

deavor must be to check any further hæmorrhage and restore life, as it were, by stimulation, before resorting to any means of delivery. What method we shall then adopt must depend upon the circumstances of the case.

In operations ether, as a rule, should be given, and all force should be avoided. With regard to stimulation, the subcutaneous injection of ether as a quick stimulant is perhaps the best; besides this we have nutritive and stimulating enemata, auto-transfusion by bandaging the limbs, injection of salt solution into the veins, or as recommended by Münchmeyer⁷ the injection of a six per cent. salt solution, at the temperature of 100°, into the infra-clavicular or inter-scapular regions, afterwards gentle massage of the fluid through the tissues. It is also advisable that the patient drink plenty of fluid to help supply the loss in the vessels; hot water and acid drinks are recommended. Ergot and massage of the uterus are useful, to enable it to recover its tone and stimulate the pains.

The treatment of post-partum hæmorrhage would be hot antiseptic intra-uterine injections (including vinegar), pressure, massage of the uterus, ergot; these things failing, we might apply styptics or the aseptic intra-uterine tampon.

Dangers and Complications.—Hæmorrhage at all times, rigid os, prolapse of the cord, twins, adherent placenta, hydrocephalus and spina bifida, tumors of soft and hard parts of the parturient canal, narrow pelvis, laceration of the cervix, rupture of uterus and inversion of uterus (rare).

Sudden death in the mother is generally attributed to hæmorrhage; but air embolism has caused immediate death in two cases where the air entered the uterine sinuses (Kramer⁸ and Vavra⁹).

RULES OF DR. BRAXTON-HICKS.¹⁰

(1) After the diagnosis of placenta prævia is made, we proceed as early as possible to terminate pregnancy.

(2) When once we have commenced to act, we are to remain by our patient.

(3) If the os be fully dilated and placenta marginal, we rupture the membranes and wait to see if the head is soon pushed by the pains into the os.

(4) If there be any slowness or hesitation in this respect, then we employ forceps or version.

(5) If the os be small and the placenta more or less over it, the placenta is to be carefully detached from round the os; if no further bleeding occur, we may elect to wait an hour or two. Should the os not expand, and if dilating-bags are at hand, the os may be dilated. If it appears that the forceps can be admitted easily, they may be used; but if not, version by combined external and internal method should be employed, and the os plugged by the leg or breech of fœtus; after this is done the case may be left to nature, with gentle assistance, as in footling and breech cases.

(6) If the os be small, and if we have neither forceps nor dilating-bags, then combined version should be resorted to, leaving the rest to nature, gently assisted.

⁷ Münchmeyer: Über den Werth der subcutan. Kochsalzinfusion zur Behandlung Schwerer Anämie, Archiv. für Gynäk., Bd. xxxiv, Hft. 3.

⁸ Kramer: American Journal of Medical Sciences, vol. xvi, 819; Zeitsch. f. Geburtsh., Bd. 14, Hft. 2.

⁹ Vavra: Centralbl. f. Gynäk., 1, 1890; American Journal of Medical Sciences, 1893, p. 430.

¹⁰ British Medical Journal, November 30, 1889, ii, 1205-1207.

(7) If during any of the above manœuvres sharp bleeding should come, it is best to turn by combined method in order to plug by breech.

(8) Where the fœtus is dead, or labor occurs before the end of the seventh month, combined external and internal version is the best method, no force following.

During my two years abroad, eleven years ago, I had the good fortune for bedside study and observation in a number of cases of placenta prævia. Notes upon two of these cases I have here to-night.

CASE I. In Carl Braun's clinic, Dr. Felsenreich, assistant. Patient a multipara, anæmic from loss of blood; severe hæmorrhage before entering hospital but none after; os about six centimetres dilated. Placenta covered all but a small portion at the upper right side; head could be felt through the membranes at this point, high up and movable; membranes intact. Treatment: Chloroform, version, feet brought down, then left to nature. Child born dead several hours after. Mother made a good recovery.

CASE II. In Professor Späth's clinic. Patient a multipara; hæmorrhages before entrance; poor condition; anæmic; os would admit two to three fingers; membranes intact; head presentation. Colpeurynters introduced to save the membranes, dilate the os and check further hæmorrhage; later, the membranes ruptured spontaneously. The os was then about five centimetres dilated; the placenta covered about one-third of the upper right side; the head was movable at the brim; pains were strong and there was no hæmorrhage. The question of turning came up, but it was decided to leave things to nature, as the membranes had ruptured and the hæmorrhage was checked. The child was born dead. Mother made a good recovery.

