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PART I.

ORIGINAL COMMUNICATIONS.

ART. XI.—*On Laceration of the Vagina in the Course of Labour.*

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EXPERIENCE abundantly proves that any part of the genital tract may be lacerated in the progress of labour. The *nature* of the accident is the same, wherever situated, but the causes, the symptoms, the prognosis, and the treatment will materially differ according to the particular situation in which the solution of continuity takes place.

The part most commonly torn is the perineum; next, in the order of frequency, is the lower third or half of the vagina posteriorly, involving, perhaps, the rectum; then the cervical portion of the uterus; next, the upper third, or peri-uterine portion of the vagina; and least frequently the fundus and superior region of the body of the uterus.

Ruptures of the perineum and lower part of the vagina are of common occurrence, easy of recognition, and nearly quite devoid of danger; at the same time I do believe—and I gave some attention to this very point—that these accidents predispose in some measure to uterine or abdominal inflammation, just as any operation

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in this same region may do with a healthy non-puerperal woman. Their comparative freedom from danger is, in a great degree, attributable to the exemption of the peritoneum from any participation in the laceration or its effects. I say "in a great degree," because rapidly fatal ruptures of the uterus do take place, in which the peritoneum is wholly free from implication; whence we may infer that the danger does not depend solely on the peritoneum being involved, though this adds materially to it.

Whilst the pathology, diagnosis, and treatment of ruptures of the *uterus* are fully described in all the modern English treatises upon midwifery, strange to say no separate or distinct consideration is given to lacerations of the *vagina;* these are just incidentally mentioned, or spoken of as though identical, or nearly identical, in all particulars save situation, with uterine ruptures. Indeed, with the exception of Goldson, whose pamphlet was published in 1787, English authors have taken little or no notice of vaginal laceration. Of continental obstetric authors, however, there are many—and I would mention particularly Boer, Baudelocque, Moreau, Lachapelle, and Danyau—who recognise many of the points of difference between these two lacerations of the genital canal. I cannot, therefore, lay any claim to originality in this memoir. My sole object is to bring before the society, in a brief but connected manner, the pathology, symptoms, and treatment of the accident, together with the history of some examples which fell under my own observation.

The vagina is an organ differing essentially from the uterus, in its structure, relations, functions, and pathology. Hence it is reasonable, *à priori*, to assume that the lesions it sustains in consequence of parturition would have some proper and distinctive characters. I fully admit there is a general resemblance in the symptoms between ruptures of the uterus and lacerations of the vagina, that both are highly dangerous, and that in both classes the primary indication of treatment is the same. Still there are good reasons why we should recognize the differences between them. Accuracy of diagnosis must precede all improvements in practice; and by establishing a clear distinction between these two accidents, and studying each by itself, we shall obtain a fuller and more correct knowledge of the diagnosis and the treatment of both these most formidable complications of childbed.

Lacerations of the vagina—the upper part I mean—are not so frequent a consequence of parturition as are ruptures of the uterus. Let me here make an observation. Collins, and many other

observers, when describing the seat of a laceration, employ the expression, "at the junction of the cervix and vagina," or some phrase of like import. Now, all such cases—their number is but very small—I include under the heading of vaginal laceration, not merely because their claims to being considered uterine or vaginal are equally balanced, but because in some important particulars they more resemble lacerations of the vagina than of the fundus or body of the womb.

To determine the comparative frequency of lacerations of the vagina would be interesting and important; but, unfortunately, most of the published statistics of lacerations of the genital canal are not sufficiently exact in recognizing the site of the injury to furnish data for settling this question. The most extensive collection on record of such cases is that contained in the valuable monograph by Dr. Trask; but, though purporting to be "On Rupture of the *Uterus*," it includes, without distinction, cases of laceration of the vagina. I have no doubt whatever that if practitioners and authors were always careful to ascertain and define the exact seat of laceration, we should find the accident in question to be far more frequent than anyone supposes. Moreau, indeed, distinctly says he could adduce, from his own experience, as well as from the works of authors, very many facts proving that, in the larger proportion of cases, rupture of the vagina has been mistaken for rupture of the uterus.

