

FACTORS WHICH HAVE CONTRIBUTED TO BETTER RESULTS IN GYNECOLOGY AND OBSTETRICS.*

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Fordyce Barker, in his inaugural address before the first annual meeting of the American Gynecological Society, in 1876, said: "I think it may be truthfully asserted that in obstetrics and gynecology the progress in science, and consequently the improvements in practice, have been greater during the past one hundred years than the whole advance made during the previous ten centuries."

As a matter of fact, gynecology as a science and distinct specialty did not exist in 1776. It is in the last three-quarters of a century that gynecology may be said to have gained the distinction of a special science. Many factors contributed about this time to develop and establish the specialty upon a scientific basis; the uterine sound, the speculum, the bimanual examination, anesthetics and antiseptics were generally applied, and marvelous were the results.

More striking still is the contrast of the obstetrics of a hundred years ago with that of today. Modern obstetrics may be said to have had its origin in the publication of a work on *The Anatomy of the Gravid Uterus*, by Sir William Hunter, in 1774. Little was then known of the anatomy and functions of the ovaries, nothing was known of the physiological changes which pregnancy effects in the cervix, of the intermittent contractions of the pregnant uterus, ballottement, and auscultation of the fetal heart.

The pathology of obstetrics and gynecology was practically a closed chapter. In truth it may be said that the achievements of Mauriceau, Snellie, La Motte and Gifford of the eighteenth century, as compared with those obstetricians of the nineteenth century, were but the triumphs of individual genius rather than the scientific application of established law. The studies of the successive changes in the relations of the diameters of the fetus to those of the maternal pelvis, and the introduction and improvements of the obstetric forceps, account much for the progress of obstetrics of the nineteenth century; add to these factors the application of anesthetics and antiseptics, and we account in large measure for the great reduction in fetal and maternal mortality, and for the painless and easy execution of many obstetric operations.

With little knowledge of the anatomy and physiology of the uterus, knowing nothing of the mechanism by which normal, much

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less abnormal, labor is accomplished, having few and at best imperfect resources to overcome dystocia, helpless in the relief of pain, ignorant of the causes and means of prevention of wound infection, having no real knowledge of the pathology and management of placenta previa, eclampsia, ruptured uterus, embolism, septicemia and post-partum hemorrhages, we may compare the obstetrician of the eighteenth century to a mariner tossed upon the open sea, without chart or compass—yea, as one who knows not his own ship and is of little assistance to the helpless passenger.

The surgery of diseases of women may be said to have had no existence prior to 1850. In the following decade the subject burst, Minerva-like, upon the profession, and made rapid strides toward a perfect system. The overzealous workers in this new field "set the pace that kills" in their excessive tendencies to resort to the knife. Important organs were removed for vague symptoms of doubtful etiology, in the faint hope that benefit in some inscrutable way might ensue. Conservative men became prejudiced, as well they might, and to their opposition may be ascribed the era of conservatism in the treatment of diseases of women which followed; the pendulum which had swung too far in the one direction went as far in the opposite. But may we not with boldness say that the gynecology and obstetrics of today stand upon tenable, rational, middle ground?

I would not urge the claims of surgery to the exclusion of medicinal treatment, both local and general. There is no clashing between medicine and surgery in this field; working together for good, the one sustaining and supplementing the other, but never substituting. Year after year, as gynecology has advanced, conditions which were regarded as amenable to medicinal treatment fell into the pale of surgery; yet be it said that at no time in all the past have the limitations of surgery been so clearly defined, and the value of the more conservative measures been so greatly appreciated as at the present time. No greater error could be promulgated than the idea that one must rely for his results either upon medicine or upon surgery. As the stereoscope produces one picture in vision, so the combined use of medicine and surgery produces one result in gynecology and obstetrics. Under the fraudulent guise of conservatism, the attempt is made by a certain class, which we now term "knockers," to smother every attempt at improvement by ridicule and misrepresentation. And so it has been from the beginning of medicine—they decried Harvey and Jenner, Lister and Pasteur, McDowell and Tait. The advance of surgery has

ever been opposed by such men. Like the religionists who burned at the stake those who opposed them, their narrow-mindedness was a misfortune, their opposition to the truth a crime. The profession is today to be congratulated in having no tolerance to obstinate and perverse opposition to advancement in science. The truly conservative now listen open-mindedly to new proposals, and judiciously weigh new ideas in the balance, appreciating all suggestions, whether they prove valuable or not.