My own experience, since, is limited to one case of lateral insertion of the placenta. Patient was a multipara, at term. Labor had commenced; os two-thirds dilated; membranes intact; head presentation. There was some flowing at this time, but hæmorrhage had not been severe. From the first, placenta prævia was suspected, which was afterwards verified. Rupture of the membranes controlled all further hæmorrhage, and the case terminated in a perfectly normal labor. Child lived, and convalescence was uninterrupted. The case was interesting only from the fact of the slight disturbance which was caused.

THE VOMITING OF PREGNANCY.¹

A PAPER SUGGESTED BY THE MONOGRAPH ON THE SAME SUBJECT BY DR. GRATLY HEWITT, OF LONDON.

BY R. A. KINGMAN, M.D.

RATHER more than three years ago it was my misfortune to lose a patient from the "excessive" or "pernicious" vomiting of pregnancy, complicated with acute rheumatism, endocarditis, miscarriage and probable pulmonary embolism. It was my added misfortune that this patient was a valued friend, hence partially the profound impression produced. Since that experience my attention has continually been strongly directed to the subject of pregnancy vomiting, its cause, its cure; and in the belief that my observations and experience may be of some value to others and

¹ Read before the Section in Obstetrics and Gynecology of the Suffolk District Medical Society, April 13, 1892.

perhaps be the means of relieving something of suffering and discomfort, I have prepared this imperfect paper. To tell the truth, I have been amazed and often disgusted to note how scattering, irrational, and unscientific is most of the journal writing upon this subject. All sorts of stomach medication are suggested, urged, or vaunted by inventive minds, the rectum and vagina being occasionally made receptacles for drugs as well.

Cases are reported without number in which all sorts of measures have been successfully or unsuccessfully employed. If the vomiting persisted, especially if the patient died, the disease is called "pernicious" or "uncontrollable," on the other hand if by chance the vomiting ceased, the drug last used is forthwith exalted to the throne and its fame exploited far and wide. Indeed I know of nothing in the fields of pathology and therapeutics so little understood, so irrationally treated, and so often neglected under the excuse that it is necessary, or that it is a part of a physiological process, as the vomiting of pregnancy.

During the past year my knowledge of the subject has been increased and my interest reawakened by the reception of a monograph from Dr. Graily Hewitt, of London, on the "Severe Vomiting during Pregnancy." This little book contains condensed reports of one hundred and sixteen cases of severe vomiting during pregnancy, collected from the literature of the past twenty years, with a critical analysis of these cases in carefully arranged groups with some very suggestive and, for the most part, acceptable deductions. It is in the first place a fact worthy of notice that in all the literature of Europe and America for the past twenty years, Dr. Hewitt could find only 116 cases reported with sufficient accuracy and attention to important detail, to be available for analysis and the deduction of valuable inferences. And yet there is hardly a more common subject for report and comment in the journals of to-day than the one which is under discussion.

From testimony elicited by constant inquiry, I am in a position to affirm that the nausea characterizing the early months of pregnancy differs from the nausea due to other causes in being infinitely more distressing and overpowering, and further, that unless serious symptoms develop, little attention is paid to the matter by the physician.

I shall not touch upon the various causes suggested by the many good men who have given thought to the subject, nor shall I discuss the methods of treatment which find a place in our books and favor in our practice. My desire is simply to call your attention first, to the importance of this matter to your patients, and then to point out some simple facts which may serve as guides in determining in any given case the actual cause of the vomiting. This latter point attained, there need usually be found little difficulty in deciding upon the appropriate treatment.

Turning now to the book already referred to, which I am glad of an opportunity to review and urge upon your thoughtful attention, let us note the several groups into which the author has been able to divide his collection of cases.

Group A consists of cases classified as "vomiting in pregnancy," the vomiting being due to some coincident disease demonstrated by autopsy.

Group B includes cases from 28 to 46, 19 cases in which the uterus was either retroverted or retroflexed.

In each case in which the displacement could be reduced, a cure was obtained. In four cases artificial abortion was induced, but in two of them apparently no attempt was made to replace the uterus.