But, laying aside conjecture, let us see what data we possess to decide this important question. Dr. Collins records 34 cases of ruptures of the uterus and of the vagina; in *eleven* of these the rupture almost exclusively engaged the vagina. Drs. Johnston and Sinclair, in like manner, describe 17 cases, of which *six* were instances of laceration of the vagina only. In my own hospital experience I met with 11 cases of ruptured uterus and *five* cases of rupture of the vagina. Now it is worthy of remark that in the experience of Dr. Collins, Dr. Shekleton (as recorded by Drs. Johnston and Sinclair), and myself, respectively, the comparative frequency of laceration of the vagina is nearly the same. For example, Dr. Collins had 11 cases out of a total of 34, or one-third; Dr. Shekleton had 6 out of 17, a fraction over a third; Dr. M'Clintock 5 out of 16, or a fraction below one-third. To these we may add the cases of Dr. M'Keever, who met with three examples of lacerated vagina and *ten* of rupture of the uterus, or uterus and vagina. Dr. Joseph Clarke, in his report of the practice of the hospital, relates 8 cases

of rupture, *seven* of which were examples of lacerated vagina; and so, most probably, was the other case, which ended in recovery; but as this might be disputed I shall not reckon it. During Dr. Charles Johnson's mastership of the hospital (1840 to 1847) there occurred 20 cases of ruptures of the uterus and of the vagina, and amongst these were *three* instances of undoubted laceration of the vagina at its junction with the os uteri. To sum up, then, we have here a total of 108 cases of uterine and vaginal lacerations—all occurring in the progress of labour—and out of this number we find *thirty-five*, or over one-third, to be ruptures confined to the vagina, or to the vagina and os uteri.

It would hardly be assuming too much if, from this collection of cases, we were to deduce the average frequency of vaginal ruptures as compared with uterine. I know very well that a much larger proportion than three-fourths of all the recorded cases of ruptures are represented to have been of the uterus; but it must be remembered that the older writers were not very precise in their anatomical descriptions; and, moreover, the names which were applied to the different portions of the genital passages were too vague to insure clearness or exactitude. For example, the term "collum uteri," which every tyro would now render neck of the womb, was used by Bartholinus, Columbus, and other anatomists, to designate the vagina.

Danyau, writing about the year 1850, was able to collect 17 cases of ruptured vagina, in which the fetus escaped into the abdominal cavity. As this result does not take place oftener than once in every four or five instances, it is plain that the total number of cases of ruptured vagina to be found scattered through the pages of obstetric literature must be pretty considerable. But it would be a very serious error to suppose that all these cases, if collected, would show the actual rate of mortality arising from this accident, or the relative frequency of vaginal rupture as compared with uterine. These are questions which can only be deduced from extensive and complete series of cases, where none are withheld; and the statistics I have given, from the records of the Rotunda Lying-in Hospital, fully answer this requirement, and, therefore, so far as they go, constitute safe and proper grounds to draw conclusions from.

If we look to the relative thickness of the uterus and of the vagina at the period of labour, it does at first seem a little strange that the former should so much more frequently be the seat of

aceration. The wall of the vagina when much distended, as it is by the fetus, is really very little thicker than chamois leather. I was greatly struck by this in a recent case where I had to remove an incarcerated placenta. The os uteri offered considerable resistance to the passage of the hand, the vagina, in consequence, being put very much on the stretch; and so distinctly did I feel the sacrum and the bodies of the lumbar vertebræ through the distended vagina, that for a moment I scarcely conceived it possible my hand was not fairly in the cavity of the abdomen.

Although, however, the vagina be considerably thinner than the uterus, yet it is comparatively stronger, by virtue of its dense fibro-elastic external coat, to which the uterus possesses nothing analogous in point of structure. It is highly probable, too, that in many cases, especially amongst pluriparæ, the uterus, when occupied by the fetus, and its fibres in a state of relaxation or extension, actually possesses very little more of thickness than does the vagina. Meigs supposes that in most cases of rupture the tear commences in the posterior wall of the vagina, near to the cervix, from its remarkable thinness in this situation. But however probable this might appear from *à priori* reasoning, still it is not at all in accordance with the results of experience, as in a very large majority of the cases of utero-vaginal laceration—not to mention the cases of purely uterine laceration—the rent is situated at the side, and not behind.

Clinical observation teaches us that any part of the vaginal canal may be torn except the lower portion of the anterior wall, which part, though the most common seat of sloughing, was exempt from laceration in all the histories I have perused. The nearest approach to a rent in this situation was a case recorded by Drs. Johnston and Sinclair, in which there was a transverse slit in the base of the bladder, just at its relation to the vagina, and apparently not engaging the peritoneum. In the upper peri-uterine portion of the canal rupture occurs, in front and behind, with pretty nearly equal frequency. When situated anteriorly the bladder is sometimes implicated in the laceration, of which the case just alluded to is an example. The same also occurred, though to a far greater extent, in Goldson's, and one of Dr. M'Keever's cases.

