On The Prevention of Sepsis in the Lying-in Room.

by

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In surgical literature there is no chapter of more absorbing interest than that dealing with the prevention of sepsis, and in no sphere are greater victories more justly claimed from the proper and lawful use of antiseptics than in the domain of which I write.

If thirty years ago, the Surgeon-in-Hospitals might not truthfully be described as charnel-houses of death, and, if one might not honestly apply to them the oft-quoted saying of Dante: still it might be said of many of them that delivery in the fullest was safer than within their walls. But the history of Maternal Mortality in Institutions is every year written in fainter lines — and if still the memories of a dismal past will obtrude themselves, they but serve to throw into greater relief the tremendous revolution that has been effected in the case of women in their hour of trial. And we read with a glow of justifiable pride the yearly records of such an institution as the Luthera Hospital, Dublin. And yet, to one as a General Practitioner; in all this there is an undercurrent of despondent, and one's prayer expressed is for the same brilliant results in General Practice — and I would add in
General practice amongst the poorer classes of a small town (40,000) where there is no hospital in whole or in part allocated to the treatment of women in labor.

And it is one solemn duty—a duty which no honorable man would dare escape even if he could to inquire into the best methods to be pursued in the treatment of lying-in women and no matter at what cost or trouble to rigorously carry out on behalf of his patient what he considers best.

It has been remarked that no man will carry through one hundred labors per annum for twenty years without at least losing one patient from sepsis. It may be so. Let the proposition pass for what it is worth. The story of the amount of suffering arising from neglect in the lying-in room apart altogether from septic deaths would, if it were possible to write it, be a dark and gloomy one. A death from sepsis after labor is a terrible calamity under any circumstances, and well might overwhelming if any carelessness on one's part had contributed to the disastrous result. And the mental torture of the man who knowing right does a fatal wrong needs no poet to
portray. And one may take a meaner and narrower and still personal view of the absolute necessity of cleanliness in the treatment of women about to be delivered. His greater bar to a young man's success in practice and all desire success - can possibly arise than a death from blood poisoning on the threshold of his career.

On entering practice one striking fact soon presents itself. A woman, who delivers herself and who has not been in any way examined and the after-treatment of whom is not glaringly bad, is eminently safe so far as septic complications are concerned.

And this fact, a fact which obtains in the lower animal world as well, leads in natural sequence to one's first proposition: Vaginal Examination is to be sharply deprecated.

It is the practice at the Rotunda Hospital and in some of the Continental Hospitals if even cases of mild Sepsiaemia arise to at once put a veto upon Vaginal examinations of women in labor and the happiest results follow the disappearance of disagreeable
septic conditions. This has occurred time after time and the circumstances fully support the a priori argument.

On becoming an intern pupil of the Rotunda in the winter of 1892-3 I strongly opposed the position that one could in any way be satisfied as to a woman's condition in labor without a vaginal examination. But then one sees abdominal palpation practised as a fine art by the accomplished Master.

Imply and before my term of four-and-half months was completed, I became convinced that in many cases of labor abdominal palpation combined with auscultatory signs and a critical review of the patient's general condition could be profitably employed without vaginal examination at all to arrive at a satisfactory knowledge of a patient's condition.

Abdominal Palpation

Method:—Patient lies on her back with the abdominal tumen fully exposed—and here let me remark once and for all that, generally speaking, the amount of exposure a patient will submit to depends largely
upon the manners of her attendant physician and it need hardly be remarked that all unnecessary exposure is to be avoided. The physician faces the patient standing at her right side. The thumbs of the examining hands meet in the region of the umbilicus and the flat of both hands is placed on the fundus of the uterus which is carefully palpated—deeper pressure being gradually employed as the abdominal muscles relax and as the patient gets accustomed to the examination. The examining hands become slightly arched but in no case are the fingers ever at right angles to the part under review.

The sides of the swelling are then examined to examine the lower portion of the uterus the physician faces the feet of his patient. And finally the flat of the right hand rests to some extent upon the Mons Veneris and the pelvis is examined as deeply as possible with the forefinger and thumb, or better with the latter and middle finger.