As late as 1883 Fordyce Barker addressed the American Gynecological Society in defense of his opinion that puerperal sepsis was not dependent upon wound infection. Holding to this view, he found no place for surgical cleanliness in the management of his obstetric cases nor for the isolation of the pregnant and puerperal woman from contagious diseases.

Happily his colleagues were not all of the same mind, and it was not long before the percentage of puerperal fever was greatly lowered by the exercise of surgical principles in the prevention and care of puerperal wounds. That puerperal sepsis is a preventable disease cannot be questioned when with the introduction of certain crude methods in the Vienna clinic in 1846 the percentage of infections following labor immediately dropped from 9.5 per cent. to 1.27 per cent. And as time has gone on, with the acquiring of more accurate methods of maintaining cleanliness in the delivery of women, we find this percentage steadily lowering. And were it possible for the obstetrician to have his cases wholly under his personal control, puerperal sepsis could be absolutely avoided. This of course can never be accomplished, inasmuch as the nurse, the patient, and the husband must always be reckoned with, and latent infections, long residing in the genitalia and in remote parts of the body, may be awakened by the incidence of labor. Over such infections the physician may have little or no control.

The history of the treatment of extrauterine pregnancy is of peculiar interest. The founders of American gynecology and obstetrics wisely manifested their temerity in performing laparotomies at a time when a mortality of 75 per cent. in abdominal operations was regarded as evidence of creditable work. Naturally they sought less dangerous substitutes, and we find them resorting to the injections of morphine and the application of electricity in the management of ectopic pregnancy. Reeve, in speaking of electricity in the treatment of ectopic pregnancy, said: "If further experience establishes its value, one of the most serious accidents happening to women will be robbed of its peril."

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Original Articles.

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In 1882, Garrigue said: "According to Parry, Brown, Routh, Playfair, Meadows, Greenhalgh and Darby have proposed to perform laparotomy and extirpate the sac before rupture occurs. But in spite of so many recommendations, the operation has never been tried, and weighty voices have been raised against it, among them that of Spencer Wells. Against all these dangerous or doubtful methods stands electricity with a record unblemished by a single failure or any dangerous consequences."

As the profession was brought to more keenly appreciate the prevalence and the dangers of extrauterine pregnancy, and as results in abdominal surgery improved, we became familiar with the dictum which knew no exception—"Operate every case of ectopic pregnancy at the earliest possible moment!"

Of recent years the attempt is made to discriminate between those cases which should be operated without delay, those which do not require immediate interference, those which demand delay before interfering, and those which never demand surgical intervention; and again those which should be approached through the abdomen and those which are better approached by way of the vagina.

The combined cases of extrauterine pregnancy, in which the tubes had ruptured and the escaped blood become encapsulated, of Schauta, Fehling and Krönig number 275, and were operated with a mortality of 1.9 per cent. Again, Fehling and Zweifel reported 152 cases treated conservatively, and with no fatal results. It is evident that much is yet to be done in the way of the diagnosis and treatment of extrauterine pregnancy.

Exploratory punctures of the abdomen have been almost wholly replaced by exploratory incisions, yet less than three decades ago Garrigue wrote: "Exploratory puncture gives so valuable information and so much harm has resulted from the opening of the abdomen in cases not fit for operation, that I think it ought to be performed in every case before a more dangerous operation is undertaken."

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Even dilatation of the cervix had its mortality and in no less skillful hands than those of Marion Sims, who reported two fatalities from this simple procedure, both dying from peritonitis.

We find excision of the cervix for carcinoma, hypertrophy and atresia referred to by Churchill as "murderous" and often attended and followed by "fearful consequences." These criticisms were not without justification, for Byrne recorded seven deaths within twenty-four hours in twenty-eight amputations, together with six cases of this number in which life was hazarded by hemorrhages. Sims was given unstinted praise in having but one death in fifty amputations of non-malignant cervixes. Control of bleeding vessels and surgical cleanliness have made the mortality in this operation practically nil.

Emmet proposed the repair of the lacerated cervix on the theory that the resulting scar tissue excited many nervous disorders, both general and local, and for many years thereafter the song of the English bard, "Stitch, stitch, stitch," applied to human flesh as well as to baser material. While few in this day believe in reflexes emanating from old lacerations of the cervix, yet we would do honor to Emmet for his pioneer work in the repair of the cervix, for it laid the foundation for the modern surgery of the cervix.

