THE USE AND ABUSE OF THE OBSTETRICAL FORCEPS.[1]

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THREE major points are involved in the use of the obstetrical forceps: To know when, and how, to apply them, and to possess the manual skill to use them. They are more often applied too soon than too late. As to the relative evils of these respective errors, the premature application is more likely to provoke cervical and perineal lacerations, overcompression and skin bruising of the fetal head. Delayed application has a larger per cent. of maternal and fetal deaths, and also of infection.

Some degree of cephalo-pelvic disproportion exists in 13 per cent. of cases. Maternal expulsive forces and head molding overcome the obstruction in a major number of such cases, although subnormal expulsive capacity necessitates using the forceps in quite a number. Of the cases of disproportion from 5 to 10 per cent. are undeliverable with the forceps. About one case in every twenty to twenty-five is benefited by proper use of forceps.

Every pregnant uterus in labor has a definite amount of contractile force, or expulsive power, which can be applied in dilating the cervix, in molding the fetal head, in dilating the vagina, in compressing the soft parts lying between the vagina and pelvic walls—no small obstruc-

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tion in very fat patients—in dilating and extending the perineal tissues and in expelling the fetal head and body.

Complete utilization of this contractile power is required in but a small per cent. of labors, but when this is once exhausted it cannot be regained within a reasonable time for the completion of delivery. The uterus is in a state of paresis—it is suggestive of an electric battery whose fluid has lost its strength. It is capable of making short and weak contractions, as is the battery of giving a few mild sparks. Spurring it to renewed effort is a cruel folly. From the time when this exhausted state is reached the anatomical changes which ensue obstruct rather than assist delivery.

The cervix begins to swell instead of dilate, the helpful mucus ceases to flow and the outlet grows thick with venous congestion.

The imminence of contractile exhaustion should invariably be accompanied by the application of the forceps, if the case is one of normal presentation and presumably subject to delivery with their assistance. But no patient should ever be intentionally allowed to reach such a stage before having the forceps applied. The evils of edema, laceration and infection are more surely avoided by earlier application.

It is easier to draw the fetal head through the undilated and unsoftened cervix without laceration than when it has become soft but edematous.

We hear much of "cicatricial cervix" as a cause of delay and an indicator of the need of forceps assistance. If by this term is meant an abnormal proportion of connective tissue in uninjured or primiparous cervices, it is, in our opinion, largely a misnomer and misinterpretation. Imperfect development more correctly defines it, and this stunted condition is usually applicable to the entire uterus. Hence, delayed dilatation in such cases is usually due to inefficient uterine contractions. It is a wise rule in supposed cases of cicatricial cervix delay to quiet the patient, if necessary, with a sedative, for there is usually little expulsive force being expended, or reason for haste. Too early application of the forceps in such cases usually results in familiarity with the ways of that obstetrical camp follower—the gynecologist. Traumatic cicatrices from healed lacerations, cancer and atresia can be easily recognized. I have never found it necessary to employ Dürssen's method of multiply cutting of the cervix, and confess to a strong dislike to it.

The most frequent obstetrical demand for the forceps is in cases requiring more or less molding of the fetal head.

To properly estimate the indications one should be able to make an accurate diagnosis of the presentation and position of the fetal head, both to know that it is normal and to apply the blades correctly; to estimate with reasonable accuracy the relative size of the head to the pelvic caliber; to judge the amount of uterine power that has been and can be applied in expulsive effort; to what extent the cervix obstructs descent, as compared with cephalopelvic disproportion; to determine the degree of molding that has been accomplished, and to conclude from this and the dynamic condition of the patient, together with the amount of molding yet needed, that the time has arrived for forceps application.

Let us cite a typical case with which to indicate the need of forceps. The patient is a healthy woman of 25 years, of average weight —128 pounds—of average height—5 feet 4 inches—with external pelvic measurements of normal dimensions; with a diagonal conjugate sufficiently long to make it difficult to reach the promontory with the second finger in the vagina, and with the occiput of the child presenting in the left transverse. Pains began eight hours ago, becoming rhythmic and strong three hours ago. Palpating the bladder we find it prominent and empty it with a soft rubber catheter. Standing with our left side by the patient's right, or vice versa, we palpate the fetal head by pressing the fingers of both hands gently into the groins.

During pains it is immovable in the pelvic inlet; between pains it can be moved, but only slightly. With fingers in the vagina we find the rectum empty, the cervix flattened out, soft and open to the size of a silver half-dollar. During a pain it is fairly, but not fully pressed against by the head, although the pain is a strong one, which indicates that opposition lies at the pelvic brim.