From abdominal palpation we determine whether the woman is in labor or not. We feel at once the contraction of the uterus more or less powerful
more or less prolonged. Noting at the same time the patient's expression and interrogating her as to sense of pain and its position.

We may determine whether the foetus is alive or not. Under manipulation of uterine focal movements are often extremely active.

We determine after assiduous practice with comparative ease the presentation of the child, and appreciate thereby the relation of the axis of the child to the long diameter of the uterus. There is little difficulty in distinguishing the beach from the head, the latter if not sunk in the pelvis having greater mobility than the former, and the cerceal sulcus can usually be made out, and the greater hardness of the cephalic extremity is quite appreciable. If the head be fixed in the brim the child is usually easily made out. The location of the head can mostly be determined without difficulty. I well remember a patient some seven months presenting herself at the hospital to see if she were pregnant. Under chloroform she was a primipara. The head was easily felt in the left iliac fossa, and with ease was made to lie above the brim.

The position determined by which we appreciate the relation of the back of the foetus to the uterine
wall. Position of foetus in head or breech presentations is either anterior or posterior. In anterior position back of foetus lies either to left side of abdomen—the commoner—or to the right. In either case there is on the side to which the back lies a very much greater sense of resistance than on the other side, and, in addition unless the head is sunk very low in the pelvis the back of the head is easily differentiated from the chin.

Generally speaking, in posterior positions we feel anteriorly nothing but limbs.

The various parts of the foetus after many failures are fairly easily distinguished, e.g. the feet, hands, the knees.

typically at the bun is appreciated. We may note the strength of the pains and the steadiness of the head; or again under the same conditions we note the fact that the presenting part fails to engage in the bunn.

We follow the progress of the labor so far as the advance of the presenting part is concerned. At any period of the labor we may between pains make out that the head has not engaged. It is necessary here to point out that a beginner often diagnoses "head just engaging" when in reality it is the shoulders.
a mistake the proficient easily avoids. Later we
easily follow the descent of the head.

The character of the pain, the whole conduct of the
patient, the auscultatory signs, must as broad
be critically reviewed, and, with a great degree of
certainty, we may make the assertion that the
patient is either in the first or second stage of
labor. No matter whether, we rely on vaginal exami-
nation altogether, trusting entirely to abdominal
palpation and the stethoscope, or employing
both methods we are bound to make most ques-
tious blunders in attempting to fix the time of
the birth of the child. Hence our replies to the
anxious enquiries of expectant mother and friend
must be couched in somewhat Delphic language.
The main conditions not determinable by abdomi-
nal palpation are prolapse of the cord and the presence
of abnormal conditions of cervix and vagina e.g.
a polypus sufficiently large to obstruct the head of the
child. In reference to the first, it is a rare condit-
ion and if discovered an exceedingly difficult
one to rectify. The books and the various devices
therein described notwithstanding, and, necessarily,
the stethoscope would reveal distress on the part of
the child, or such distress would be made known by the
Excited movement of the foetus and this lead at once to vaginal examination.

The condition of polyphrenia is exceedingly rare and may be disregarded. Rigidity of the cervix is also among the rarities of midwifery practice.

While not averse to vaginal examination I feel bound to enter a strong protest against the advice to examine a woman in the second stage of labour every half hour. What one expects to learn thereby is beyond me—e.g. the cervix does not prolapse after the head has fully engaged.

Personally my practice is to make as few vaginal examinations as possible, and preferably none at all. In multiparae one is often called when the woman is very evidently in the second stage, and the speed of successful issue of the labour is evidenced by the progressively increasing version of the anus. There is no discharge of meconium, the mother and child are determined by ordinary methods of examination are both far removed from danger.

Here an interesting question arises apropos of vaginal examinations—should prophylactic douche be employed or not? I think not, at least in
pray, practice. In washing out the vagina there is always some little danger in your current camp-
ning up and depositing upon the uterine surface — possibly above surface — some septic matter. The
danger, doubtless, is slight, and in great teaching
hospitals if numerous vaginal examinations are permitted douching might be employed. The
less dangerous method of frequently swabbing out the vagina is preferable.

