VAGINAL CESAREAN SECTION AND ITS LIMITATIONS, PARTICULARLY IN ECLAMPSIA.*

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A period of sixteen years has elapsed since Dührssen first performed the operation to which he gave the name of " Vaginal Cesarean Section." It was carried out in a patient in whom he had previously done vaginal fixation for uterine prolapse. The woman subsequently became pregnant and it was found impossible to deliver her by the ordinary means on account of the dystocia caused by the abnormal fixation of the uterus. As Dührssen in an analogous case had been compelled to do a craniotomy, he decided to empty the uterus in this instance by deep incisions of the anterior and posterior lips of the cervix and lower uterine segments. He was prompted to this operation by his experience in removing sub-mucus fibroids by the vaginal route, where he had exposed the tumor by means of extended sagittal incisions in the cervix. The delivery in this case was completed by means of a podalic version and the woman and the child made a good recovery. The incisions were carried into the lower uterine segment and the bladder pushed upwards and kept out of the field by means of a speculum. The closure was made with interrupted catgut sutures, including the opening which had accidentally been made in the peritoneum. The patient was presented about a month later before the Congress of the German Surgical Society and examined by a number of the prominent obstetricians and gynecologists present.

Dührssen in claiming that he was the originator of this form of delivery, acknowledged that he had been guided in this procedure by the previous recommendations of Doyen, Czerni and Veit, who all proposed and carried out exposure of sub-mucus fibroids by incision through the anterior lip of the cervix and the anterior vaginal fornix. Since Dührssen proposed this operation it has been continuously employed by many operators with very few modifications and must be regarded as one of the

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essential and classic obstetric methods developed in modern times. Previous to the actual operation as here noted, Dührssen had referred to such a method in the article on the treatment of eclampsia published a short time before, in which he stated that in this condition a rapid emptying of the uterus could be secured by median incision of the anterior lip of the cervix and the lower uterine segment. After this he added another indication in a subsequent paper where he referred to the value of such a procedure in dystocia due to vaginal fixation of the uterus. Although thoroughly impressed with the value of the procedure, Dührssen seems to have hesitated in recommending its general adoption because he distinctly states that the operation is only to be done in a hospital with trained assistants, and is only indicated in those cases, where in the presence of a closed and nondilatable cervix, serious danger is present for the mother or in rarer cases for the child. He urged that the exposure of the anterior and posterior segments of the lower uterine wall should be sufficiently complete to permit the incisions being made under the guidance of the eye, rather than by the sense of touch.

The operation of vaginal Cesarean section must be regarded now, as it was originally regarded by Dührssen, in the nature of direct and radical surgical interference and as expressing the dominant influence on modern obstetrics by the foremost surgeons of that period. In this connection Dührssen distinctly states that it was Czerni's total vaginal extirpation of the carcinomatous uterus and of his vaginal myomectomy, which led him to propose the operation with which his name is so largely associated. Dührssen was also prompted by the desire to find a substitute for the abdominal Cesarean section in selected cases, in order to overcome certain objections to this operation of which he thought the principal one was the possibility of the production of adhesion between the wound and the intestines and the likelihood of hernia. He considered that his vaginal Cesarean section was an efficient substitute as it provided a sufficiently wide opening of the uterus through which the child could be readily extracted without invading the peritoneum. As preliminary to this however, in contrast to the classical abdominal operation, it is necessary that the child must be able to pass through the birth canal and it is, therefore, contraindicated if any degree of pelvic contraction exists with less than a true conjugate of 8 cm. From his original case Dührssen concluded that the dangers in a carefully conducted operation and in the presence of aseptic conditions of the genital tract, are of a minimum degree and that this freedom from danger depended largely on the fact that the operation may be conducted extra-peritoneally. Even where there is a suspicion of an infection present he considered that this procedure offered more favorable chances for recovery than where the peritoneal cavity was opened in doing the operation. The chances of severe hemorrhage were also believed to be much reduced in the vaginal Cesarean section as compared with the abdominal. Dührssen finally summarized the indication for the vaginal Cesarean operation as follows:

1. Abnormalities of the cervix and the lower uterine segment, including carcinoma of the cervix, myoma of the cervix and lower segment of the uterus, rigidity of the entire cervix, stenosis of the cervix and the adjoining portions of the vagina and a partial sacculated dilatation of the lower uterine segment.

2. Conditions endangering the life of the mother which may be done away with or improved by emptying the uterus, including diseases of the respiratory and circulatory apparatus, diseases of the kidneys and serious conditions in the mother, which are known to result in death and in which operation is done merely in the interests of the child.

