The Canadian
Medical Association Journal

Vol. XIV TORONTO, OCTOBER, 1924 No. 10

An Address on

OBSTETRICS DURING THE PAST TWENTY-FIVE YEARS*

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SOME one, possibly not Lot, suggested that at certain milestones of the travelled road it is wise to stop and look back. To-day, after approximately twenty-five years of practical obstetrics, I ask you to turn for a few moments to my quarter-century picture, to note its landmarks; and then, as prognosis from diagnosis, to outline, not too boldly, the future. Certain features seem marked as definite phases of development and among these may be mentioned the change of obstetrics from a medical to a surgical specialty; the altered attitude towards the incidence of puerperal infection; the realization of birth trauma as a more or less definite clinical entity; more regard for the child as a factor in the successful delivery of the mother, and, with that, increased care for the mother during pregnancy, with a view to safeguarding both mother and child.

The older obstetrician was not a surgeon. The largest obstetric practice was enjoyed by the man with the largest general practice; and the younger men, who by inclination would turn from the practice of obstetrics, were urged to undertake the work as a basis for family practice. There were few, if any, specialists; and the idea of a man specializing in any subdepartment of medicine was frowned upon heavily by those whose years of experience had given them rank as authorities in special branches of practice. The loss of a mother under labour was looked upon rather as the act of God, provided the attendant had done all that could be reasonably expected; difficult labours were attended by an unfortunately high foetal mortality, since delayed labour allowed of but two solutions; either the dragging through of a head disproportionate to the mother's pelvis by means of a forceps, or in many cases a craniotomy, or the unusual operation of Caesarean section. Caesarean section, rarely considered as an elective operation, was done by a surgeon, not an obstetrician, on a patient usually a bad risk on account of exhaustion, and of exposure to infection. It was done with meticulous care to avoid blood loss, with a consequent extravagance in the matter of time, which still further prejudiced the chances of the mother and child. Those of you who see to-day the delivery of a perfectly healthy, non-asphyxiated child within a moment or two of the complete anaesthesia of the patient will scarcely remember the slow, deliberate ligation of all vessels and the control of the uterine arteries, practised by the early operators, and the subsequent delivery, after approximately one half-hour, of a child in white asphyxia, whose subsequent resuscitation was the signal for prolonged cheering and the collection of an uncertain amount in silver and copper for the inevitable tribute to young Caesar. Mothers died as a matter of course. For many years it has been my practice to enquire among the students how many have lost a relative as the result of

*Delivered before the Medical Society of Nova Scotia at their annual meeting, Amherst, July 16th, 1924.

childbirth. It is safe to say that fully one-quarter of the class answers in the affirmative. Those of you who have been in Barr's clinic in Paris may remember the motto "Craniotomy on the live child has had its day." Twenty-five years ago such was certainly not the case.

Closely associated with maternal death in labour was the question of infection. You may remember that Pasteur's work, which resulted in the discovery of the streptococcus and the *Vibrion septique,* another name for the gas bacillus of the Great War, was in part based on an investigation on the bodies of women dying of puerperal fever. The observations of Pasteur were the foundations of Listerism; but the methods of Lister, essentially surgical, were slow to find their way to the men most earnestly employed in the practice of obstetrics. True, a certain amount of attention was paid to the possibility of infection; but there was a deep rooted belief that the prevention of infection was, in certain cases impossible, and I well remember the amazement of certain of my colleagues when I suggested to them on the opening of the Montreal Maternity Hospital, the idea of personal responsibility for infection. The use of rubber gloves was unknown; with the unpleasantness of vaginal examination without gloves was always associated the possibility of venereal infection. Without rubber gloves, rectal examination was, naturally, out of the question. The incidence of fever was so frequent that milk fever was offered as a solution for the almost inevitable rise on the third or fourth day, and the persistent administration of castor oil on the morning of the third day to puerperal patients is, to my mind, a relic of the prophylactic treatment of those expecting milk fever. Trauma during labour was often unrecognized. It was not unusual to hear men speak of conducting hundreds of confinements without having had a perineal tear. Yet there came in great numbers to those new specialists, the gynecologists, patients with all sorts of complaints, and among them innumerable cases with symptoms attributable to extensive laceration both of the uterus and of the perineum. Too often, the specialists, not recognizing the original cause of the trouble, undertook operations such as fixation of the uterus and amputation of the cervix, which, while technically satisfactory, added to the original disability which had resulted in their production. One well recognized fact was that a woman who had had many children was permanently marked thereby, and a so-called "pendulous belly" was no abnormality in the average multipara. The incidence of kidney disorders during pregnancy was not anticipated and the practitioner's first intimation of such trouble was often the report that the patient had had a convulsion; while another kidney complication, pyelitis, now recognized as fairly frequent, had practically never been observed.