If then the avoidance of vaginal examinations
conduces to the absence of sepsis in the baby in room
how much more does the avoidance of the indiscrimi-

cate use of the forceps conduces to the same result.

In the vast majority of instances the paramount
indications to terminate labor by means of forceps
are distress on the part of the mother, as evidenced
by rapidity of pulse — a rising temperature, or-

exhaustion — distress on the part of the child, as
indicated by a raising or falling pulse, excited
movement or discharge of mucus in a head
presentation.

With many men the time element and that alone
rules into their calculations, and these are just the men who either have the crudest not-

ions of antiseptics in the baby in room or know-
ing better have not the necessary time to carry out the precautions which ought to be observed. I was once doing duty for a general practitioner in the country, and was sent by him to apply forces. In all good faith I took his obstetrical bag and on proceeding to analyse its contents in my house found that its contents consisted of a pot of Veselin with broken lid and a pair of freshmen's forceps old and rather rusty. Nature terminated that case.

The less one has to do with the patient the better, manually or instrumentally the better, for one's patient and for one's peace of mind.

Even in the short time one has been in practice one notices that the essential fact of the absolute necessity of cleanliness in the lying-in room is gradually taking hold of the popular mind necessary cruelly in the lower classes, but still the germ is certainly there. And I have heard a so-called midwife soundly rated for not observing ordinary rules of cleanliness and her habits sharply contrasted with those of the doctor "called in" to terminate the case.

It is very nearly the universal practice in this city for a patient to give her medical attendant
Three months' notice of her approaching confinement.

Her general health and her previous obstetrical history must be carefully gone into, and we must regulate the diet, the rest, and the hygiene, considered in its broadest sense, of a pregnant woman that, when labor commences, her condition of body and mind is at the very highest pitch of excellence. For, though, it is our bounded duty to regard the production of a septic complication as due to some fault of one's own during one's attendance in the lying-in room, yet, it were folly to entirely disregard that there is such a thing as autointoxication, and that in any case we fail in our duty to our patient if the resistance of such patient's tissue to septic infection is not as perfect as it can possibly be.

The patient must be duly impressed with the fact that the more wholesome the condition of her body and of the room in which she is to be confined, the safer will be her labor.

A great boon in the lying-in room is a large-sized wood wool towel, but unfortunately such is not within the reach of every patient. But of my last hundred patients only two were in the position to
afford such a luxury—or, rather, thought such a refinement at all necessary.

Before proceeding to the operating room, we owe it to our patient that we neither on our person or on our instruments convey anything into that room capable of infecting her.

After attending an infectious case, one should should have a bath and change one's clothes. After dressing any septic wound, one's hands must be most carefully cleansed. Particular attention being made to the nails—a drop of pure creolin under each nail proves a very reliable germicide.

My midwifery bag is reserved entirely for the aseptic operating room. It is swabbed out with a solution of creolin after each case I have attended. Any instruments I may use are never placed in contact with my bag until thoroughly cleansed. I carry two nail brushes—one for ordinary use—one for use in an aseptic fluid carefully wrapped in but wrung out of creolin and covered with gauze gauze tissue.

My bag contains for ordinary cases, then, two nail brushes, a four-ounce bottle of creolin, tinctures of the medicinal mercury, root opium, ether, chloroform and morphine, hypodermic syringe, a large-sized...
Boyden's catheter - a glass catheter - a pair of
Velva Murray's forceps until metal handles - needle
holder until metal handles - needles - silk thread
qut: scissors - Rocker's arterial forceps - squares of
wood wool tissue.

Arrived at the bedside of a patient 5 proceed
as far as 5 can to gain her confidence and sub-
due her anxiety and then by abdominal palp-
ation - auscultation and a general examination
of the patient gain as much information as poss-
able. If it is necessary to make a vaginal exam-
ination it must be so done that morally speaking
it is absolutely impossible for one to convey any-
thing definite into that woman's canal on the exam-
ining fingers - failing to guarantee that, avoid the
examination otherwise one is guilty of a criminal
action and should bear the brunt of it.

