THE CONDUCT OF A NORMAL LABOR AT THE JOHNS HOPKINS HOSPITAL

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Obstetrical patients who are to receive free treatment generally enter the hospital during the last two months of gestation. This is encouraged for at least these two reasons: 1. It supplies material for the clinic in abdominal palpation; and 2. Such complications as toxæmia and infections almost never occur among those individuals who have resided in the wards for some weeks prior to confinement.

The waiting women occupy dormitories exclusively set aside for their use, and are separated from patients who have been delivered. They are not allowed to wear their own clothes, but are supplied by the hospital with garments which may be easily laundered. A daily bath is compulsory. A specimen of urine is analyzed once a week, and oftener if the individual is not in perfect health. The temperature and pulse are taken morning and evening. In general, the opportunity to observe the patients is such that no symptom of any kind can arise without immediate detection.

At the onset of labor the individual is given an enema of soapsuds and a tub-bath. She is then transferred to the delivery-room. It is perhaps worthy of emphasis that no douche is given. Vaginal douches are never used in this service, except in the very late days of the puerperium, where the uterus is subinvoluted. Intra-uterine douches are employed only after taking a uterine culture in infected cases.

The Delivery-room is so arranged as to be easily cleaned, and its equipment is purposely simple, in order that students may appreciate how little is required to handle obstetrical cases successfully where strict cleanliness is observed. The iron bed in use is of the ordinary type. The mattress is covered with a rubber cloth, over which a sheet is spread, and is further protected by an absorbent gauze pad, about two feet square, placed under the buttocks. At the time of labor a sheet is not used to cover the patient, but the upper portions of her body are protected by a thick, freshly laundered gown, the legs by sterile leggings, and the region about the field of operation by sterile towels. Vulva and perineum remain exposed.

No special equipment is employed to facilitate the second stage, but an ordinary muslin bandage is always tied to the foot of the bed, and the patient pulls upon it when the pains become "bearing down" in character.

A small portable table is placed beside the bed, and on it stands a basin of bichloride solution and a dish containing two clamps and a pair of scissors, as well as packages of sterile towels and gauze sponges, so as to be within easy reach of the physician.

Preparation of External Genitalia. The greatest care is employed in this particular, in order to reduce to a minimum the possibility of introducing any infectious material into the vulva. To this end, the nurse is instructed that in cleaning the parts all manipulations should be directed from above downward — toward the rectum, and never in the reverse direction, as the latter would greatly facilitate the transportation of contaminating material from the anal region. The pubic hair is first cut short with scissors, or, preferably, a small pair of barber's clippers. The parts are then thoroughly scrubbed with green soap and water; and it is upon this portion of the technique that greatest stress is laid. The excess of soap is removed by a weak solution of alcohol and the field flushed with a 1-1000 solution of bichloride, after which the vulva is covered for at least three minutes with a sterile towel which has been soaked in bichloride.

The patient, while being cleaned up, lies upon a large Kelly pad, but this is subsequently replaced by one of sterile gauze. The use of the former throughout labor has been discarded, since it forms a trough which will not drain and in which fluids collect. Moreover, it is practically impossible to sterilize it. Accordingly, some absorbent material, made into a suitable shape, has been found much more satisfactory, since it can be rendered absolutely sterile, and thrown away after

being used. It also soaks up the amniotic fluid and blood, which are inevitable.

Disinfection of the Hands. Prior to making a vaginal examination, or at the time of delivery, this is carried out according to the following method:

1. Clip the nails so that they do not protrude more than 1 mm. beyond the matrix, and remove any dirt from beneath them. Scrub hands and lower half of forearms with green soap and hot water for at least five minutes, or until they are macroscopically clean.

2. After scrubbing, immerse hands and lower portion of forearms in a hot concentrated solution of potassium permanganate until they stain a deep mahogany brown.

3. Remove the stain with a hot saturated solution of oxalic acid.

4. Soak for at least three minutes in a 1-1000 solution of bichloride of mercury.

Vaginal Examinations. These are made as infrequently as possible, although three to four are necessary with each patient, since two students attend a case and an interne makes an examination for the purpose of demonstration or confirming their findings. The danger of infection, we believe, is minimized when thin rubber gloves are worn and the vicinity of the outlet is covered with sterile towels.