Vaginal Cesarean section soon became popular because it was an operation easily begun, although not always so easily completed. It seemed to be particularly applicable in cases of eclampsia where the alarming character of the disease apparently called for radical procedures looking forward to the immediate emptying of the uterus. An enormous number of vaginal Cesarean sections are now on record, one operator having collected a series of over 500 with apparently brilliant results. Let us pay some regard however to those who entertain the opposite view, who believe that rapid delivery is not the *sine qua non* in the successful treatment of this condition.

The following extracts from the recent literature on the subject of eclampsia show that there is by no means a unanimity of opinion as regards the value or importance of rapid delivery, aside from measures directed more particularly to the natural eliminative processes. These references do not include all that might be adduced, but I have simply made a general selection from a large number of writers. Thus Lichenstein (*Archiv für Gynäkologie*, Vol. 95, No. 1) presents a review of 409 recent cases of eclampsia from European clinics in which the material is carefully tabulated and the results viewed from various standpoints. Attention is called to the fact that the later compilations of cases show that the convulsions cease after delivery in only one-third of all the cases and not in from 50 per cent. to 90 per cent. as many of the older and some modern records claim. It is also shown by this writer that if the mortality is considered from various standpoints it seemed to be practically as high with one form of delivery as with another and that the amount of blood lost is believed to be the immediate and deciding factor in the outcome. Thus, Lichenstein claims to have observed that the woman whose convulsions ceased after delivery had lost one-half again as much blood as those women whose convulsions came on during the puerperium. This author likewise claims to have shown that venesection arrested the convulsions occurring after delivery and that the conclusion seems imperative therefore that causal treatment of eclampsia is not by emptying the uterus, but by withdrawing a certain amount of blood, which, better than any thing else, relieves the mother's organism of the toxins causing

the trouble. After delivery venesection is advised as a routine procedure and Lichenstein recommends it preliminary to delivery, as this may render it unnecessary to hasten the latter. His tables also seem to show that a spontaneous recovery is possible and that pregnancy may go on to term without further convulsions. It is further claimed that these statistics testify against an ovarian or placental origin for the eclampsia.

Zangemeister (*Deutsche medizinische Wochenschrift*, October 12, 1911) advances the theory that eclampsia is a kind of reflex epilepsy and is the result of pressure from edema of the brain, which is enormously increased during the strain of each labor pain and which he claims may be relieved by reducing the pressure through the agency of prompt trephining. Zangemeister had the courage of his convictions and actually did this operation in three severe cases of eclampsia persisting after delivery, two of which recovered and the third succumbed on the sixth day, although the eclampsia had long subsided. In the latter case the dura had been sutured again after the operation and it is possible that the edema recurred. This must be regarded as rather an extreme form of treatment and may be classed with that which depends on a complete amputation of the breasts for the subsidence of the convulsions.

A somewhat similar experience is published by Bataski (*Ann. de Gyn. et d'Obstetr.*, Jan., 1912), who reports three cases of eclampsia successfully treated by lumbar puncture.

Mayer (*Zentralblatt für Gynäkologie*, No. 37, 1911) has approached the subject from an entirely different point of view by combating the toxemia with intravenous injections of serum from a normal pregnant women. In one of his cases the eclamptic convulsions came on during the sixth month and after three injections of 20 c.c. each, a spontaneous delivery resulted about nine hours after the last convulsion, no other remedies being given. In another class of cases of a less severe type, equally good results were obtained by the same means in relieving the evidences of intoxication.

To Stroganoff must largely be given the credit for having developed the method of treating eclampsia in which morphine and chloral are employed for their sedative effects, and although his suggestions were widely criticised, his good results have been fully confirmed by other observers. It is quite true that not many have adopted the method, but may it not be due to the fact that it requires more patience than the radical methods of treatment which are favored by many? In a radical surgical delivery one factor of the case at least is decided in a very few minutes, whereas the conservative methods of treatment require prolonged attendance and expert observation. Comparing Stroganoff's statistics with those of the "surgical obstetricians," we find that the results are apparently as good, if not better, and even where the method was employed with scepticism, as in Leopold's Clinic at Dresden, the outcome was unexpectedly favorable. An instance of these good results may be gathered from a paper

by Roth (*Archiv für Gynäkologie*, No. 2, 1910), who reports a series of 31 cases of eclampsia with convulsions, in which Stroganoff's method was employed. The convulsions subsided in every case and the patients went on and were delivered by the usual methods and living children secured. Only one of these women died and the autopsy showed that pneumonia was the cause of death.