Vaginal examination - Place patient on left side.
Cleanse your own hands in first place with soap
and water - remove all the soap - under each
nail place a drop of creolin - and finally scrub hand
with aseptic nail brush and a 5% creolin solution.
Then proceed toward the vulvar region with soap
and water, followed by creolin solution place
a piece of wood wool tissue soaked in creolin between
the vulvae - then cleanse your own hands as indicated above. Remove the piece of wool from between the vulvae - look deliberately - pull apart the vulvae, and, with the utmost gentleness, introduce the forefinger of the right hand. The use of any inequently is entirely unnecessary and may be dangerous. Carbolic glycerine kept in a glass stoppered bottle is probably the least objectionable if any be admissible. It need not be used as the final antiseptic for the hand. It will be found quite sufficiently emollient even with 1-500 perchloride of mercury solution I have never in the lying-in-room found any difficulty in introducing my fingers. You may find the anterum hip obstructing the descent of the presenting part and may think it necessary to steady it during a pain. Any such manipulation must be of the gentlest possible description. One must remember that every inch of the surface adds to the danger of sepsis by increasing the absorbing area.

Having made a vaginal examination or having decided to dispense with it I next prepare my delivering apparatus. Even in the poorest houses one can always find a large kettle and a good fire. While my douche tube and Boigman's Catheter are being sterilised by boiling, I turn my attention to the preparation of a
water jug capable of holding several pints of fluid. Butt-nail brush and soap the inside and outside are thoroughly cleaned; the former rinsed out with plain water and, then, with mercurochrome solution which latter is thrown out. The douche and catheter removed from the bottle are placed in the jug and a cloth wrung out of creolin (alcohol) over the mouth. I am now fully prepared to douche the vagina or uterus if necessary.

One may find it necessary to draw off the patient's water. And for this purpose equals a sterilised glass catheter. Pants and hands heated as before deliberateness look for the meatus and gently insinuate rough end of catheter. In practice one must forget these pleasing myths of lecturers about passing a catheter without looking. When House Surgeon at the Liverpool Children's Infirmary I deliberately practised in the cadaver. The art of passing a catheter without looking and expertness is not difficult to acquire. But both during and after labour such practice is absolutely condemned. There is always the danger of the catheter coming into contact with some septic surface. Patients do not often object to the necessary exposure and if they do readily submit on explanation. And in no case is the exposure
very great

I have mentioned above the ordinary indications for
the use of forceps, and would here add that,

celum patibul, four hours is not too long a
time to allow a patient to remain in the
second stage of labor. I have used forceps
effectively twelve times in my last hundred
confinements - some of my friends here in
Boston practice than I - have employed them
over sixty times in the same number. And it
is difficult to compare results, and would like
to do so. I have a horror of the forceps
and hence my practice in their use. We
may smile at the men who had forceps made
of, such a size that he could carry one blade in
each trousers' pocket and apply them the head
being in the perinaea. Without the patients
knowledge. And yet in many instances the present
day practice is not much better.

Having decided to terminate labor with the forceps one
proceeds as follows: Instruments are sterilized by
boiling and placed in Crede's Solution. Hands
and external parts disinfected as before. Vaginal
disinfection is thus accomplished. The passage
is just washed out with soap and Crede's Solution.
and is then thoroughly douched with the latter. During the latter procedure three fingers of the left hand are passed along the posterior vaginal wall and pulled slightly backwards. By this means the mucosa are obliterated and the vagina thoroughly cleaned.

Before actually applying forceps, Salvarsan,place a towel or draperies under the patient's hips. Another draper should be handyly placed in case of any fecal discharge which does sometimes happen.

Usually remove the forceps as soon as I can control the progress of the head and the perineum is heated according to the method in use in thePotomac. The salvation of the perineum is a distinct preventative of perineal sepsis.

