate, 11.5. She had an easy and rapid delivery of a 5 pound, 14 ounce baby. In the other case of spontaneous delivery the pelvic measurements were: interspinal, 22; intercrystal, 24; intertrochanteric, 31; external conjugate, 19. The weight of the baby was 5 pounds, 3 ounces. All 3 of these patients were primiparæ. In the fourth pubiotomy, the measurements were 22, 26, 30, and 19; the patient was a ii-para; the baby weighed

5 pounds, 10 ounces, and required mid-forceps to complete delivery. The fifth was also a ii-para, with measurements of 22, 23, 29, 18.5 and diagonal conjugate of 11 centimeters. The baby weighed 6 pounds; pubiotomy was done about 9 hours after the onset of labor and the baby was delivered by high forceps 7 hours later. This patient had scopolomine-morphine.

The emergency case in which pubiotomy was done, was a iii-para who was brought to the hospital after 24 hours of labor, with face presentation and fetus high in station. The diastolic blood pressure was 185; systolic, 130. There were present marked œdema, respiratory infection, and a "toxic adenoma." The measurements were 25, 28, 29, 18, and 10. Under ether the face presentation was converted to a vertex, and then a high forceps extraction was attempted. After $\frac{1}{4}$ grain morphine had been given, and the patient had rested for 3 hours, a pubiotomy was done. Low forceps were used for final delivery. A 6 pound child was born in pallid asphyxia, but neither mother nor child survived long.

The destructive operations numbered 5 in this series, with one maternal death. The death occurred in a primipara with a breech presentation, and a true conjugate of 10.5 centimeters. She was suffering from eclampsia, hypertension, nephritis, cardiac decompensation, and very marked obesity. No fetal heart tones were obtainable. She was admitted after having been in labor almost 2 days and in very serious condition. At the time of interference marked signs of maternal exhaustion were present. The os was incompletely dilated; therefore a preliminary dilatation by a Voorhees bag was followed by manual dilatation. Embryotomy was followed by craniotomy done on the after coming head. The mother died 4 days later.

The other 4 destructive operations were done by the writer. Three were craniotomies, one done upon a hydrocephalic baby from whose head 500 cubic centimeters of fluid was obtained after 42 hours' labor in the care of a midwife. This case showed signs of threatened rupture of the uterus, a Bandl's ring being apparent. There were signs of maternal exhaustion, the pulse being 130 when patient was

admitted. Maternal recovery was uneventful. The other 2 cases of craniotomy followed tentative traction by high forceps. One was a case of dry labor, with signs of maternal and fetal exhaustion. The first stage of labor had lasted 68 hours with a dilatation of the os of only 5 centimeters. She was a vi-para, with measurements of 26, 28, 30, 17.5 and a true conjugate of 11.5 centimeters. The fetal head was unmoldable from excessive ossification. Craniotomy resulted in maternal convalescence without incident. The remaining craniotomy was done after labor had lasted 37 hours, the head was still high, and the fetal heart tones had disappeared. Maternal recovery was uneventful, although the pulse was 110 at the time of interference.

All these cases may be fairly called neglected, being received in very bad condition. The final case must also be so classified, although the neglect was in part ours. Faulty diagnosis of the presentation resulted from too long use of rectal examination alone. This was a primipara with normal measurements, having an active gonococcal infection as well as a pronounced growth of condylomata around the whole introitus. A diagnosis of footling presentation was made by rectal examination. Early rupture of the membranes had occurred before entrance into the hospital. Lack of progress for 14 hours thereafter with a rising fetal heart rate finally resulted in

a vaginal examination, and at this time the true diagnosis was made of a transverse presentation with a hand over the os. When I saw the case, the uterus was tightly retracted upon the fetus, and the fetal heart tones were abnormally high. A decapitation was followed by a craniotomy. The weight of the parts of this baby after delivery was 8 pounds. The mother had an uneventful convalescence.

CONCLUSION

In conclusion I would call attention again to the fact that at Cook County Hospital we have to receive patients in every stage of labor, no matter how serious the condition, and that the total number of neglected cases forms a very considerable factor in our operative results, and to point out as well that no control is possible over individual practices of the attending staff on the different services. Under such conditions we think that this analysis and the results shown will conclusively refute the popular belief formerly so wide-spread, that at the Cook County Hospital operative interference is often done without proper indication and is resorted to vastly more frequently than in hospitals under private control. We think that this report shows convincingly that, as a whole, the Cook County services are decidedly conservative and that in general, the indications for major operations are definite and valid.