That conditions were so different is not difficult to understand when one remembers that the average student before graduation rarely had the opportunity to come in contact with and to examine pregnant women; and attendance at labour gave little opportunity for the observation of its complete course. One thing, however, I do remember and that is, that in the old days we were often content to wait twelve to twenty-four hours and, sometimes, thirty-six hours, that we might be present at the termination of, what was hoped might be, a spontaneous labour; whereas, now, it is sometimes difficult to obtain the presence of students in the case room though called when delivery is imminent, a frequent question being "Do you think it is going to be an ordinary, normal case?"

With the full admission of obstetrics as a surgical specialty, as we undoubtedly must admit to-day, are the results better, and wherein have they improved? Recently I noted an address by Dr. Helen MacMurchy, that able woman associated with the Department of Health in Ottawa, in which she made the statement that the maternal mortality in childbirth for all Canada was, approximately, five per thousand. Those of you who wish to know whether this figure is high or no, I would refer to an article by Mosher in the March number of the *American Journal of Obstetrics and Gynecology.* Not only is it evident that this mortality is high, but it is well shown that the cause is incompetent medical attendance, for maternal mortality is higher when the patients are attended by physicians than when they are attended by midwives. Indeed, Dr. William Nicholson of Philadelphia recently gave me statistics for the cases controlled by midwives

in his district, which he was afraid to publish—twenty deaths in sixty thousand cases.