The left hand - of course thoroughly cleansed - is passed between the legs of the patient and the most posterior portion of the presenting part is partly pulled - partly pushed towards the pubis until the fingers of the hand - while of the heel of the right hand presses on a point midway between the tips of the coccyx and anus of the woman. The result of this combined movement is to relieve the pressure on the posterior bag.
inal wall to a certain extent. Repairs generally proceeding from within — and, doubtless in some cases, such relief is sufficient to ward off tears of the perineum. And if such do happen to occur nothing but immediate union by means of sutures is for a moment to be tolerated — and in the insertion of these stitches the most accurate approximation of both surfaces free from all blood clot must be obtained. My own preference is for silk wound gut constantly kept soaking in 1:3000 mercurial solution. From this I have had excellent results. The urine for three days should be drawn off with the catheter used with all antiseptic precautions and with the utmost gentleness. In many cases, the swollen oedematous urethra is in a highly susceptible condition — and even a slight urethritis may prove exceedingly rebellious to treatment. Such things as a purulent cystitis and a suppurative nephritis are not altogether unknown in obstetrical practice.

In reference to the aftertreatment of a repaired perineum a varical ball, do see is occasionally formed in which lies the discharge apt to decompose. I am in the habit of withdrawing the discharge by means of a glass syringe and a rubber tube after which in
length. This is preferable to douching, which might possibly drive infective material back into the womb. I then insufflate gently with podoform.

The proper conduct of the third stage of labor is indirectly of the very greatest importance in preventing sepsis in the lying-in room. If it is conducted properly not only is manual interference—a frequent source of septic infection—often avoided but the haemorrhage is very materially decreased and the strength of the patient thereby conserved. As in general surgery so in midwifery, a large blood loss creates a favourable tissue nidus for the proliferation and propagation of micro-organisms. The descent of the uterus upon the emerging child should be closely followed by the hand of an attendant and on completion of the second stage the surgeon takes charge of the uterus. The uterine edge of the left hand is sunk deeply in the woman's abdomen and the fingers of the womb controlled until the slightly curved hand: the tips of the fingers are not to be employed in producing contraction of the uterus, for, if so, it is apt to irregularly and the condition known as hour-glass contraction is liable to be produced. The uterus is now very
much under the control of the surgeon whose whole attention must be on the alert. Undue interference is to be deprecated and normal relaxation is to be left alone - the succeeding contraction may if necessary be assisted by rubbing the womb gently with the whole hand.

Much harm may result from precipitate action in completing the third stage and the premature expulsion if the placenta is suspected a common cause of a retained portion of placental tissue or of the membranes in whole or part and depending upon the size or position of such remnants there is the serious risk of post partum haemorrhage. Provided there is no excess of haemorrhage I wait for a good half hour and then in the first place I simply wait for commencing contraction and powerfully stimulate the uterus by active abdominal massage with the whole hand. Secondly, this plus slight abdominal compression is very often all that is required. Failing, stronger compression is employed. In my best hundred cases I have had only one case of adherent placenta and in this case no amount of legitimate compression of the uterus could expel the afterbirth which was strongly adherent over an area about two
inches square. I am inclined to believe that adherent placenta is a rare condition.

Delivery of the Membranes Here again my experience in Dublin and in private practice points to greater delay than is usually employed and ceteris paribus 5 hours is necessary to do so in a very leisurely fashion, aiding I think their expulsion by abdominal section of the womb. If they chance to break off short, I find that the twisting process may be easily continued by grasping the twisted stalk with a pair of Kocher's forceps previously sterilised by boiling. It is satisfactory to find the membranes gradually taking off as the twisting goes on.

It is a question of great difficulty to decide how much placental tissue or how much membrane may safely be left within the uterus to be thrown off with the lochia. I recollect in one of my earliest cases in Dublin being nearly certain from an isolated somewhat circular hole in the membranes and a couple of % of restricted venous channel running up to the heart, that there had been left behind a lobe of a Placenta Succenturiata. But the uterus was firmly contracted and set in the pelvis, and there was no bleeding. Result a violent suprarenal attack.
commencing on the third day - culled with a blunt perfonnated double curet - in the fifth day - temperature normal in 36 hours - and a rapid convalescence - And again, in another, an urgent case, I was conscious of leaving a considerable amount of membranes in the uterus - and informed the assistant master of the fact and noted it upon the chart. He was called during the night to find her bleeding profusely. She recovered without an untoward symptom.