At the same time there were those who objected to immediate repair of the lacerated perineum for fear of erysipelas and puerperal phlegmasiæ due to the irritation of sutures and the strangulation of included flesh. Now we view the presence of an old laceration of the perineum as a reflection upon the skill of the accoucheur.

We find the founders of American gynecology devoting much time in discussing the general nervous phenomena resulting from the lacerated cervix and perineum, displacements of the uterus and ovaries, and from what was then termed sclerosis of the ovaries. Countless operations were proposed for the correction of these lesions. Now it may be fairly stated that no operation is proposed for general and remote disorders; that the indication for operating upon any organ is determined by the lesion *per se*, and not by functional disorders of remote organs, which are presumed to have originated from local lesions. Battey proposed the removal of functioning ovaries for the relief of hysteria, nymphomania, insanity, epilepsy and like nervous and vascular phenomena, and this at a mortality ranging from 20 to 75 per cent. The medical profession is to be congratulated on its emancipation from such methods, which were conceived in ignorance but were later practiced in the name of science and for the greed of gain.

Döderlein performed 382 ovariectomies for all sorts of lesions of

the ovaries, and with a mortality of only 1.3 per cent. As we compare such results with those obtained in the beginning of modern surgery, when 75 per cent. of mortality was creditable, we are impressed by the marvelous achievements in gynecology during the past three decades.

As late as 1880 Winkler advocated the drainage of the abdominal cavity in every case of abdominal section. Billroth, the foremost surgeon of his time, drained fifty of his fifty-one cases. It was doubtless a wise provision in those days, when surgical cleanliness was imperfectly maintained, when hemostasis was uncertain, and when the varying degrees of virulence in bacteria were not appreciated.

Andreas à Cruce performed the first vaginal hysterectomy in 1560, but it was Hennig, in 1876, who first reported a successful immediate result in a vaginal hysterectomy for cancer of the cervix, though the patient died from recurrence in eight months. This case gave new inspiration to the surgeons, and then followed the seemingly inevitable furor operativis. Two years later (1876) Freund successfully performed an abdominal hysterectomy under antiseptic precautions, and in the following year thirty-one cases were recorded, of which number twenty-one died. Again, two years later (1880), Freund recorded sixty-five cases with fifty-one immediate deaths and with no reference to the remote results; yet he speaks of the operation as not very dangerous in the early stages of carcinoma and sarcoma. In 1883, ninety-one recorded cases showed an immediate mortality of 72 per cent. Then Reeves Jackson, speaking in the name of conservatism, declared: "The extirpation of the cancerous uterus is a highly dangerous operation, which neither lessens suffering—except when it kills—nor gives reasonable promise of permanent cure in those who recover. And hence it fails in all the essentials of a beneficial operative procedure, and should not be adopted in modern surgery."

Few of us have as yet any great amount of zeal in the treatment of cancer of the uterus. While the immediate results are, as a rule, gratifying, we are anything but sanguine of the future of our cases. A glance at recent statistics would not seem to justify us in assuming such a pessimistic attitude, for there is much in them to give encouragement. Prior to 1880 the average immediate mortality of hysterectomy for cancer of the uterus was 72 per cent., and in 1895 Olshausen recorded 100 cases of vaginal hysterectomy for cancer of the uterus with an immediate mortality of only 1 per cent. Such statistics are indeed gratifying, but when we turn to

the statistics showing the percentage of recurrences, we lose much of our zeal and all of our confidence. According to Fitsch,

61 per cent. return within two years.

23.7 per cent. return within three years.

9.6 per cent. return within four years.

5 per cent. return within five years.

These statistics do not speak so much for the need of improved operative technic, but far more for the necessity of making an early diagnosis.

The developments in the treatment of uterine fibroids, on the contrary, has been most gratifying, both in the immediate and remote results. In the days when major surgery was so uncertain in its results, we find these growths treated by electricity, ergot, the ligation of the blood supply to the uterus, and the removal of the uterine appendages. All these procedures have been given up for the enucleation of the tumor or the removal of part or all of the uterus together with the tumors, either by way of the vagina or abdomen. Such radical measures are justified by recent statistics.

In supravaginal amputation of the uterus we find, in

1863, 49 cases were operated with 74 per cent. mortality (Zweifel).

1876, 140 cases were operated with 56 per cent. mortality (Zweifel).