Group C is by far the largest, including cases numbered from 47 to 101. In all these cases the uterus was in a state of ante-position, this being inferred in some cases where definite information was lacking.

Of these 54 cases, 10 died, giving a mortality of nearly 20 per cent. The treatment was as varied as were the varying opinions of the physicians in charge, including mechanical elevation of the uterus, Copeman's procedure of dilating the cervix, sundry applications, and finally artificial abortion. In several of Dr. Hewitt's cases the simple enforcement of the recumbent posture brought the desired relief.

Group D contains only six cases, being those in which inflammatory conditions prevailed in or immediately about the uterus. Four of these patients died.

Group E includes the remaining nine cases of the series. These are miscellaneous cases of little value for the purposes of the paper.

Noting the large proportion of cases of ante-flexion, Dr. Hewitt calls attention to the fact that in this condition there is almost inevitably an induration or sclerosis of the tissues of the cervix, at about the level of the internal os. When pregnancy occurs this interferes with the normal and uniform expansion of the uterus and, the rigidity continuing, there results more or less impaction within the pelvis. The growing uterus, as it becomes heavier, presses down more and more upon the pelvic floor, thus increasing the flexion.

It has been generally believed, and was certainly my impression, that Dr. Hewitt held the flexion to be directly responsible for the vomiting. From the present statement, however, it appears that he attributes the vomiting to the rigidity of the tissues resulting from a flexion or other cause, which in turn prevents proper expansion of the developing uterus and so causes pressure upon and irritation of the nerve fibres in the immediate neighborhood of the internal os. The same factors he finds present in retro-positions, in many a case of lacerated cervix with erosion and subinvolution,—in fact, in any case of pregnancy vomiting in which the uterus is not perfectly free to develop and rise in the pelvis without let or hindrance.

In this theory I, for the most part, heartily concur, but when he carries his theory to the extent of explaining all benefit derived from applications, on the ground that the necessary manipulation has resulted in raising the uterus, I cannot quite follow him. I realize that there are other nerves in the cervix than those at the internal os and that they are probably capable of conveying sufficient irritation, stimulus—call it what you will—to set up and keep up pregnancy vomiting. A single case, to be referred to later, will indicate how this may be true and how simple applications may be effective.

Proceeding on the supposition that all cases of the vomiting of pregnancy are due to a local cause and that upon the discovery and removal of that cause must depend the success of our treatment, I have made it a rule for the past three years to examine so far as possible every case that presented itself to me. As a result of basing my treatment upon indications thus discovered, I have in no instance failed to see relief follow within a very few days. How far I am jus-

tified in expecting this favorable result in future cases, only time can show, but judging from the promptness of the cure in several severe cases which had already resisted routine treatment, faithfully tried, I look forward with confidence. My series of cases is not long, nor can I give exact data concerning any of them, but the chief facts are distinctly in my mind and will serve my present purpose sufficiently well.

In a majority of my cases quite as large as in the series reported by Dr. Hewitt, there has been found the condition classified by him as group C, the uterus being in ante-position. The exact condition is usually as follows; the uterus rests more or less heavily upon the pelvic floor, the cervix is sharply anteflexed, the body may be either in the normal axis or anteflexed, but in any case is much lower than it ought to be, usually sensitive to pressure and frequently hard to the touch. The frequency of this class of cases is largely due, in my opinion, to modern methods of dress, the pre-existing condition being exaggerated by the constantly increasing bulk and weight of the pregnant uterus. They are the hardest to relieve because the upright posture and every movement tend to increase the displacement, and because tissue changes are inevitably present in the angle between the cervix and body, which continue to interfere with the expansion and development of the uterus even after all displacement has been corrected.

In other cases, though far fewer in number, the uterus has been found in retro-position, either flexed or simply retroverted. In these cases I have invariably found that correcting the displacement cured the vomiting. Strangely enough, however, two of the worst cases of retroverted pregnant uteri that I have seen have had no vomiting at all. In one of these cases, there was severe headache, with spontaneous abortion at three months. The uterus was then found literally upside down. The other patient had been treated by me at intervals for two years for retroversion in the third degree, with most extensive adhesions, the uterus being simply buried in a mass of exudate on the left side. This patient went on to full term without ever having inconvenience of any sort attributable to her old pelvic disease. True, I packed her at intervals during the early months, but not until physiological softening had well advanced did the uterus resume its normal relations in the pelvis.