It is quite generally believed that in eclampsia the prognosis for both mother and child becomes more grave as the interval is prolonged between the first convulsion and the expulsion or extraction of the fetus. This supposition does not take into account, however, the considerable number of cases in which convulsions are not present and in which this phenomenon cannot therefore be regarded as a criterion. The published statistics of the Copenhagen Maternity (*Zeitschrift für Geburtshülfe und Gynäkologie*, Vol. LXVII, No. 1) contain the statement that in one series of 29 cases of eclampsia in which delivery was late, 44 per cent. of the mothers and 68 per cent. of the children succumbed. We are not informed, however, whether all of these cases were subjected to appropriate treatment early in the disease, and the result is modified by a statement in the same paper, that the mortality was also considerable in the cases where the women were delivered early. For this reason we cannot accept the results as absolute.

An entirely novel suggestion in the treatment of eclampsia is contained in the advice to employ thyroid extract, particularly in the severe toxemias of the later months of pregnancy, where a normal hypertrophy of the gland does not result or where there is a diseased thyroid, as in exophthalmic goitre. Thus far, the results from this form of treatment have not been entirely satisfactory, probably because the cases have not been properly selected, but sufficient facts are at hand to warrant a further trial of the method and Ward, (*Surgery, Gynecology and Obstetrics*, December, 1909) has suggested the hypodermic administration, in preference to that by mouth, where a rapid effect is desired. In cases, therefore, where the thyroid is at fault it is difficult to see how a rapid delivery will relieve the toxemia, unless other measures are likewise made use of.

Although veratrum viride has fallen into general disfavor, it has its advocates who can produce statistics which seem to indicate that the drug influences the number of the convulsions by its effect on the pulse rate. Zinke, of Cincinnati, (*American Journal of Obstetrics*, Vol. LXIII, No. 2, 1911) who is a firm believer in the more conservative methods and especially the use of veratrum viride, has recently published a very interesting contribution to the literature of the subject, in which it was shown that cases thus treated react in a most favorable manner.

J. F. Moran of Washington, at a meeting of the Southern Surgical and Gynecological Society (December 12, 1911) reported a series of 116 cases operated upon by abdominal Cesarean section with a mortality of 49 per cent. and remarks that while statistics of the last decade show an im-

provement over the previous one, the operative mortality is still far above the general death rate of eclampsia. Moran believes that abdominal and vaginal Cesarean section should not be regarded as a substitute for other methods of intervention but that they have a well-defined field of application in a certain restricted class of cases only.

Bar and Commandeur (*Obstetrique*, December 11, 1911) conclude a review of the last fifteen years' research on eclampsia with the statement that the treatment can be only symptomatic, with the most reliance on prophylaxis. The progress to date has been mainly surgical and that while vaginal Cesarean section in cases with a rigid cervix is probably one of the best means to evacuate the uterus at once, it is a serious operation on account of the complications, which include injury to the bladder and hemorrhage after delivery.

My purpose in calling attention to the above statements is to show that there is by no means an agreement of opinion as to whether we ought to empty the uterus rapidly or more deliberately. In summarizing the results of various observers directly opposed in their views, it is quite evident that each class can show good statistical results with the particular method of treatment which they favor. One lesson to be learned from the reports of these observers is that the surgical methods in particular are not based on a true conception of the etiological factors that produce the peculiarly serious and often fatal symptom complex. It is quite generally agreed that the disease is brought about by an accumulation of certain toxic substances in the maternal blood stream and the consensus of opinion at the present time seems to regard the placenta as the origin of these substances. Although the attention is directed primarily to this one organ, the fact seems to have been lost sight of that we get manifestations of a very much similar character in other diseases where pregnancy is not a factor. The symptom complex, to which the name uremia has been given, affords a picture which in certain of its aspects closely resembles what we meet with in puerperal eclampsia and the various phenomena to which the name acidosis is applied also shows a close similarity. In these cases, however, there is no opportunity for surgical interference and we are content to rely entirely on medical measures among which eliminative treatment occupies a principal part.