From the comparative study of the graphs, it appears that the type of suture plays an important rôle, and that the strength of union of the incised uteri depend on the rate of growth of the connective tissue. We need not consider the smooth muscle (uterine) as it is doubtful whether smooth muscle regenerates.

DR. MARK GOLDSTINE: Rupture of the uterus may be obtained by increasing intra-uterine pressure without a cesarean section. It does not make much difference what kind of suture material is used, if endometrial tissue or infection is present in the scar, rupture is apt to occur.

DR. J. L. BAER: If we knew the length of time between the operation and the subsequent rupture, in other words what time interval was allowed for the scar to heal, it might have a bearing on our estimate of the integrity of the scar.

DR. DAVID S. HILLIS: The question of rupture of the uterus through a cesarean section scar is a very important problem at this time. The need for a correct solution is more urgent as the field for abdominal delivery becomes broader. Whenever we have a patient who has had a cesarean section and is pregnant again, we always ask ourselves if this is to be another cesarean. We can never answer that question safely and properly before the patient tries labor. I do not suppose that the author believes that he has settled this question. If his work has contributed ever so little to our knowledge of this problem it has been worth while. I have opened many uteri that have had previous cesareans; some of these I am sure would have held in a reasonably easy labor; in others the scar would undoubtedly have ruptured under the strain. I do not know what is the best kind of a stitch to use in repairing the section wound, whether interrupted or continuous; it would seem that an absorbable suture material would be best but this question is not settled. Infection would be expected to have an unfavorable effect but I have seen very firm scars after a febrile puerperium.

DR. J. L. BAER: As Dr. Hillis said, when a patient who has had one cesarean operation becomes pregnant the second time it is a question as to what should be done. The case in point is one I had the privilege of presenting before the society some years ago. I did a cesarean section and immediately afterward, the woman had a massive collapse of the lung.

The case was significant because the patient had a fibroid which was very big and blocked the passage. With involution the fibroid had shrunken down to the size of a fist. It was on the back wall; and immediately after delivery the fibroid started at the promontory and the corpus was up to the umbilicus. I removed the fibroid by myomectomy. This uterus had a vertical incision anteriorly through the uterine wall and a vertical incision posteriorly that was two-thirds through the uterine wall. The patient became pregnant recently and it had to be decided whether a section should be performed or if she should be allowed to go into spontaneous labor. I

let her come into the hospital and go into labor spontaneously. After 6 hours this practically primipara had brought the head down to the midplane. I did a manual rotation with simple extraction and fortunately the outcome was a happy one.

DR. J. P. GREENHILL: May I ask Dr. Lackner whether he took into consideration the difference in the mechanics between contraction and overdistention of the uterus. I believe that all the uteri in Dr. Lackner's experiments were ruptured by increasing the intra-uterine pressure. As I understand it, a uterus usually ruptures at the height of a contraction. We have a good example of this when after pituitrin is administered the rupture occurs at the height of a violent contraction or series of contractions. I wonder whether tracings were made to see if any of the uteri ruptured at the height of a contraction.

I was glad to hear Dr. Hillis mention the lower uterine segment because there are perhaps only two authentic reports of a rupture of the lower uterine segment following a cervical cesarean section in which the entire incision was limited to the lower uterine segment. Did the authors have an opportunity to study scars in the lower uterine segment and to compare them with the scars in the fundus?

DR. LACKNER (closing the discussion): I wish to say that this is only a preliminary report. There has been no previous work done in determining the amount of pressure needed to rupture the uterus. A great deal of our time has been given to the determination of the normal pressure required to rupture the uterus. The other factors have not been worked out at present.

Seven to 10 months have elapsed between the operation and rupture of the uterus. In reviewing the literature we found no report of a rupture of the lower uterine segment that was a true rupture. In each case in which reports of rupture were shown, the rupture apparently was through the incision, which was supposed to be a true low cervical cesarean section incision. However, the incisions extended into the body of the uterus.

We have not been able to do cesarean sections in the lower uterine segment on the goats. Nor do we wish to draw conclusions at the present in reference to the necessity of a second cesarean section. Only the tensile strength of uterine muscle is considered.

THE TEACHING AND PRACTICE OF OBSTETRICS

DR. W. GEORGE LEE read a paper on the teaching and practice of obstetrics. (See p. 74.)