These two cases prove little except that retroversion does not of necessity cause vomiting during pregnancy, but they certainly do not prove that it may not be a cause.

In several cases it has seemed to me that an eroded, sensitive condition of the external os has served as a sufficient cause of vomiting. A single case may serve as an example. A young Englishwoman, mother of two children, presented herself at the Boston Dispensary with the following story: In both her pregnancies vomiting began very early and continued up to the moment of delivery. Both times she became terribly emaciated and excessively weakened. Now at about two months in her third pregnancy she sought a means of escape from a similar experience, of which she had already tasted the awful distress. The uterus was found in good position, but the cervix was lacerated and much reddened and eroded. A single application of nitrate of silver solution gave great and immediate relief, the second application completing the cure. I cannot believe that inserting a cylindrical

speculum and through it bathing the cervix would sufficiently modify the position, either of uterus or cervix, to have any important effect upon the vomiting.

In my own experience it has seemed possible in every case to attribute the vomiting to one of these three causes. That there are other minor or contributing causes, I do not deny, but I do believe that in the vast majority of cases, one or other of these conditions will be found to obtain. There may be a peculiarly sensitive nervous temperament to combat, the stomach may be irritable, there may be anæmia, the vomiting may even be hysterical—in each of these cases appropriate treatment is called for, but none the less does my affirmation hold good that in the vast majority of cases a local cause lies at the bottom of the trouble and must be removed before a cure can be expected.

As regards treatment, I freely admit the value of the various stomach sedatives, of medicines to lessen nervous reflex irritability, of tonics, of rest, of rectal feeding and of other methods if there be any which have been found of use by observant men. These may all have their place, but I would urge that valuable time be not wasted in their use while the true cause goes untouched. Do not wait until the patient is in extremis but examine at once and be guided by what you find.

In cases of retroversion, the vomiting will probably cease at once on correcting the displacement. This is to be accomplished by bimanual manipulation, by the aid of the knee-chest position, or by packing. Once reduced the displacement may be prevented from again arising by the use of a suitable pessary.

Where anteflexion exists, Dr. Hewitt's method of elevation by means of a round rubber ball, inflated in the anterior cul-de-sac, has given good results in his practice. Personally I have come to place great reliance in the frequent use of the knee-chest position, with admission of air to the vagina. In fact, so favorable has been my experience in the employment of this measure, that when for any reason I cannot examine at once, I prescribe it on the chance that it will favorably influence the uterine position and secondarily the vomiting. This failing, I pack anteriorly to the cervix, getting in as large and elastic a mass of cotton as possible. The ideal pessary for this condition, which unfortunately does not exist as yet, would be an inflated rubber ring, very small on one side and large on the other. In longitudinal section it would be crescentic, the slender portion to go behind the cervix while the large anterior portion holds up the body and straightens out the flexion.

When an irritable cervix is at fault, I have found nothing so good as the German practice of pouring in upon it a ten per cent. solution of silver nitrate.

As you perceive, I have not thought it necessary to go much into detail in the matter of treatment for the reason that that must be decided upon general principles. The important thing is to know the cause and then trust to your own good judgment to guide you in its overthrow.

In closing let me offer the following brief suggestions:

Vomiting of pregnancy means suffering and distress which you are bound to relieve.

There is no difference save in degree between the so-called "physiological vomiting" and "pernicious vomiting."

Simple "morning sickness" may pass into "incoercible vomiting" and prove fatal.

The vomiting of pregnancy results usually from some uterine displacement or other local cause which interferes with the normal expansion and development of the uterus.

This local cause is in a majority of the cases an antelexion and partial prolapse of the uterus with induration of the tissues in the cervical angle.

To cure the vomiting it is necessary to remove the local cause.

This done, morning sickness need no longer be an essential part of pregnancy.

A STUDY OF FLAT-FOOT, WITH SPECIAL ATTENTION TO THE DEVELOPMENT OF THE ARCH OF THE FOOT.¹

BY JOHN DANF, A.B., OF BOSTON,
House Officer, Massachusetts General Hospital.

(Continued from No. 17, page 405.)

