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ORIGINAL COMMUNICATIONS.

THE MANAGEMENT OF THE STAGES OF LABOR TO PREVENT MATERNAL DYSTOCIA.*

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THE topics assigned me by your secretary, the prevention of inertia, hemorrhage and lacerations are in some respects antithetical. For the first, the labor must be hastened; to avoid the second it must be neither too rapid nor too slow; and for the third the termination of labor must be retarded. Individuals differ so in strength, endurance and quality of tissue that the actual duration of the first and second stages of labor has and should have wide variations. An unduly prolonged labor from abdominal or uterine inertia may often be expected in patients who lack muscular tone, who are anemic and in whom there has been over-distension from twins, hydramnion, or tumors. Diastasis of the recti muscles with a pendulous uterus seriously interferes with the proper direction of the forces of labor and predisposes to exhaustion and inertia. A history of hemorrhage after previous labors, the presence of a fibroid or of adhesions following any abdominal operation, especially hysterorrhaphy, frequently warn us of inertia and hemorrhage. Of the various drugs to improve the blood's quality and thus favor its coagulability and fibrin formation I have had more faith in the organic preparations of iron than in the calcium salts or in gelatin. The prophylaxis of hemorrhage may, of course, begin during pregnancy, but it is of trifling value compared to the proper and

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skillful management of the three stages of labor. This, then—the skillful conduct of the stages of labor—is the kernel of the topics assigned me, which do not include mechanical obstacles to labor, such as tumors and pelvic deformity, and which, I understand, are to be discussed in a practical way and from the view-point of the practitioner whose environment compels him to make obstetrics the specialty of his general practice. Although the duration of the first and second stages of labor will safely have wide variations in different types of women, it has been my experience that, when the amniotic sac is unruptured, delay beyond twelve hours in the first stage of labor associated with nagging, inefficient pains, is best treated by narcotics that allay irritability and produce sleep. Ten or fifteen grains of chloral, repeated and reinforced if necessary by a sixth of morphia hypodermatically, will usually produce a sleep from which the patient awakens refreshed and with more efficient uterine contractions. I have combined morphia with scopolamine and with hyoscin, but could not convince myself that such combinations were more efficient than a proportionate amount of morphia. I have little faith in the efficacy of quinin for uterine inertia, have thought the general stimulant effect of the fluid extract of kola-nut was sometimes of service, and I never use ergot during the first or second stages of labor. In multiparæ with two-thirds dilatation the membranes may be ruptured. A slow and tedious first stage is often thus speedily ended. In primiparæ, early rupture either increases the delay or predisposes to lacerations of the cervix. An edematous cervix nipped between the head and symphysis should not be forcibly stripped back over the head. A sterilized glycerin tampon held in contact with the lip of the cervix will often cause this obstruction to disappear. Following the sleep produced by the narcotic, further delay in dilatation of the cervix and lower uterine segment is best treated by artificial dilatation. It is assumed that over-distention of the bladder has not been permitted and that abnormal mechanism has been corrected by appropriate measures. The latter is especially true of occiput posterior positions, arrested at the brim by incomplete flexion of the head. The various anomalies of the cervix—spasm, rigidity, hypertrophy or cicatricial contraction—may be the underlying factor in a prolonged first stage. Having recognized one of these, the case must not be left to nature. If bag dilatation or manual efforts after effacement of the cervix either fail or are manifestly inappropriate, Dührssen's

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incisions are indicated. Care should be taken to make these incisions free enough to avoid uncontrollable lacerations when the presenting part passes through the cervix. When the hypertrophy or contraction is extreme it is safer to separate the bladder to its peritoneal fold and freely incise the anterior uterine wall as in vaginal hysterotomy. After weary hours of waiting for effacement and dilatation of the cervix, the patient clamoring for relief, the temptation to the average practitioner is great to apply forceps and thus end both doctor's and patient's suffering. It is my experience that next to a disregard of aseptic technic, the early application of forceps before complete dilatation is the general practitioner's greatest obstetric sin of commission. His sin of omission is his failure to use skillfully a dilating bag. The discussions and practical application of the methods for opening the birth canal, *secundum artem*, are the most important advances in modern obstetrics, and not the least of these advances are the improved dilating bags to assist a delayed labor and prevent in great measure the lacerations that formerly so frequently resulted from instrumental aid to delivery. "*Meddlesome midwifery,*" was an apt term for the pre-aseptic days; "*Helpful midwifery,*" should now be substituted, but only by those who can invade the birth-canal with a technic equal to that of the abdominal surgeon.

To stimulate uterine contractions and hasten dilatation, I ordinarily use the Voorhees bag. When a forceps operation is likely to follow, the Pomeroy bag is chosen for primiparæ. Its efficient dilatation of the lower birth-canal surpasses other means for that purpose; its only drawback being the necessity for an anesthetic to relieve the pain caused by its introduction in primiparous women.