Stretching the cervix with two fingers, it measures 2½ to 3 inches; is soft and elastic uniformly. It says to the novice: "You can dilate me fully in five minutes." It says to one who has tried it often—nothing, for it sees that he knows better. The fruit sac, as Barnes calls the amnion, is intact, but not interfering with engagement or descent of the head. The amnion is not responsible for delay when the head is firmly against the brim and the uterine muscle is not overstretched by excessive amount of fluid. The crown of the occiput lies about 1½ inches below the level of the brim. The scalp is slightly wrinkled, but not edematous. Pressing the sutural margins of the parietal bones we find them lying close together, with less wing motion, or elasticity, than when the head is in equilibrium, and with some overlapping of their borders. The fontanelles are smaller than normal and the intracranial tension is increased. Upward pressure on the head as a whole gives very little motion, with a general sense of "fixation." Contrapressure with the other hand's fingers on the head above the pubes informs us that the head is partially engaged, and that it can be pressed slightly lower into the pelvic basin, but that it cannot be made to sink further under reasonable pressure.

Returning to abdominal palpation we note that the abdominal muscles are strong, the wall not fat; that the uterine muscle is firm, tonic and normally thick; that it is not overstretched by excess of amniotic fluid, and can, therefore, apply its full force in contraction. We estimate that the fetus is of normal weight—7 to 7¼ pounds—and that the head is neither hydrocephalic nor encephalocelic. We pass over here Perret's method of measuring the head diameters as impracticable. The patient's constitutional and moral conditions are satisfactory. Nevertheless, she complains greatly, and we note little or no advance in descent of the head.

It would be a mistake to apply the forceps now. The biparietal diameter is larger than the conjugata vera, and the cervix occupies some space. The head is entering the brim, but molding is necessary. The cervix is behind in dilatation, only because the head cannot descend against it. Extreme molding may reduce the head diameters one-half inch, which half inch covers a multitude of sins in obstetrical mensuration. Such extreme molding is seldom required and still more seldom achievable by the patient. The obstetrical moment for forceps application is when sufficient molding is accomplished to render descent under traction comparatively easy. The surest sign of this is a well-formed caput succedaneum.

The patient's moment is considerably earlier, and just in proportion to the operator's skill and gentleness of effort at the beginning can the doctor apply the forceps in advance of the obstetrical moment and relieve his patient of moral, mental and physical suffering without harm. Weakening and slowing of labor pains are an almost unexceptional indication for forceps application. So is a rise of the fetal pulse above 150, or its fall below 120.

There are a thousand and one variations to this sample case which involve the question of forceps application—cases of expulsive incapacity, of eclampsia, partial placenta previa, premature separation of the placenta at the normal site, of malpositions, of tumors, of maternal heart, lung and other diseases, which cannot be considered in a short paper; but in the majority of such cases, usually those of urgency, the cervix is not sufficiently dilated, and first efforts with the forceps should be, not to bring down the head, but to gently secure its passage through the cervix.

The most important part of our topic is: To know how and to possess the skill with which to apply and use the forceps.

Generally speaking, the proper use of the forceps combines blind mechanism and adaptable art. The ideal use of the forceps requires that we shall make traction in the axis of the inlet; that we shall secure proper head application; that we shall make only sufficient compression of the head to avoid slipping of the blades; that during traction we shall constantly note the amount of compression required; that we shall have a finger in contact with the cervix to note its tension and to prevent laceration; that we shall, knowing that the forceps interfere with normal mechanism in rotation of the occiput forward, so apply the blades that traction will enforce rotation forward; that at all times during tractions we shall be able to stop instantly, should the head pass an obstruction suddenly; that tractions should not last longer at a time than labor pains; that the blade pressure on the head should be instantly removed at the end of a traction, and that we should avoid mashing the perineum with the shafts while directing our attention to the head above.

No one style of forceps meets all these requirements. That the classic blades of Elliott, Simpson, Hodge and others would be preferable to the Tarnier forms on account of their comparative simplicity, if they could be brought to meet these demands, none will deny. Suppose we suggest the following method of using the classic form as the most artistic and scientific, and consider what is wanting that the traction-rod form can render: First, in applying the blades endeavor to grasp the head so that one blade lies against the posterior parietal eminence and the other against the anterior malar bone. This will insure anterior rotation of the occiput and not injure the maternal pelvis. It necessitates absolute knowledge of the position of the occiput, as a mistake would compel the very movement we wish to avoid—posterior rotation.