III. DEVELOPMENT OF THE ARCH OF THE FOOT.

WITH a view to finding out what the condition of the arch was in infancy and childhood a series of tracings were taken under the immediate supervision of the writer, of the feet of nearly four hundred children, whose ages range from nine days to fourteen years. The method employed was that already described, which is simply a modification of that of König. The child was allowed to dip its feet in water, and then stood for a moment upon a flat-sheet of brown paper. Wherever the feet touched, the paper would be moistened. The edge of this moist area was quickly marked with pencil, and the paper carefully dried.

The writer here wishes to thank the officials of the following institutions for the uniform kindness that they showed in doing all in their power to aid him in his work: The Massachusetts General Hospital; the Boston City Hospital; the West End Nursery; House of the Good Samaritan; Church Home of Orphans and Destitute Children; Marcella Street Home and St. Mary's Orphan Asylum; and also to thank most heartily Mr. S. E. Bullard and Mr. Lyman Hodgkins of the Harvard Medical School for their co-operation in taking the tracings and making the experiments upon plates.

The deductions from the drawings are not in accord with the accepted authorities. At birth the foot does not seem to be flat, as is the general opinion. There seems to be on the contrary a distinct arch in the feet of most infants, better formed in one foot than the other, and persisting until they are about eighteen months old. In this period the difference in the arch of the foot between males and females is not noticeable. After eighteen months there begins to be a distinct breaking down of the arch, which in most cases is wholly lost, the two feet suffering equally. For the next year and a half the feet remain distinctly flat, yet even during this period isolated tracings appear in which the arch is never lost. It is interesting to note that such are always females, and therefore presumably lighter children.

During the next (third) year the arch is slowly rebuilt, one foot improving before the other, and the females considerably earlier than the males. When the

fourth year has been well entered upon the feet have nearly reached the adult condition; the two are about alike, and there is no marked difference between males and females. Figs. 8 and 9 are photographs from two sets of actual foot-tracings arranged to show the progressive stages in the building up of the arch, one being the male and the other the female children.¹⁸ Corresponding squares in the two pictures are occupied, if not by exactly the same age, at least nearly enough so for all purposes of comparison.

Briefly stated, these pictures would seem to say: From one to eighteen months, arch distinct; sexes alike; one foot better than the other. From eighteen months to three years, arch mostly lost; exceptions are females. From three to four years arch building up; unequal in the two feet; females tending to form earlier. From four years upwards arch established; sexes alike; both feet equal.

Another point in which this series of tracings, as far as they go, seems to differ from the books is as regards the foot in rachitis. Instead of being flat it would seem to have an inner arch fully as high as the normal, and a much higher outer arch. This, as is shown by a series of four tracings in Fig. 10, gives the foot double concave sides, making a very pronounced pattern. So far as has been observed this peculiar tracing is found only in this disease; but the number of tracings is far too small to have much significance. In the few negro and Jewish feet that appear in the series the arch is up to the average for that age; but again, they are far too few to be of much value.

That tuberculosis of the vertebræ does not necessarily weaken the resistance of the system so as to produce flat foot was repeatedly shown. Fig. 11, *b*, is a tracing from a girl of four years and nine months of age, who was at the time wearing a back brace for Pott's disease. A few scattering cases show in a marked manner the production of flat foot by an injury to the leg. Fig. 11, *a*, which is a tracing from a young man of nineteen years, who a year and a half previous had his left leg broken, shows the right foot with its arch in a normal condition, while in the left the arch has given way.

IV. — TREATMENT.

Non-Mechanical Treatment. — As most of the cases come on from a fatigued state of the system, general tonic and hygiene treatment is of the first importance in dealing with flat-foot. Of measures addressed directly to the feet the simplest is the method of walking insisted upon so much by Whitman. The patient should be made to walk with the toes pointing directly forward; for this position gives the arch the greatest muscular support possible, and compels the body to be raised at every step. Next comes *Exercises.* — The admirable set of gymnastics exercises as prescribed by Ellis,¹⁹ which consists essentially in raising the body upon the toes and slowly rotating the heels outwards. In addition to this a broad, flat, laced boot with a low heel should always be worn, which should preferably have a slight inward curve to counteract the tendency of the fore foot to evert.

Mechanical Treatment. — The object of all mechanical devices is to prop up the arch and so prevent the os calcis from rolling over inwards, and the scaphoid and astragalus from sinking down.

¹ Being a thesis presented for graduation in the Harvard Medical School.

¹⁸ Average tracing from a series of somewhat over 200.

¹⁹ Lancet, September 26, 1885.