I have spoken of the personal responsibility for infection. To those who were willing to accept this theory, the question of prophylaxis loomed large; and the introduction of rubber gloves undoubtedly helped materially in decreasing the number of infections, and particularly those dying as a result of infection. There remained, however, a certain number of infected cases, where gloves had been worn, and even where no vaginal examination had been made, which required explanation; for over twenty years I have used gloves for all examinations and, strange to say, my one patient who died of infection after confinement had not been examined or handled in any way. Our results in the Montreal Maternity since we have adopted the uniform practice of examining by the rectum seem to offer a possible explanation. At first sight assuming that the vagina contained no virulent pathogenic organisms, it would appear that rectal examination should be devoid of danger; yet, I think I am right in stating that, since the introduction of rectal examination into the clinic, the number of mild infections has increased to an extent greater than the number of severe infections has been lessened. No one ever denied the presence of organisms in the vagina, capable of growing on dead tissue. To produce puerperal fever, however, it is necessary, firstly that they should be introduced into the cervical canal; and secondly, that the membranes and clots left behind in the uterus should offer a medium for their growth. The assumption of the harmlessness of the rectal examination has resulted in its too frequent use. It is impossible to palpate the cervix through the rectum without folding the posterior vaginal wall into the cervical canal, so that more vaginal organisms gain entry into the cervix during rectal examination than during vaginal examination. Then, too, this entry of vaginal organisms is favoured by the too frequent active massaging of the fundus of the uterus during the third stage, when it is evident that portions of the ruptured membranes must also lie in the vaginal canal. Further, this massage of the uterus frequently partially separates the placenta and allows bleeding, which is difficult to control and which almost inevitably results in the formation of clots in the uterine cavity. It would appear, then, that rectal examination, like vaginal examination, might come under the old heading "meddlesome midwifery." There can be no doubt that rectal examination is a distinct advance on vaginal examination; but I would insist that it is not free from certain of the dangers associated with any intra-partum examination. I might add that the infections after rectal examination are mild, and are of a nature which we are pleased to term sapraemia; in other words, the fever is due to the absorption of the toxins produced by the development of bacteria in dead tissues, as opposed to the more severe puerperal infections caused by the pyogenic organisms. The mildness of the infection has had a certain effect in altering our methods of treatment; since, when the infection is obviously mild, there is less tendency to interfere within the uterine cavity. It has taken a long time to establish the fact that it is unsafe to attack infections from behind; and yet, these mild infections are probably the ones which would have yielded most satisfactorily to intrauterine therapy, with resultant evacuation of the dead tissue on which the organisms were growing. Nevertheless, the indication for treatment has seemed more and more a stimulation of the resistance of the patient to whatever organisms might be invading; and the most satisfactory new method which we have introduced recently in the treatment of puerperal and post-abortion fever has been the injection either of raw blood or sterile milk for the production of the so-called "non-specific protein reaction." It is not my purpose to go into the question of protein reactions—you will find a report by Gellhorn at the last meeting of the American Gynecological Society, and an extensive review of an article by Soli in *Surgery, Gynecology and Obstetrics* for July, 1924—but in a general way the introduction of any foreign protein seems to stimulate resistance of the body generally; and the agents most frequently employed have been milk and blood. The advantage of blood is that it is easily obtained sterile, and when given hypodermically there is no need for the same care in grouping as when the patient is transfused. We are all familiar with the immediate effect of blood injection in haemorrhage of the new-

born; and the result of blood injections in mild infections is quite as striking.

Birth traumata may be classified as follows: damage to the birth canal and subsequent alteration in position of the organs, which in the last degree may result in complete hernia of the uterus; damage to the cervix, with eversion of the mucosa, and leucorrhoea; damage to the structures at the base of the bladder, with cystocele. Backward displacement of the uterus, relaxation of the pelvic floor, and prolapse are interdependent, and liable to be stages in the one process. The simplest of all, the everted laceration of the cervix has, probably, the simplest explanation; during labour the lower uterine segment tears at the slightest touch, and in a great percentage of even spontaneous labours, there is more or less laceration, extending up from the margin of the dilated cervix. This laceration will heal if it is allowed to do so, but anything that tends to backward displacement of the fundus, such as over-distension of the bladder or the application of a tight binder immediately after delivery, tends to hold open the laceration, and allows the formation of scar tissue in its upper angle, with resultant permanent opening of the cervix and permanent tendency to backward displacement. This is not purely speculative, for coming from a clinic where no binders were used to one where patients were bound tightly after delivery, I found, to my surprise, that backward displacements were many times more frequent in those bound than in those left unbound after delivery; and it was by the goodwill of Dr. D. J. Evans that we were enabled to run two series of cases side by side, and test the importance of the binder in the production of the abnormal condition; as the result the binder has now been discarded.

To estimate the permanent damage to the perineum was rather more difficult. With great care the mucosa and skin could be saved in many instances, no tear was noted; only, some months later it became evident that there had been subcutaneous damage to the muscle or fascia. Mathematically, it was possible to prove that, while women with an average sized pelvic outlet might escape damage to the perineum, there were certain cases in which, during delivery, the head must pass entirely behind a line joining the two tuberosities. In such patients it was impossible to avoid extensive lacerations, often involving the bowel. Moreover, the cases coming to the gynecological clinics, complaining of incomplete sphincter control, were found practically invariably to be women with a male type of pelvis, narrow sub-pubic angle and a very short distance between the tuberosities of the ischium.