Such diagnosis can be obtained by slipping the fingers into the cervix enough to recognize an ear or other compass mark. Second, in taking hold of the handles we do not use both hands, nor grasp the outer ends, but place the left hand under the handles just back of the shafts, taking hold with the first and second fingers in front of the first notch, making all traction with these two fingers only and using the thumb and remaining fingers solely to artistically adjust compression. The wheel in the end of the blade which limits compression should be thrown away. Third, we place the right-hand palm upon the upper end of the shafts, so that downward pressure on the fenestrated ends can be applied, whereby the axis of traction can be brought very nearly parallel with the axis of the inlet, and the shafts will press more lightly on the perineum. Fourth, we keep the tip of the second finger of the right hand against the head, that we may apply compression with the left hand just as needed, noting at the same time with the right finger the degree of tension of the cervix which passes over the back of the finger. Fifth, instead of having the patient's limbs flexed on to the abdomen, which shortens the conjugata vera and puts not only tension on the posterior commissure of the vulva by dragging the buttock skin away, but draws the commissure nearer the

pubes and in the way of the forceps, place the limbs in extension, though not necessarily in the extreme of Walcher's posture.

The two points claimed in favor of the traction-rod forceps are: That they enable us to pull the head along the axis of the inlet, making less pressure on the perineum at the same time, and that they automatically permit rotation of the occiput. Although the older "classic" blades can readily be made to secure as much as 90 per cent. of axis traction that can be obtained by the traction-rod forceps, yet in cases of unengaged head of the most difficult class for forceps delivery we need that 10 per cent., and I favor the Tarnier blade. The second point, that they permit rotation of the occiput, is of no real value to me, inasmuch as the older blades not only avoid dependence upon automatic action, but absolutely control rotation. The chief objections to the Tarnier forceps lie in their clumsiness, to their interference with the individuality and skill of the operator, to the necessity of binding them for the time being to the fetal head and favoring overcompression, to the loss of time in loosening them between tractions and to the innate difficulty of applying them to the fetal head rather than to the pelvis. Further, during tractions, we do not have so constant a knowledge of the strain we are putting upon the cervix. In difficult cases we remove the older blades altogether at intervals, to help restore equilibrium in the circulation in the fetal head and in the maternal parts and to vary the points of application to the head; the traction-rod form involves too much manipulation to favor this plan. Are we far from right when we say that something of the same choice for the classic blades affects the obstetrical artist that the musician feels for the freedom of the open keyboard in preference to the automatic Pianola?

Mediocrity seeks the assistance of mechanism, and while the highest attainments in commercial productions are obtained by machinery, in surgery art must ever outrank mechanism. No two surgical operations are ever identical, and mechanism knows naught but blind and exact repetition. The obstetric artist would get better results with Chamberlain's primitive blades than the novice with the finest Tarnier traction-rod forceps; but the obstetric artist will at times get the best results only with the Tarnier traction-rod forceps.

There have been a number of appliances brought forward which aim to make traction-rod forceps out of the old classic blades—rods which hook into the fenestra, tapes which are passed through the same, Reynolds', Poullet's and others' inventions. If I were without a properly constructed Tarnier forceps, I would much prefer to use the classic blades without any compromise appliances. The loose rods are dangerous, as they are liable to slip and tear the soft parts between the fenestra and the vulva. The Fry forceps, which are applied to the head parallel to the promontory and pubes, and aimed to compress the head between these points, promised well theoretically, but have not given satisfaction clinically.

My own choice of forceps as the one most generally applicable is the long pattern of Elliott. First, because they are long enough to have the joint and place of taking hold just outside the posterior commissure in high applications; second, because they are comparatively straight and also narrow, thereby permitting more latitude in rotary manipulation and application to the head, and third, because the shafts overlie one another, their narrow width over the perineum permitting one to hold the handles somewhat lower than in such blades as Simpson's. But they should always be used in the way described above, which avoids overcompression, otherwise they are quite liable to wound the scalp.

A very useful forceps is the short Hale, which finds a special place in those cases in which the energies of the patient give out when the head has been forced to the floor of the pelvis, leaving the mother to lie in great pain for several hours unless assisted.

A little chloroform and a few minutes' gentle traction will bring the head into the vulva and under control for delivery.

The speed of delivery must be carefully regulated to the needs of the perineum. Nearly all of our text books give illustrations of delivery of the head with the forceps attached. Unless the outlet soft parts are unusually large the forceps should always be removed as soon as the two hands can control the head and draw it out. May I add here further that the limbs should be extended during delivery of the head? It is a simple demonstration to show that flexed thighs increase the tension on the outer portion of the perineum during passage of the head.

In summary: Use the "classic" blades whenever they will accomplish delivery without fetal injury. Select the time of application nearest the obstetrical moment—completion of cervical dilatation and head molding—permissible by the character of the patient's expulsive powers. Apply the blades to compel anterior rotation of the occiput. Make the first aim in tractions delivery of the head through the cervix, rather than its descent into the pelvic brim. Remember that tractions are similar to convulsions in their effect on the fetus, which, prolonged, provoke asphyxiation.

Keep the shafts off the perineum during the tractions high up. Remove and reapply the blades at studied intervals in prolonged and difficult cases. Extend the limbs when the head reaches the vulva.

Remove the blades when the hands control the head. Keep constant watch of the fetal pulse.