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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 may greater victories be more justly claimed from the proper and lawful use of Antiseptics than in the domain of which I write.

If, thirty years ago, the Lying-in-Hospitals might not truthfully be described as charnel houses of death, and if one might not honestly apply to them the oft-quoted sayings of Dante - still it might be said of many of them that delivery in the gutter was safer than within their walls. But the history of Maternal Carnage 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 Rotunda Hospital, Dublin. And yet, to one as a General Practitioner, in all this there is an undercurrent of discontent, and one's prayer oft 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 (40000) where there is no hospital in whole or part allocated to the treatment of women in labor.

And it is one's 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. Set 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 nigh overwhelming if any carelessness on one's part had contributed to the direct 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. No greater boon to a young man's success in practice - and we 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

<u>Unnecessary Vaginal Examination is to be strongly deprecated</u>

It is the practice at the Rotunda Hospital and in some of the Continental Hospitals if even cases of mild Sapraemia 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 occured time after time and the circumstances fully support the propter-hoc 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 there one sees abdominal palpation practised as a fine art by the accomplished Master- Dr Smyly - 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 patients general condition could be profitably employed without vaginal examination at all to arrive at a satisfactory knowledge of a patients condition.

Abdominal Palpation

Method :- Patient lies on her back with the abdominal tumor 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 relase 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 fore finger 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 patients 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 uterus foetal 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 breech from the head - the latter if not sunk in the pelvis having greater mobility than the former, and the cervical 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 chin is usually easily made out. The location of the head then can mostly be determined without difficulty. I well remember a patient "some" seven months presenting herself at the Rotunda 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 positions back of foetus lies either to left side of uterus — 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

Superficially at the brim is appreciated. We may note the strength of the pains and the steady advance of the head — or again under the same conditions we note the fact that the presenting part fails to engage in the brim.

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 ~~we may~~ 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 I said 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 veto vaginal examination altogether, trusting entirely to abdominal palpation and the stethoscope, or employing both methods we are bound to make most egregious blunders in attempting to fix the time of the birth of the child - hence our replies to the anxious enquiries of expectant mother and friends must be couched in somewhat Delphic language.
The main conditions not determinable by abdominal 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 condition 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 thus lead at once to vaginal examination.

The condition of polypus 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 ~~add~~ enter a strong protest against the advice to examine a woman in the second stage of labor every half hour. What one expects to learn thereby is I confess quite beyond me - e.g. the Cord 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 speedy and successful issue of the labor is evidenced by the progressively increasing eversion of the anus - there is no discharge of meconium - the mother and child as determined by ordinary methods of examination are both far removed from danger.

Here an interesting question arises apropos of vaginal examinations:- Should prophylactic douching be employed or not? I think not - at least in

private practice. In washing out the vagina there is always some little danger in your current carrying up and depositing upon the uterine surface — possibly abrae 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 lying in room how much more does the avoidance of the indiscriminate use of the forceps conduce 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 — arising temperature, or exhaustion — distress on the part of the child, as indicated by a rising or falling pulse, excited movement, or discharge of meconium in a head presentation.

With many men the time element and that alone enters into their calculations, and these are just the men who either have the crudest notions of antisepsis in the lying 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 forceps. In all good faith I took his obstetrical bag and on proceeding to analyse its contents to my horror found that its contents consisted of a pot of vaseline with broken lid and a pair of Leishmen's forceps old and rather rusty. Nature terminated that case.

The less one has to do with the parturient canal 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 necessarily crudely 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 so 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 bounden 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 - ill-defined though it be - as auto-intoxication, 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 lying-in 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 lying-in 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 antiseptic fluid carefully wrapped in lint wrung out of creolin and covered with gutta-percha tissue.

My bag contains for ordinary cases - thus - two nail brushes - a four-oz bottle of creolin - tabloids of the Bichloride Mercury - Ergot - Opium - Ether - Chloroform and mask - hypodermic syringe - a large-sized

Bozeman's catheter - a glass catheter - a pair of Ulne Murray's forceps with metal handles - needle holder with metal handles - needles - silk worked gut - scissors - Rocker's artery forceps - Squares of wood-wool tissue.

Arrived at the bedside of a patient I proceed as far as I can to gain her confidence and subdue her anxiety and then by abdominal palpation - auscultation and a general examination of the patient gain as much information as is possible. If it is necessary to make a vaginal examination it must be so done that morally speaking it is absolutely impossible for one to convey anything septic into that woman's canal on the examining 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 hands with aseptic nail brush and a 5% creolin solution. Then proceed to wash the vulvar region with soap and water, followed by creolin solution - place a piece of wood-wool tissue dipped 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 unguent is entirely unnecessary and may be dangerous. Carbolised glycerine kept in a glass stoppered bottle is probably the least objectionable if any be admissible. If creolin be used as the final antiseptic for the hands 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 anterior lip 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 breach 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 douching apparatus. Even in the poorest houses one can always find a large kettle and a good fire. While my douche tube and Bozeman's catheter are being sterilized by boiling I turn my attention to the preparation of a

water- jug capable of holding several pints of fluid. With nail brush and soap the insides and outside are thoroughly cleaned - the former rinsed out with plain water - and, then with ~~[illegible]~~ mercurial solution which latter is thrown out. The douche and catheter- removed from the kettle - are placed in the jug and a cloth wrung out of creolin flung over the mouth. I am now fully prepared to douche the vagina & uterus if necessary.