Now if all these cases with a narrow outlet were certain to be damaged, it was but a short step to the conception that an incised wound was better than a ragged tear, and since 1906, median episiotomy has been practised more or less frequently; indeed, since 1914 it has become practically routine with all primiparae; for not only was it found that an incised wound helped in the narrow outlets, but that any rigid perineum forced the head forward in the pelvis, and that a long perineal stage seemed to increase the damage to the fascia at the base of the bladder, with resultant cystocele. Median episiotomy has been subjected to criticism, as leading often to damage of the sphincter. Possibly, familiarity with this accident has lead me to minimize its importance; but a median incision in the perineum, whether involving the sphincter or no, is extremely easy to repair and rarely fails to unite by first intention.

In the discussions of uterine displacement, the condition of the abdominal wall must be considered. Pendulous belly is a forerunner of many distressing gynecological complaints, often associated with dragging pain in the back. Care of the abdominal wall is indicated first in pregnancy, when massage will do much to keep the muscles in condition; but also it should be remembered that the maximum strain on the abdominal wall occurs in the second stage of labour, when the muscles of this wall are put in opposition to the resistance of the pelvis or pelvic floor. It is not my purpose to discuss with you in how far the abdominal muscles should be aided when the patient is well advanced in the second stage. It may be stated that when the repairable damage, inevitable with the use of instruments, is less than the irreparable damage subsequent to a hoped-for spontaneous termination, the patient should be delivered; not only on account of the mother but because we now know that a prolonged

second stage has worse consequences so far as the child is concerned than a properly conducted artificial delivery. Reference has frequently been made to the second stage. I hope it is understood that during the first stage of labour, there is absolutely no indication for interference, save for the purpose of saving life. Although the first stage pains are frequently nagging in character, and often more objectionable than the more severe pains of the second stage, even the most ardent advocates of the so-called "twilight sleep" do not suggest the induction of twilight sleep until the first stage is well advanced; and we have found that the judicious use of heroin not only relieves pain in the first stage, but has no effect in decreasing the force of the uterine contractions. No other measure has helped more in the handling of nervous, high-strung patients than the judicious administration of heroin.

The combined effect of these suggestions in the management of labour should be, so far as the mother is concerned, to leave her practically in the same physical condition as she was before she became pregnant. De Lee of Chicago goes so far as to say that, with proper obstetrics, there should be no clinical multiparae. Certainly, these patients, managed as I have suggested above, show in subsequent labours the same descent of the head into the pelvis as the primipara, and bring to the second stage of labour, thanks to the usually short normal first stage, a mental and physical attitude which, surprising as it may seem, nearly always results in spontaneous delivery with comparatively little damage to the soft parts.

Heis's statistics from the Vienna clinic (reviewed in the July number of *Surgery, Gynecology and Obstetrics*) the largest practically available, give 3.6% as the death rate for infants up to and including the eighth day, not including, of course, those born dead, in 88% of whom death takes place during labour. Let it be remembered that long tedious labours are more dangerous for the child than the carefully performed operations. Last year at the Canadian Medical Association I was able to present my results in the delivery of primiparae, over one-half of which had been delivered instrumentally. The foetal results were better than could possibly have been obtained in so-called spontaneous labours. It is the custom to decry operative delivery, yet my experience is that the men who talk conservatism do not invariably practise it; and that much adverse comment is due to observing the other man's unfortunate results. It has been well said, that it is not the advocate of any new measure who does harm, but rather his incompetent imitators. I doubt whether any one would wish to follow Potter of Buffalo, with his nine hundred versions in a year's practice, yet there is no doubt that the obstetric world owes Potter a debt for the rehabilitation of version and certain improvements suggested in the technique of the operation. The prophylactic forceps operation of DeLee, which has also come in for considerable unfavourable comment, is but a step from our own episiotomy; and my own practice is to deliver a great many of my primiparae with forceps. This apparently radical attitude to delivery is, to my mind, the greatest safeguard against the real radicalism of to-day, the too frequent employment of Caesarean section. Caesarean section is so simple, and still so spectacular, that even untrained surgeons have no scruples about its employment, and are too often aided by the willingness of the patient, who is anxious to escape pain, and by her immediate friends, who are anxious to have something to talk about. It is questionable whether the broadening of the indications for Ceasarean section has markedly improved its foetal results; and there is no doubt that an appalling maternity mortality is, for the most part, ignored. The tendency to invariably use it in all cases of placenta praevia and profound toxaemias does nothing but harm to the advancement of straight obstetrics. Prof. Newell, of Harvard, says: "Conditions in Boston are not perfectly satisfactory, owing largely to the fact, in my opinion, that a considerable proportion of the obstetric consultation is done by the younger surgeons who have had no obstetric training, and whose one idea in delivery is to do a Caesarean section, irrespective of the conditions present." Anyone can deliver a patient by Caesarean section, but judgment may be required to safeguard a mother against treatment which will sacrifice her in the interest of the child. Good judgment can only be the result of extensive experience; and the experience is but slowly acquired after a physician has entered private practice.