Referring to the title of this paper, I hope that I have called attention to some extent at least to the fact that the divergence of opinion which exists, does not permit us to rely on any one procedure in the treatment of eclampsia, no matter how simple or brilliant it may appear, but that we must employ a method of dealing with these cases which takes into consideration the numerous manifestations of the disease, and which regards a stimulation of the eliminatory functions as the main desideratum. It is a very simple matter to empty the uterus by the Dührssen operation, but if we compare the results with those of less radical means, of treatment, are they any better? The main indication for doing a vaginal

Cesarean section seems to include that class of cases in which we are dealing with a rigid and elongated cervix, and this is the only class in which the method may be used, provided no dystocia on the part of the child or the maternal pelvis exists, for, if the cervix shows any tendency to soften, it is generally possible to dilate it gradually by other methods. On the other hand, if it is still elongated, we must not forget that we are usually dealing with a pregnancy not at term and therefore, the child's fate is problematical. The writer cannot permit himself to consider as justified the production of a vaginal Cesarean section in a seven or eight months primipara, with the possibility of doing more or less extensive damage to her uterus and soft parts and to be rewarded by the birth of a child that may live three or four days, or at the best a few weeks, and then finally succumbs. It is unfortunate that the operators who have presented large series of cases of vaginal Cesarean section do not favor us with this information as regards the *later* condition of the *child*, limiting their statement to the fact that a living child was secured, but usually giving no information whatever as to how long it survived. My own experience in this class of cases with vaginal Cesarean section is not extensive because I have tried to limit my operative attacks as much as possible. In the (8) personal cases of eclampsia in which the operation was done, it was found easy in execution in the earlier steps, but less so when the final suturing was done. In one instance it was necessary to postpone the same until a week later, on account of the marked distortion of the cervix which was present. In a number of eclamptics the writer was tempted to empty the uterus rapidly and was usually surprised at the good results which were obtained by a few hours of waiting, during which thorough eliminatory and sedative measures were instituted.

While engaged in the preparation of this paper, the writer noted a report of three cases of ante-partum eclampsia by Ferguson (*American Journal of Obstetrics*, March 1912), in all of which the treatment was not begun until the onset of the convulsions. In these three cases eliminative treatment alone was employed and although from their description, the cases seemed to demand vaginal Cesarean as an operation of election, it developed that better results were obtained by waiting. My own experience is exactly similar to this.

In view of the contradictory evidence which exists, it would appear, therefore, that the best plan should include a consideration of all methods of treatment rather than a single one, remembering that as the toxin is circulating throughout the body of the mother, the removal of the fetus and placenta alone is insufficient to combat the condition. We must employ means by the aid of which the toxic substances are eliminated through the natural channels and in the meanwhile we should endeavor to favor the delivery of the fetus by such methods as will cause the least shock and permanent damage to the mother, remembering in this connec-

tion the high final fetal mortality, no matter what methods have been employed. It is irrational and it is unsafe to forcibly dilate the cervix which is not prepared for dilatation and this would exclude the improper employment of such instruments as the Bossi dilator, but it does not exclude methods of gradual dilatation such as the fingers where they can be employed, or the elastic bag, for labor is the natural termination in all cases of eclampsia and if steps are taken to start the same, it is surprising how rapid the response which takes place. The Dührssen operation should be reserved for those cases in which this dilatation cannot be accomplished but where no other obstruction exists, such as a rigid perineum or small vagina and a cervix which is high and cannot be brought down. In these cases, however, the abdominal Cesarean section would seem to afford as favorable chances for the woman and also the child as the vaginal delivery. This, of course makes the field of application a very narrow one and it should be the aim of all therapeutic measures to be specific, to be applied in cases where they are definitely indicated and not to be employed as haphazard measures regardless of their final results.

It is quite probable that the ease with which the operation of vaginal section could be done, favored its general adoption in all cases where a rapid emptying of the uterus seemed necessary, and for this reason it was regarded as especially suitable for delivery in eclampsia. It is to be feared perhaps, that the apparent simplicity of doing the operation led to its execution in cases where these indications were not as carefully restricted as they might have been and conservative measures were sacrificed to speed. As one after the other obstetric operator undertook the procedure, a study of his indications for doing the operation showed in most instances that rapid delivery seemed to have been the only desideratum. It may be well to inquire, however, by studying the literature of the subject from all standpoints, whether any real advance has been secured in the treatment of eclampsia by the general adoption of such rapid methods of delivery. In the first place, before applying this method as the essential one for the treatment of eclampsia, it would appear necessary to distinguish the various classes of cases which are thus submitted to operation. The production of convulsions seems, however, to have been generally regarded as the determining factor in constructing statistics on the subject and yet in view of their uncertain character, it would be better to eliminate them entirely in this respect. The term "eclampsia" is in itself a misnomer. It refers from its Greek derivation, to the sudden onset of the clinical symptom with which we are most familiar and the name of a single symptom has subsequently been given to a disease entity. This, except in a limited sense, is an error and the sooner we can drop the term "eclampsia," the better it would be. The disease of which this is a symptom is a toxemia of pregnancy, pure and simple, the cause, or causes of which, we are by no means fully cognizant of. Although the disease may appear very suddenly, it is really of

gradual onset in the majority of cases and the characteristic convulsive seizure is not even present in every instance. This is merely one of the manifestations of the disease and it should not be accepted as the determining factor in our treatment.