With the vulva exposed to view, the labia are separated by the fingers of one hand, and the index and middle fingers of the other hand, previously covered with sterile vaseline, are then introduced into the vagina, taking care, as far as possible, to prevent contact with the external genitalia. The following points are then studied in the order named:

1. The consistency and the degree of dilatation of the cervix. Note particularly whether the internal os is obliterated, and if it is intact, the length of the cervical canal.

2. Condition of the membranes — ruptured or unruptured.

3. Position of presenting part.

4. Degree of its descent into pelvic canal by means of its relation to the ischial spines.

The Delivery. When the perineum begins to bulge, fresh sterile towels are pinned in position over the abdomen and thighs in such a manner as to leave the field of operation exposed, while another is placed under the patient and extends lengthwise in front of the vulva. In our experience the only feasible method of protecting the perineum is to see that the expulsion of the head occurs gradually. This is effected in two ways. By the use of chloroform the strength of the pains is governed to a considerable extent, and simultaneously the degree of distention of the vulva is regulated by manual pressure applied directly to the presenting part.

After the birth of the head, coils of cord about the neck are sought for, and if found, can usually be brought forward. Failing in this, two clamps are placed on the most accessible portion of the cord, which is severed between them. External rotation and the birth of the body are allowed to occur spontaneously, unless there are signs of asphyxia. In this event the child is speedily extracted. The head is grasped by the chin and occiput and rotated so as to bring the bisacromial diameter in relation with the anteroposterior diameter of the pelvic outlet. Traction is made downward until the anterior shoulder becomes visible; then, by making it in the opposite direction, the symphysis acts as a fulcrum, and the posterior shoulder is gradually delivered over the perineum. During these manipulations it is necessary to avoid kinking the neck toward one shoulder, since a sharp bend on one side is accompanied by marked tension on the structures of the opposite side, so that serious lesion of the brachial plexis may occur, culminating in Erb's paralysis.

Perineal Lacerations. These are always looked for, both externally and internally, and if the slightest tear is found, stitches are laid for its repair just after the birth of the child. They are not tied, however, until the placenta has come away. Silkworm gut is decidedly the most satisfactory suture material; as our experience shows that, owing to the softening action of the lochial discharges, even chromasized catgut frequently becomes dissolved before complete healing is effected, and therefore leads to imperfect results. A further essential to success in restoring the perineum lies in introducing the sutures at a considerable distance from the margins of the wound and tying them as loosely as possible, so as to prevent them from cutting through when œdema occurs.

The Third Stage. It is chiefly patience that we endeavor to inculcate in the students with regard to the placental stage, since we are convinced that many complications which arise at this time are to be attributed to too hasty action.

After the child is born, the uterus should form a hard rounded tumor mass, reaching to within a few centimeters of the umbilicus. It usually maintains the same position for fifteen to thirty minutes, and then the fundus becomes four or five centimeters higher than previously. This change in position indicates that the placenta has become separated from the uterine wall and lies in the lower uterine segment or upper part of the vagina

and is ready for expulsion. In order to detect this change, the height of the fundus above the symphysis is measured at intervals of five minutes, and the student is required to record his observations upon a printed slip provided for the purpose. After the fundus has risen up, the delivery of the placenta is most successfully effected by placing the hand on the top of the uterus and making firm but gradual pressure in the direction of the pelvic axis. I should like to emphasize that this is not the typical Crédé maneuver, which aims at the separation of the placenta by kneading the uterus, but is distinctly a procedure for expelling the afterbirth when cleavage in the decidua has already occurred.

Unnecessary hemorrhage and the retention of portions of the placenta are not unusual, if the manipulations are undertaken prematurely, and pupils are always warned to wait at least thirty minutes, if not perfectly sure that separation from the uterine wall has occurred. At the expiration of this time, the typical Crédé maneuver is justified, if the placenta has not come away.

Conservatism throughout the conduct of the entire labor, and especially during the third stage, is axiomatic in the teaching here, for it cannot be too frequently reiterated that many of the most serious complications in obstetrics can be traced to unjustified interference, and this is nowhere more commonly observed than during the placental period, as the average physician appears to possess an almost irresistible tendency to hasten this stage of labor.

Following the birth of the placenta the external genitalia are flushed off with 1-1000 bichloride solution. A sterile gauze pad is applied over the vulva and held in position by a T-bandage around the abdomen and between the thighs. The patient is then transferred to the bed in the ward which she will occupy during the puerperium.