In private practice the patient may be miles away from me - and what might possibly be justifiable to do in hospital practice might be exceedingly risky in the former. Acquiring confidence with increasing experience and coming every day to pay more and more attention to antisepctic precautions and though strongly opposed to unnecessary manipulation within the parturient canal I more fearlessly than formerly pass my cleansed hand into the uterus to remove either placental remains or retained membranes - douching out empiric and interstitial before and after each interference with the parturient canal. In every instance in which I have had occasion to sweep the uterus with my hand the result has been very gratifying. The womb has been left as hard as
The typical 'cricket ball' letch is much smaller in amount than in my other cases - convalescence extremely rapid - and so far as my observations go - the patient was in all cases seen only in the morning - the pulse, temperature, and respiration remained normal throughout the entire perforation.

The third stage being completed the uterus is for a period of half an hour longer kept under control. The patient's parts are then washed with creolin solution and we take care that no cloth used for any other part of the patient - say the thigh - is ever brought into contact with introitus vaginae. A napkin dusted with iodopom is adjusted and the binder applied if it be thought necessary to do so.

So far as the after-treatment in any case of labour is concerned one is very much at the mercy of the woman in attendance. You may teach an ignorant woman macroscopic but never microscopic cleanliness and the falling away of even a fully-trained midwife six months away from hospital is very lamentable. I know of a somewhat recent case in which such a nurse used a gum-elastic catheter with a cracked nozzle, having previously given it a 'dip' in
1.000 c.c. corrosive sublimate and then stuck the end of it into a pot of vaseline on the dressing table. The patient had a subacute mastitis for five weeks, otherwise her recovery with a normal pulse and temperature was uninterrupted.

In all cases direct the woman in charge to use boiling water and Cundy's fluid to use one rag for the vulva which is then thrown away and another for the inner and neighboring parts. I direct in all cases that the napkins be lightly dusted with iodoform before being applied.

In the last eighteen months I have treated eight cases of inevitable abortion in multiparae. In all these were the classical signs and symptoms - agonizing pain - haemorrhage and dilated cervix. In all 3 followed one method of treatment. Under the strictest antisepsic precautions I have removed the womb with the fingers in only one case was simple expression alone sufficient and immediately invaded the uterus, frequentlyouching out during the operation. I have been struck with the rapid convalescence which ensued and in most of the cases the discharge was very small in amount - some of the patients dispensing with the use of a diaptr. Even in a case terminating naturally and which to all appearances looks complete it is quite surprising how much
debris is got away under careful and systematic wash-
ing and douching. Two of the above cases had a
stinking discharge. In both instances the subsequent
discharge, small in amount, was odorless except upon
close examination. In no case was it necessary to pre-
scribe enemata and in none did any complication arise. In
none was any further local treatment necessary. I
strongly advocate in many cases the immediate treatment
of abortion. I do not think that there is any comparison
between a uterus at the second or third month and one at
full time - and while strong in my advocacy in leaving
in a great proportion of cases nature to terminate as she
best knows how a natural event. I am of opinion that
the surgeon who, in the former class of cases, steps in
and complets what is not natural is acting in the
best interests of his patients, both for the present and
for the future, so far as child bearing is concerned.

Incalculable benefit is to be looked for from the
just recognition and due application of strict antiseptics
in the living-in-room.

I write as a young man and, even though a type in my
profession, the sadness of a life ruined by carelessness
forms a prelude to burial honor. The conserving of healthy
life is a sacred heritage to pass on unimpaired from
generation to generation.
Let no act of ours in the sphere of which I write swell the army of hopelessly chronic invalids. Let us note that perhaps death from septic infection is not the most awful termination to our careless and slovenly work that still more terrible is lifelong misery which but for us had never been

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