When delay occurs in the second stage of labor, the treatment requires less obstetric judgment, for it may be stated, as a rule, with few exceptions, that in primiparæ four, in multiparæ two hours should be the maximum limit of the second stage of labor. Having corrected any abnormality in mechanism and the bladder being empty, when change in posture from the side to the back, the obstetric puller, abdominal frictions, a hypodermatic injection of strychnia and obstetric analgesia secured by the intermittent administration of ether to relieve pain that may be inhibiting uterine energy, have failed to advance materially the head during an hour of recurring pains, it is my practice to apply the forceps and proceed to a slow and deliberate delivery. The patient

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should be as lightly anesthetized as the number of assistants and the control of the patient will permit. For many years I have avoided deep anesthesia at the approach of the third stage of labor, preferring always to conduct the placental delivery with the patient fully returned to consciousness.

The *prevention of hemorrhage* is, broadly speaking, the proper management of the third or placental stage of labor. When uterine inertia has characterized the labor or when there is a history of bleeding, a hypodermatic injection of an aseptic preparation of ergot should be administered just prior to the delivery of the infant. Immediately thereafter the sentinel hand is placed on the fundus, but no attempt is made to deliver the placenta for fifteen to thirty minutes, so long as there is no tendency to relaxation and hemorrhage. Nature's mechanism of controlling hemorrhage will be interfered with if massage or the Credé expulsion is too early applied. The uterus is resting, retracted if not contracted, and clots are forming in the sinuses at those areas of the placenta that have been detached. Manipulation now predisposes to bleeding by dislodging those clots and the immediate necessity arising for the Credé expression its very object is defeated, because portions of the placenta not yet separated are likely to be prematurely separated and cause free bleeding. If not separated, these same portions will be torn across and left in utero to cause hemorrhage later or become infected. We should always remember that Credé devised his method, not to separate, but to expel a separated placenta. The diagnosis of placental separation is not difficult. The retracted uterus steadily rises during the process, and where the placenta has been completely separated and occupies the dilated lower uterine segment, the fundus is six inches above the symphysis, the uterus is firm, its upper segment has assumed its natural pear shape and the external length of the cord from the vulvar opening has increased from two to four inches. The opposite obtains when there is concealed bleeding from relaxation of the uterus and partial separation of the placenta. The uterus, soft and globular, steadily rises to a higher and higher level and the external portion of the cord is diminished in length as it is drawn inward and upward by a receding fundus to which the partially adherent placenta is attached. Having thus diagnosed complete separation or when partial separation is accompanied by sharp hemorrhage, then is the time for rapid Credé expression, followed by light massage of the fundus to

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maintain contraction and retraction. The hooked finger may be required to dislodge the separated placenta from the lower uterine segment. Slow, steady traction is made, without twisting, to extract the membranes, and stringy filaments that break loose, being difficult to handle with the gloved fingers, are best caught in a hemostatic forceps and slowly extracted. If hemorrhage occurs and persists after the too early or unsuccessful resort to the Credé expression, aseptic ergot is injected into the thigh, the uterus is at once invaded by the gloved hand to remove clots and placental masses and to separate completely a partially adherent placenta. While a hot sterile douche and appliances for the intrauterine pack are forthcoming, the vaginal hand should grasp the cervix, occlude it and push it upward to forcibly make traction on its blood-vessels and the abdominal hand forces the fundus downward and forward over the symphysis to angulate the canal and further stretch and occlude the vessels supplying the uterus with blood. At the same time the ulnar surface of the abdominal hand may compress the aorta and vena cava through the abdominal wall. Whether the bleeding results from back pressure in the veins or comes from the arterial circulation makes no practical difference. Both trunks will be compressed by this maneuver. If the hot intrauterine douche fails to at once stop the bleeding and cause uterine contraction, the uterus should at once be firmly tamponaded with a large quantity of sterilized gauze, the tampon reaching from fundus to vulva.

The prevention of bleeding from lacerations of the cervix or vagina requires little comment. Preliminary dilatation is the all important prophylaxis. Hemorrhage due to lacerations will be readily recognized by its early occurrence, within at most fifteen minutes of the birth of the infant, and by its appearance when the uterus is empty, contracted, and retracted The cervix, the anterior vaginal wall, and the vestibule in the region of the urinary meatus and clitoris should at once be inspected and the bleeding points clamped until sutures can be applied.

Inversion of the Uterus.—This rare accident is practically always preventable. Indentation of the uterine wall by too vigorous manipulation or violent traction on the cord when the uterus is relaxed, and especially if these two factors are coincidently operative are the important causes ofthis accident. When paralysis of some portion of the wall exists, a condition not to be foretold, these manipulations are especially dangerous. When partial inversion has been recognized, completion of the

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inversion can be prevented by desisting from all manipulation of the fundus and the prompt application of an intrauterine pack.