A nurse remains by the bedside for at least one hour and longer, should there be occasion for constant observation. Her duty is to watch the consistency of the fundus and knead it in case a tendency toward relaxation is present. The amount of lochial discharge and the character of the pulse are frequently noted. In the event of any untoward symptoms, the assistant on duty is notified at once. After ten days the patient is allowed out of bed, and is discharged at the end of two weeks, if her condition is satisfactory at the routine examination made at this time.

Confinement in Private Houses differs very slightly from the management of labor already described, and may be conducted with as rigid and satisfactory a technique as is possible in a well-regulated hospital, provided the physician is willing to take sufficient pains and is seconded in his efforts by a competent nurse.

Vaginal examinations, which are certainly the most potent cause of puerperal infection, may be greatly reduced in number in private practice, and not infrequently absolutely discarded if the physician will perfect himself in abdominal palpation. By this means the position of the child is accurately ascertained, and the descent of the presenting part judged equally well until it reaches the level of the ischial spines. From this point, its advance may be followed from time to time by external digital pressure on the perineum in the axis of the pelvic outlet. The most valuable evidence adduced from vaginal touch, and not obtainable by external manipulation, regards the changes in the cervix. Even in this matter we very frequently have a trustworthy guide in the character of the pains. The possibility, therefore, of conducting a large percentage of cases without any internal examination is dependent solely on the possession of ability to make and interpret the more preferable external observations, together with no small amount of patience.

To secure the best results in private obstetrical work, one must instruct both the patient and the nurse in what arrangements are desired during pregnancy and at the time of labor. This information is most suitably imparted by means of printed directions, which will always be convenient for reference. The following cards, which have been devised by Professor J. Whitridge Williams, have demonstrated their value to a number of physicians who use them. Such drugs and dressings as may be necessary are procured from a druggist, with whom arrangement is made to place them together in a single package. One then only needs to have the patient purchase a confinement outfit. A list of its contents are also appended.

DIRECTIONS FOR PATIENTS DURING PREGNANCY

(*a*) Take as much outdoor exercise as possible, but guard against overtiring yourself.

(*b*) See that the bowels are moved daily.

(*c*) On the first day of each month send me an 8-ounce bottle of mixed (night and morning) urine; and for the two months preceding the expected date of confinement, send it on the first and fifteenth days of the month. Be sure to send your name with the specimen.

(*d*) From the sixth month onward, bathe the nipples night and morning with a solution prepared as follows: Fill a tumbler with equal parts of alcohol and water and add to it a tablespoonful of

borax. Keep the solution in a bottle, and apply it by means of absorbent cotton.

(*e*) Six weeks before the expected date of confinement, buy a confinement outfit. In this is included everything which will be needed by the nurse and myself, except baby's clothes. At the same time provide two pieces of rubber sheeting, ¾ x 1 yard and 1 x 2 yards, respectively; a bed-pan, 2 small round agate basins, a 2-quart fountain-syringe, 25 yards of gauze and two pieces of cotton batting for making bed-pads, or 4 ready-made sanitary bed-pads.

(*f*) Send for nurse as soon as labor pains commence, and let her use her judgment in sending for me, unless some emergency arises.

(*g*) Notify me at once if any of the following symptoms be observed at any time during pregnancy:

1. Scanty urine;
2. Persistent headache;
3. Disturbance of vision;
4. Swelling of feet or face;
5. Loss of blood;
6. Persistent constipation;
7. And also when you feel that anything is not as it should be.

(*h*) I shall call to see you five or six weeks before you expect to be sick, in order to ascertain your condition and to give you any desired advice.

Directions for Obstetrical Nurse

Preparations before Labor

(*a*) See that patient has procured a confinement outfit, and the other articles called for in Directions for Patients, which include everything you or I shall need, except baby-clothes.

(*b*) Prepare a sufficient number of sterile bed and vulval pads.

(*c*) A week before the expected date of confinement, prepare five packages for me, two containing six towels or diapers each; one containing leggings, one containing cotton pledgets, and another gauze sponges. Carefully sterilize and label them.

At Time of Labor

(*a*) If pains begin between 7 A. M. and 11 P. M., notify me as soon as possible, so that I may know that labor has commenced and make my plans accordingly. But if labor begins between 11 P. M. and 7 A. M., do not notify me until the pains are strong and frequent, or unless you think it necessary for me to see the patient at once.