A great deal more is known about the etiological factors in the causation of eclampsia to-day than a comparatively short time ago, when it was believed that the kidneys were entirely at fault in the production of the disease. Many worthless theories have since then been propounded, most of which have been disproved in the course of time and thus have helped to make the more reasonable ones more effective. Holland (*Journal of Obstetrics and Gynecology of the British Empire*, December, 1909) presents an excellent summary of these various theories, from which he draws certain conclusions as follows.

1. That there is a special eclamptic toxin.

2. That chemical discoveries have shown that eclampsia is an autointoxication, in which a profound disturbance of protein metabolism plays an important part.

3. That the general toxic substances are the products of the disintegration of protein.

4. That in eclampsia, intracellular ferments, especially proteolytic, are raised in activity throughout the body, producing autolysis of cells and production of the above toxic substances.

5. That the primary cause of eclampsia is to be sought in the placenta.

The latter assumption is based on the fact that so-called eclamptic manifestations do not result until the placenta is formed but it has been shown that the various specific placental reactions do not exist, nor do placental extracts possess any special toxicity for animals beyond causing coagulation of the blood and death from extensive thrombosis. The eclamptic placenta, moreover, does not seem to have any special toxicity. It is claimed, however, that the intracellular ferments of the placenta are increased in activity in eclampsia and that the most probable theory of the cause of this condition is an intoxication of the body by the passage of ferments and autolytic products from the placenta into the circulation.

It may be said that the desire for emptying the uterus rapidly is based on the desire to quickly get rid of the fetus and its placenta, which is assumed to occupy such an important position as an etiological factor, and the statistics which have been collected along these lines are certainly most brilliantly seductive. Yet when we contrast them with those collected by observers impressed with and working along more conservative lines of treatment, the agreement is noteworthy. It is known and must be acknowledged that these toxemias of pregnancy are not all of one kind and those who have applied radical methods of delivery, such as the vaginal Cesarean section, never give us very satisfactory information as to the

class of cases subjected to this operation. Their indications are based entirely on the anatomical features present and not on the physiological. A typical case may be cited to further explain this point. A primiparae some time during the last two months of her pregnancy is suddenly seized with an eclamptic convulsion. Examination shows an elongated cervix present without dilatation. Steps are immediately taken to deliver the patient as rapidly as possible by the easiest means, in this case incision of the cervix and lower uterine segment. A living child is secured which, if premature, usually dies and if at, or near term, may or may not survive for varying periods. The delivery may result in more or less vaginal lacerations and the bladder may be injured, although it must be admitted that in many cases no such complications arise. The patient may, but often does not cease to have any further convulsions. If she makes a complete recovery, we do not hear anything more of her case; if not, she has been overwhelmed by the toxins,—operation not at fault. Now if we compare an instance of this kind with a similar case where conservative methods are employed, where the elimination through the natural channels is favored and where freedom from convulsive seizures is secured by the administration of sedatives, the final results are found to be equally good, if not better and when the balance sheet is struck, we find that the patient, although she may have had a few more convulsions, is certainly in better condition as regards shock and other complications, than the woman who has been delivered by the more rapid means. Now, undoubtedly some of the latter class of cases do not do well, but some of those delivered by vaginal Cesarean also go on and have more convulsions and perhaps end fatally. The children in either case are apt to be poisoned by the same toxic substances which have poisoned the mother, so that we should not place too much value on their lives.

If we review the results impartially it is quite evident that although vaginal Cesarean section has a place in the treatment of eclampsia, its field of application is a restricted one and it should only be employed where the desired indications are satisfactorily defined. In one of the largest and best known collections of statistics on the subject, the writer states that the uterus should be emptied by vaginal Cesarean section as soon as the diagnosis of eclampsia is established. This teaching should not be accepted without question as it would lead to the performance of the operation without any restrictions as to the variety of the condition under treatment. It has been satisfactorily shown that the eclampsia is a more or less self-limited disease, and although in most cases there is no question that pregnancy ought to be stopped at once, yet this should only be done with a full knowledge of the necessity for employing the eliminative and sedative measures before operation. The mere occurrence of a single convulsion, which usually determines the diagnosis and the therapeutic procedure, should not lead to the decision to operate by vaginal Cesarean section, but the individual case should be carefully