Prevention of Lacerations of the Birth-canal.—The cardinal principle underlying every means at our command to prevent lacerations of the birth-canal may be expressed in one word—*dilatation.* Precipitate labor is an extreme type of cases that are delivered without preliminary dilatation. It is impossible to prevent these sudden, almost immediate deliveries. They occur only when the passage offers no resistance and fortunately little harm results—if some one is at hand to rescue the infant from the dangers or injuries it may receive from its rapid birth. For the so-called rapid labors characterized by excessive and rapid action of the uterine and abdominal muscles, surgical anesthesia and manual resistance to the progress of the head until safe dilatation has occurred are the usual means of preventing extensive lacerations.

Rupture of the Uterus.—The prevention of uterine rupture that occurs during pregnancy from anomalies in the shape or musculature of that organ, so far as my knowledge goes, is impossible. It is quite different with rupture during labor, for here correct diagnosis of obstacles that prevent the entrance into the pelvis of one or the other pole of the fetal ovoid and early skilled operative delivery can prevent this dangerous accident. The neglected cases of obstruction bring us our spontaneous ruptures; the unskilled operator, especially when he attempts a foolhardy version, is the cause of the violent ruptures. I take it for granted that the mechanism of the "contraction ring," with its adjacent upper contracting and lower dilating uterine segment, is common knowledge. Version attempted when this ring is ocularly and palpably at or just below the umbilicus is attended with such great danger of rupture that no one should attempt it without great caution and with a surgical environment that permits a safe abdominal section. A cautious examination under ether often shows plainly that even the introduction of the hand is an unwarranted violence. The cases of violent rupture of the uterus that I have seen have all been due to contraindicated version, with one exception, and that was due to the forcible introduction of the hand to deliver a long-delayed breech presentation.

If decapitation and craniotomy are ever justifiable on a living child it is in just these cases, since the life of the infant has, by neglect, been placed in greatest jeopardy, and unless some one

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is at hand skilled in Cesarean section, it is better obstetrics to sacrifice the child than deliver by version a moribund infant from a ruptured uterus.

Lacerations of the Cervix are best prevented by securing naturally or through artificial aid complete dilatation. In primiparæ early breaking of the bag of waters is vicious practice, and when there has been an early spontaneous rupture, the rubber bag, gradually distended with water at fifteen minutes' to half-hour intervals, accomplishes safe dilatation. The partially dilated cervix should never be forcibly pushed back over the head. Before forceps delivery or extraction of the after-coming head the cervix *must be completely and slowly dilated*, with the bag, manually or with most cautious use of metallic dilators, if we hope to avoid extensive lacerations that often involve the bases of the broad ligaments and upper third of the vagina. The application of the forceps before complete dilatation and their dynamic use to complete dilatation is only permissible to the operator of wide experience who knows the time required and the dangers incident to this method. Preliminary dilatation of the pelvic floor and vaginal outlet is also the best method to prevent extensive vaginal lacerations. Manual efforts cannot be compared to the efficiency of Pomeroy's bag. The tendency of its vaginal portion to be spontaneously extruded from the vagina and to drag downward the cervix, can only be prevented by holding it within the vagina during the distension of its vaginal compartment.

As the head is traversing the vaginal canal the mechanism of this stage of labor must be supervised. Rapid extension of the head should be prevented. The handles of the forceps in operative cases must not be elevated too far nor too quickly. The long diameter that offers in face presentation demands cautious flexion even after the chin has passed well beyond the sub-pubic arch. Forceps rotation of occiput posterior postions is popular in New York, but even with McLane's solid-bladed instrument is adds a distinct danger of vaginal injuries. The delivery of the persistently posterior occiput (occiput in the sacral hollow) always is best accomplished with forceps that firmly grasp the head and do not pivot at their tips, but compel the head to be overflexed when lifting the occiput over the perineum to the danger-point of laceration, and compel the head to be at once extended as the handles are depressed to sweep the face under the pubic arch until the chin escapes,

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when the distension of the vaginal outlet is at once relieved. For this maneuver I have found no instrument so efficient as the old Hodge forceps. I have never convinced myself that episiotomy can prevent pelvic floor injuries and consequently never employ it except to enlarge the vulvar outlet when a sphincter laceration seems imminent. Suchard's vaginal incision, such as we use in primiparæ preliminary to vaginal Cesarean section is a more rational preventive treatment of irregular and extensive pelvic-floor lacerations. The difficulty of determining its necessity renders it of doubtful practical value in an ordinary primiparous labor.

In conclusion, let me say that the germ of truth I bring you—not new, because truth is always old—is th t if you must and will practice obstetrics, the parturient patient rightly demands your undivided attention. For the complications I have discussed, our latest, perhaps our best obstetric offering, is that means are now at hand, to be used by any surgically-clean man, to safely and wisely open the lower-birth canal in the interests of both the mother and the child.

TWENTIETH AND HAMILTON STREETS.

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