(*b*) At the commencement of labor, prepare two large pitchers full of boiled water, covering them with a clean towel.

(*c*) When labor has definitely set in, give the patient a warm bath and a soapsuds enema.

(*d*) Make up the bed on the *left* side.

(*e*) Procure a piece of oilcloth or an old rug to protect the carpet.

(*f*) Don't give vaginal douches of any kind.

(*g*) Don't examine patient vaginally under any circumstances.

(*h*) Prepare the patient for vaginal examination by placing her upon a Kelly rubber pad, and then wash the genitalia thoroughly with soap and hot water, using cotton pledgets instead of a wash-cloth. Wash from above downwards (towards the anus). Cut the pubic hairs if necessary, then bathe the vulva with a 1-1000 bichloride solution, afterwards covering it with a folded towel soaked in the same solution.

(*i*) Before a vaginal examination, or when the birth of the child appears imminent, roll the night-gown up above the patient's hips and pin it in position, then put on the obstetrical leggings.

After Labor

(*a*) As soon as labor is over, cleanse the genitalia with cotton pledgets and water, and then bathe with bichloride solution, after which apply a sterilized vulval pad and place the patient upon a sterilized bed-pad.

(*b*) Don't use an abdominal binder until after the tenth day, unless otherwise directed.

(*c*) Change vulval pads as often as necessary, washing the genitalia each time with a 1-4000 bichloride solution.

(*d*) Take temperature and pulse four times a day (8, 12, 4, and 8), unless otherwise directed, and record upon chart.

(*e*) Don't catheterize until the bladder is distended, and not until after the patient has failed to urinate in a sitting position.

(*f*) Give half-ounce of Rochelle salts the morning after labor, and repeat in four hours if not effectual.

(*g*) Bathe nipples with saturated boracic solution before and after each nursing.

(*h*) Watch carefully for cracked nipples, and report them to me at once.

(*i*) *Diet.* First 24 hours, milk, soup, coffee or cocoa, and buttered or soft toast. Second and third days, as above, with the addition of boiled or poached eggs, raw or stewed oysters, and wine-jelly. Fourth and fifth days, as above, with the addition of chicken, sweetbreads, potatoes, and rice. And then gradually return to ordinary plain diet.

Care of Child

(*a*) Leave the baby alone until the mother is cared for, wrapping it in a woolen cloth and putting

it in a safe place. (Not upon the mother's bed or upon chairs.)

(*b*) Wash the eyes with a boracic-acid solution.

(*c*) Rub the child thoroughly with vaseline or sweet-oil, and then give it a full bath, using castile soap and warm water.

(*d*) Dress the cord with boracic-acid powder and sterile cotton. Don't change dressing again until necessary.

(*e*) Wash the child daily in your lap, but don't repeat the full bath until the cord comes off.

(*f*) *Feeding*. Until the milk appears, nurse three times a day, and don't give any other food, unless directed. After the milk appears, feed the child, except after its bath, *every two hours by the clock*, from 6 or 7 A. M. to 10 or 11 P. M. Time one feeding so that it will come directly after the bath, after which the child may be allowed to sleep for three or four hours if it will.

Do not feed but *once* between bedtime and 6 or 7 A. M.

As soon as the milk appears, write out a schedule for feeding the child, and adhere to it, awakening the child at each feeding-time if necessary.

Before each nursing, wash out the child's mouth with boracic-acid solution.

After the first three weeks, give one or two bottles of milk a day, no matter how much milk the mother may have.

(*g*) Weigh the child twice a week, and keep a record of it.

CONTENTS OF CONFINEMENT OUTFIT

Potassium permanganate.
Oxalic acid.
Boric acid.
Bichloride tablets.
Chloroform.
Green soap.
Vaseline.
Ergotole.
Alcohol.

Any of the following articles not already in the house should be secured:

1 piece rubber sheeting, ¾ x 1 yard.
1 piece rubber sheeting, 1 x 2 yards.
1 bed-pan.
2 small round agate basins.
1 two-quart fountain-syringe.
25 yards absorbent gauze.
2 packages cotton batting.
3 absorbent bed-pads.
Absorbent cotton.
Obstetrical leggings.
Safety-pins, large and small.
Nail-brush.