1878 to 1885, 295 cases were operated with 36.2 per cent. mortality (Gusserow).

1891, 881 cases were operated with 23.1 per cent. mortality (Hofmeyer).

1897, 806 cases were operated with 5.6 per cent. mortality (Olschausen).

1904, 689 cases were operated with 4.6 per cent. mortality (Winter).

In 1904 Dührssen performed 197 vaginal hysterectomies and 231 abdominal hysterectomies for uterine fibroids with a mortality of 3.7 per cent.

It is of interest to note that the average mortality in myomectomy is now 7.8 per cent.; and that the recurrences after myomectomy range from 6 to 8 per cent. Also that removal of the uterine appendages for the cure of uterine fibroids gives a mortality of 4.6 per cent., and with failures to control hemorrhage and to effect atrophy of the tumor in 10 per cent. These figures speak against the adoption of such so-called conservative procedures, and in favor of partial or complete hysterectomy, save in the carefully selected cases.

The history of electricity in the treatment of diseases of women

has been most interesting. No one lesion in the category of diseases peculiar to women has failed to have its day with electrical treatments. "No more ovariectomies!" said Frederick Semelede in 1875, as he concluded his report of several cases of ovarian tumors cured by electricity. Ectopic pregnancy was robbed of its terror in the minds of many of the early supporters of electricity as a remedial agent. Uterine fibroids were effectually disposed of without resort to "murderous operative procedures." In short, it was a panacea for the relief of all diseases of women. It is now contended that electricity has no place in the treatment of the diseases of women, that in gynecological therapy it stands for ignorance and quackery.

More than 300 varieties of pessaries have been devised for the correction of uterine displacements; many of them useless, not a few of them harmful, a large majority superfluous, but a chosen few deserving of the greatest consideration in that in carefully selected cases they do correct displacements and relieve symptoms referable to the displacements.

The operative treatment for uterine displacements is far from satisfactory. Not until we come to a definite understanding as to the factors which contribute to the support of the normally placed uterus and fully appreciate the opposing factors which determine displacements, can we hope to arrive at a satisfactory solution of the problem. However, we can report progress; two problems at least have been settled to the satisfaction of the majority of workers in this field:

First, no fixation of the uterus should be made during the child-bearing period.

Second, complicating lesions are of prime importance, and hence the rule that intra-abdominal operations which permit of the correction of these lesions are preferred to all extraperitoneal methods.

Dudley, in speaking of plastic surgery of the pelvic floor, said: "In recent years abdominal surgery has so far engrossed the mind of the gynecologist, not to mention that of the general surgeon, that by comparison the minor plastic work, to some extent, has been neglected or given into incompetent hands. It is perhaps not too much to say that our fathers in their day did better plastic surgery than we are doing in ours. Indeed, a revival of interest may be necessary in order to save this part of gynecology from becoming a lost art. It is time, therefore, without losing sight of the claims of capital surgery, to bestow adequate attention on the homely, every-day problems of gynecology."

The question naturally arises, What are the factors which have contributed to the improved results in gynecology and obstetrics? Time will not permit of more than a hasty allusion to these factors. In general, they may be said to be very largely those principles and rules of practice which have been adopted in the field of general surgery.

At the very foundation of all advancement have been the studies in the pathology of the pelvic region. Diagnosis is based upon the recognition of the pathology. The early recognition of malignant growths is in no part accounted for by an interpretation of the symptoms, for they are at most only suggestive in the early stages of the disease, and the making of an early infallible diagnosis can only be based upon the microscopic examination of excised pieces and scrapings. Bacteriological research has revealed to us the essential causes of puerperal sepsis and of operative and gonorrheal infections, and has afforded us the means of prevention of these, the most prevalent of the diseases of women. Without a thorough knowledge of pathology, no man can aspire to accurate diagnosis or to efficiency in treatment.

In recent years we have learned to appreciate and to recognize in part the varying degrees of virulence of micro-organisms. These observations have led us to formulate rules by which we are to be guided in the conduct of septic cases. We appreciate the dangers involved in the opening of the abdomen in the presence of virulent infection and have laid down the inflexible rule that in acute pelvic infections the abdomen should not be opened; that no unnecessary examinations and no operation should be made unless urgently demanded by grave and increasing evidences of sepsis; and then, at most, vaginal drainage should be done with the utmost caution. Untimely interference in these cases has made large contributions to the mortality. Too much emphasis cannot be placed upon the demands of tentative, supportive and palliative treatment, so long as the local and general conditions point to the presence of virulent micro-organisms.