What is the outlook for improvement? What has been done, and what remains to be done? Your answer will, no doubt, be "We have improved prenatal care." Yes, we have scared patients from the clinic by taking routine Wassermanns even in cases where lues was not suspected, with uncertainty whether the Wassermann itself was reliable during pregnancy. We have, to a certain extent, impressed upon the patients that pregnancy was a pathological rather than a physiological condition. We have taught them to look for trouble, rather than to recognize and avoid it. Certainly, prenatal care has not benefitted fever statistics; and haemorrhage, another possible cause of trouble at the time of labour, is but little affected. True, we have discovered a certain number of cases of pyelitis, and the necessity for frequent urine examination has been emphasized. That this last is important is borne out by the fact that toxaemia of pregnancy ranks first as a cause of death under labour; and DeLee's statement that he has, by proper pre-natal care, eliminated eclampsia is no mean achievement. Yet ante-partum care is no substitute for intra-partum and post-partum care. Obstetric follow-up is, so far as I know, unknown in Canada; and the importance of toxaemia in one pregnancy as a factor in influencing further pregnancies has recently been investigated for the first time by Harris of Johns Hopkins. True, we have for some time past been increasing the number of Caesarean sections upon patients with evidence of chronic kidney disease, believing that each pregnancy further damaged the kidneys, and that the symptoms of toxaemia would appear earlier, and believing that section gave the most satisfactory means of delivery of an undamaged, premature child. For the first time we have statistics to back our clinical inference.

In my opinion, all this extensive prenatal care, without improvement in practical obstetrics at the time of delivery, is comparable to an attempt to improve a crop yield, with utter disregard of the most extravagant and wasteful methods at the time of reaping. Prenatal care is hopeless without some improvement in the teaching and practice of obstetrics. The most recent graduate under the most favourable conditions is not qualified to undertake the management of any but the simplest obstetrical cases, any more than to indulge in the practice of abdominal surgery. The public is sufficiently well educated to know that surgery requires special training and experience after graduation. Such is not the case in regard to obstetrics ; but, the public is waking up. There is only one solution; the better training of all students, which will enable them to recognize difficulties and dangers; and special training of certain men, who, in large centres, shall do consultation work and institutional work, possibly under government control.

The admission to the country of new citizens of good national stock is more important than the admission of any class of continental immigrant, and if this were properly appreciated it is doubtful whether the native born would be as willing to leave his native land and accept citizenship across the line; yet, I doubt if any government has ever given a cent toward improving the quality and increasing the number of its citizens by improvement in obstetrical practice. I am not a prophet—but it is coming—the association of obstetrical clinics with large general hospitals where special attention may be directed toward the causes of toxaemia; where it may be possible to investigate more carefully the organisms associated with the varieties of puerperal infections, and finally where it will be possible to put the control of obstetrics on the same basis as medicine and surgery; all steps in advance, which must lead to the placing of obstetrics in a higher position both with the public and with the profession.