DISCUSSION

DR. C. S. BACON: Detailed analysis of the reports in the Cook County Hospital show that there is a great deal of difference in the practice of the different members of the obstetrical department. That is a fact of great importance. In our efforts to improve hospital practice it seems to me that it is necessary

to tackle this problem. If in every hospital in the city the work in each department were in charge of one man it would be unified to the great advantage of both hospitals and patients. If there are two or more co-ordinate members of the staff in each department, each will have his own way of doing things. A great many outsiders are also admitted to the hospitals. In one hospital where I work, two-thirds of the obstetrics is done by outsiders. At the Cook County Hospital the work is better correlated. Would it be possible to adopt some rules in regard to consultation in important cases? If a cesarean section is proposed on a case let it be done only after consultation with one or more members of the staff. Perhaps the same rule might be adopted in cases of high forceps and version.

DR. DAVID S. HILLIS: Dr. Bacon's suggestion as to a possible method of unification of procedure at the County Hospital is interesting. Personally I have not had the temerity even to suggest such a thing. I would be very pleased as a member of the staff to co-operate in a plan of that kind. I suppose that all hospitals perhaps would improve their obstetrics if no operation were undertaken without consultation. There are more sins of commission than of omission in obstetrics. If every man who operated on confinement cases had to state his reason for so doing I think we would reduce our operations about one half. If there is to be any improvement in obstetrics it must start somewhere and in this community it seems to me the Gynecological Society is the place where it should start. Obstetrics is not given more serious consideration because no one but the obstetrician is interested. The leaders in surgery, medicine, and other specialties are indifferent to the problems of better obstetrics. The Shepard-Towner law implies an indictment of the medical profession of unmistakable meaning. The doctors are spending money to advertise the medical profession, yet no effort is made to correct the conditions that led to the Shepard-Towner law. Is it not possible that some organized effort in this direction would be of use in the campaign to make the medical profession more popular?

DR. J. B. DELEE: In the first place I wish to express my usual incredulity about vital statistics. Statistics, to be of any value at all, have to be very carefully dissected. For example, the Cook County Hospital cares for a certain class of patients. Another hospital cares for a different class entirely. Labor will be more likely to run a spontaneous course in one than in the other. Cook County Hospital receives patients who present immunities from infection developed from birth and who are inured to hard labor. Other hospitals receive patients who are the refined products of modern civilization and whose resistance is poorly developed. Therefore, it is a waste of time to devote any discussion to comparative statistics.

Dr. Bacon's suggestion is a good one. The Cook County Hospital is the only hospital I know where it is possible to have any co-operation in the staff.

There are only four obstetricians and it is a closed hospital. The four could get together and decide on the practice of obstetrics. There is no other hospital that has such a closed system. At the Lying-in Hospital there were 131 different doctors beside the members of the staff who treated cases there last year, and it is impossible to carry out any technique except the aseptic technique. We do insist on that. Even then men will deliberately or surreptitiously work in other methods.

The frequency of operations depends very largely on the man. Dr. Hillis says that 50 per cent of the obstetrical operations would be unnecessary if the men had to write the conditions on the wall for everybody to read. I think this is even more true in surgery. You go into some hospitals and you will see cholecystectomies or cholecystotomies, or gastro-enterostomies posted every day in large numbers. If every man who performs a gastro-enterostomy had to give his reasons publicly for doing an operation it would reduce the number of operations. The obstetrician is no worse than the surgeon in that regard. What is the cause of it? It is simply that practitioners do not know enough obstetrics. They have to be taught more in the line Dr. Lee mentioned—fundamental obstetrics and less of the high spots. The principles have to be correlated with technical obstetrics. The work is very hard. To improve the teaching of obstetrics has been the goal of the Chicago Lying-in Hospital for years, and I believe today the obstetrical practice there is just as good as the surgical practice. The examples of terrible mistakes referred to by Dr. Lee I can match by relating corresponding and even greater horrors that have occurred in the practice of men in our own midst and at the hands of men who have been practicing obstetrics for years and who enjoy the title of professor. We have to improve our teaching and we should spend the time teaching normal obstetrics as well as pathological, and we will have to pay the teachers to do the gruelling work.

DR. W. GEORGE LEE (closing the discussion): I merely want to thank those who discussed the paper and also the members of the society for their patience. I may say that we of the Cook County Hospital think that the staff obstetrical work is very good and that we have closer co-operation there than is usually found. We do not hesitate to advise about cases as a matter of fact and we review cases of poor outcome with very free discussion. I think an underlying need is, as Dr. DeLee said, that we should have more time and attention given to teaching fundamentals in the medical schools. I have been very much interested in finding that the students from Rush who come under my charge later come over even when they are not enrolled in my section for they say the clinical work is what they need.

ROENTGENOGRAPHIC DIAGNOSIS IN GYNECOLOGY; PNEUMOPERITONEUM

DR. IRVING F. STEIN read a paper on roentgenographic diagnosis in gynecology. (See p. 83.)