One may find it necessary to draw off the patients water-. And for this nothing equals a sterilised glass catheter-, Parts and hands heated as be-fore - deliberately look for the meatus and gently insinuate nozzle of catheter-. In practice one must for-get these pleasing myths of lecturers about passing a catheter- without looking. When House-Surgeon at the Liverpool Childrens Infirmary I diligently practised in the cadaver. the art of passing a catheter- without looking - and expertness is not difficult to acquire - But both during and after labor- such practice is to be 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 sub-mit 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, ceteris paribus, four hours is not too long a time to allow a patient to remain in the second stage of labor. I have used forceps exactly twelve times in my last hundred confinements - some of my friends here in busier practice than I have employed them over sixty times in the same number. And it is difficult to compare results and invidious to do so. I have a horror of the forceps and hence my practice in their use. We may smile at the man 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 perinaeum - 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 creolin solution - Hands and external parts disinfected as before. Vaginal disinfection is thus accomplished. The passage is first washed out with soap and creolin 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 - are separated - and pull slightly backwards. By this means the rugae are obliterated and the vagina thoroughly clean- -sed

Before actually applying forceps I always place a towel or diaper- wrung out of creolin Solution beneath the patient's hips. Another diaper should be handily placed in case of any faecal discharge which does sometimes happen.

I usually remove the forceps as soon as I can con- -trol the progress of the head - and the perineum is treated according to the method in use in the Rot- -unda. The salvation of the Perineum is a desired preventive of puerperal 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 with the fingers of this hand - while of the 'heel' of the right hand presses on a point midway between the tip of the coccyx and anus of the woman. The result of this combined move- -ment is to relieve the pressure on the posterior- vag-

-inal wall to a certain extent - rupture 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 apposition of both surfaces free from all blood clot must be obtained. My own preference is for silk-worm gut constantly kept soaking in 1-3000 mercurial solution. From this I have had excell-ent results. The urine for three days should be drawn off with the catheter used with all anti-septic precautions and with the utmost gentleness for; 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 un-known in obstetrical practice.

In reference to the after treatment of a repaired perineum a vaginal cul-de-sac 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 a few inches in

length. This I prefer to douching which might possibly drive infective matter back into the womb. I then insufflate gently with iodoform.

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 this stage be 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 favorable tissue nidus for the production 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 ulnar edge of the left hand is sunk deeply in the woman's abdomen and the fundus of the womb controlled with 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 be irregular 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 of the placenta is I suspect 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 last 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 a less delay than is usually employed and ceteris paribus I twist if necessary to do so. in a very leisurely fashion - aiding I think their expulsion by abdominal suction 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 Kochers forceps previously sterilised by boiling. It is satisfactory to find the membranes gradually tailing 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 earlier septic cases in Dublin being nearly certain from an isolated somewhat circular hole in the membranes and a couple or so of ruptured venous channels running up to the beak that there had been left behind a lobule of a Placenta Succenturiata. But the uterus was firmly contracted and set in the pelvis, and there was no bleeding. Result a violent saprasmic attack

commencing on the third day - cuvelled with a blunt perforated douche cuvette on the fifth day - temperature normal in 36 hours - and a rapid convalescence - And, again, in another, an interna case I was conscious of leaving a considerable amount of membrane 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 one. 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 antiseptic 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 vagina and uterus both before and after such 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 - the lochia rubra most certainly smaller - in amount than in any 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 puerperium.

The third stage being completed the uterus is for a period of half an hour longer kept under control. The patients "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 iodoform is adjusted and the binder applied if it be thought necessary to do so.

So far as the after-treatment in any case of labor 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

1-5000 corrosive lotion and then ~~stuck~~ stick the end of it into a pot of vaseline on the dressing table. The patient had a subacute metritis for five weeks, otherwise her recovery with a normal pulse and temperature was uninterrupted.

In all cases direct the woman in charge to use boiled water and Condy's fluid. to use one rag for the vulvae which is then thrown away and another for the other and neighbouring 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 there were the classical signs and symptoms - agonizing pain - haemorrhage and dilated cervix. In all I followed one method of treatment. Under the strictest antiseptic precautions I have removed the ovum with the fingers in only one case was simple expression alone sufficient - and immediately curetted the uterus, frequently douching 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 diaper. 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 cautery-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 prescribe ergot - 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 completes 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 antisepsis in the lying-in-room.

I write as a young man - and, even though a tyro in my profession, the sadness of a life ruined by carelessness forms a picture of hard horror. The conserving of healthy life is a sacred heritage to pass on undimmed 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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