The examinations of the blood have contributed largely to the making of accurate diagnoses and to the determination of the time and manner of procedure. In this way we recognize the presence of septicemia and its essential cause; we determine with almost certainty the presence of pus, and estimate more or less accurately the degree of virulence of the infecting micro-organisms. Furthermore, we are greatly assisted in the making of the prognosis. By adhering to the rule that before operating a blood examination must

be made, we occasionally avoid mistakes in diagnosis which would lead to unfortunate results. Routine examinations of the blood are now regarded as of no less importance than that of the urine. In a large percentage of cases no additional information will be afforded by the examination of the blood, but in those cases where the responsibility is the greatest these examinations become of the highest value. Without a blood examination the surgeon may be led to proceed with an operation, and with fatal results, that might have been avoided had the degree of anemia been known and the operation been delayed until the blood was brought up to a safe standard. Or he may be led into the abdomen, not having anticipated the presence of a virulent pelvic infection, which, had he been aware of its presence, would have suggested delay until the micro-organisms had lost their virulence.

While we are as yet much in ignorance of the functions of the ovary and speak in vague terms of the ovarian secretions, we are impressed with the necessity of preserving the integrity of these organs, even though the tubes and uterus are sacrificed. The conservative work on the ovaries is one of the triumphs of modern gynecology, and the dictum—"to save what can be saved" of the ovarian tissue at all times of life, is certainly timely in the light of past history and the unfortunate results which confront us to this day.

I have been frequently asked, "What are the indications for the removal of both ovaries?" And my reply has been: first, malignancy, tuberculosis and abscess formations of both ovaries, and second, benign tumors of the ovaries involving all of the ovarian tissue. If this position can be maintained, the justification for the entire removal of both ovaries will be rare indeed. Better for the patient to suffer some local discomfort than to be unsexed and driven into the nerve storms which make life a burden to herself and to her family.

Careful details in the covering of all raw surfaces in the pelvis by intact peritoneum have contributed largely to the prevention of sepsis, post-operative hemorrhages, and, above all, to preventing the formation of adhesions which give rise to pain and discomfort in after years, and to ilius.

The introduction of catgut has done away with the necessity of using non-absorbable suture material in the peritoneal cavity, and has made possible the perfect coaptation of tissues and the control of bleeding vessels.

The use of rubber gloves has lessened the percentage of infections, not only in the patient but in the operator as well, and they have made for themselves a permanent place in the equipment of the surgeon.

In no other department of surgery do we find the Fowler position so generally applicable and more eminently satisfactory. This position serves in the prevention of the upward spread of pelvic infection prior to as well as following operations, and greatly favors drainage through the vagina. Not only this, but by favoring the descent of the abdominal viscera away from the diaphragm, the respirations and heart action are favored and there is less annoyance from gas pains.

Normal salt solution, as a life-saving agency, has not its equal. It lessens septicemia by diluting the toxins of the blood and favoring their elimination through the skin, bowel, and kidney, and restores the equilibrium of the circulation after hemorrhages. The continuous feeding of the bowel with salt solution at the rate of a pint an hour throughout the period of depression has given most gratifying results and is preferred to all other methods of administration.

In obstetrics the general adoption of the improved axis traction forceps has done more than any other factor in recent years to reduce fetal mortality. This instrument has done away with many of the mutilating operations and has rendered possible the safe delivery of the child which would otherwise have been sacrificed.

While puerperal infection has become very largely a preventable disease, the conservative management of puerperal infection has saved the lives and health of countless women. In this class of cases the curette is finding its legitimate place; it should never be employed for any purpose other than the removal of placental remains, and then with the utmost caution. In fact, it is my practice to discard it altogether in the treatment of acute puerperal infection, and substitute, in its stead, the fingers or placental forceps, which are equally as effective and less likely to do harm. Surgical intervention in these cases has sacrificed many lives and has been the means of spreading the infection, and may be said to have done vastly more harm than good.

Time will not permit of a further discussion of the factors which have contributed to better results in gynecology and obstetrics. I trust that enough has been said to suggest the great advances which have been made in this special field, and to point out the more important methods which have contributed to these results. The

judicious employment of not one but of all these procedures accounts for the great advances which have been made and speaks for continued improvement.