In a considerable number of cases the laceration is situated somewhat more to one side or the other. But wherever it may be it almost invariably takes a circular direction, often extending through one-half, and sometimes three-fourths, the circumference of

the canal. On a few rare occasions the vagina has been almost entirely detached from the uterus. In Dr. M'Keever's twelfth case this was well seen. "The body of the uterus," he says, "was nearly altogether separated from the vagina, being merely retained by a slender thread on the left side." The tear once begun is easily enlarged, either by the continuance of the pains or by incautious attempts at artificial delivery with the hand or with instruments. Of the cases where the rent was chiefly at the side of the vagina the left was more frequently engaged than the right. It is just possible that the laceration may take a longitudinal direction in the posterior wall. Again, it may have the appearance of a somewhat round aperture, as in one of Collins' cases. It is deserving of notice that in nearly all cases where the laceration was of spontaneous origin—*i.e.*, not the result of manual or instrumental interference—it has taken more of a circular than longitudinal direction. In uterine lacerations, on the contrary, the prevailing direction of the laceration—except, perhaps, where the os alone is engaged—is more or less longitudinal.

Whether situated in front or behind, in nearly every instance the laceration has extended through the vagina and into the peritoneal cavity. Dr. Churchill alludes to a case of anterior laceration of the vagina, in which he supposes, and with much probability, that the serous coat did not give way till just before her death on the fifth day. In one of Dr. Collins' cases there existed a rent in the same situation, the peritoneum over it being entire. Another case is related by him of extensive utero-vaginal laceration posteriorly, and the serous membrane covering the rupture was intact.

The following may be mentioned as the most influential predisposing causes of vaginal laceration, viz.:—

1. Disease of the vagina.
2. Disproportion between the size of the child and the capacity of the pelvis.
3 Osseous irregularity on the internal surface of the pelvis.

1. The diseased condition of the vagina which has most commonly led to its rupture was narrowing, or contraction with cicatrices, the result of former inflammation and sloughing. Both Dr. Collins and Drs. Johnston and Sinclair give examples of laceration arising out of this vicious state of the vagina.

2. Decided contraction of the pelvis was observed in only a very small proportion of cases, whilst in a smaller number the disproportion was due to a hydrocephalic condition of the fetus.

3. Denman was the first to suggest that the attrition sustained by the uterus (or vagina), between the fetal head and an abnormally salient promontary of the sacrum, might cause it to lacerate. Dr. Collins narrates a case where the solution of continuity in the vagina corresponded very accurately with the unusually projecting promontary of the sacrum; and Drs. Johnston and Sinclair, when describing the *post mortem* appearances in their eighth case, observe:—"A laceration of the vagina was found to exist, leading from a point anteriorly towards the left, and about four inches in extent. The pelvis showed no diminution, but on the internal surface of its anterior wall a prominent ridge was observed, about an inch long, and running in a direction from the centre of the junction of the pubic bones downwards and to the left."

In every instance that I know of, where vaginal laceration was spontaneously produced, the head was the presenting part. A case is recorded by Dr. Collins which forms a partial exception to this statement. Here the breech presented and the delivery was easily effected; but the uterus was extensively torn along with the vagina, so that I do not reckon this case amongst those of vaginal laceration. In not a few cases there was presentation of the upper extremity, and it was in the efforts to rectify this malposition of the fetus that the practitioner was so unfortunate as to lacerate the vagina.

The number of the labour does not seem to have much influence upon the production of the accident, beyond this, that it is proportionately much less frequent in first than in second, third, or fourth labours respectively. Of forty-eight cases where this circumstance was noted, I find *six* were primiparæ and *forty-two* pluriparæ, viz.:—*Ten* in the second labour, *eight* in the third, *nine* in the fourth, *two* in the fifth, *five* in the sixth, *three* in the seventh, *two* in the eighth, and *one* in the ninth, tenth, and eleventh labours respectively. As regards the sex of the child the same law holds good as in ruptures of the uterus, the majority being males; out of twenty-seven cases *fifteen* of the children were boys and *twelve* were girls.

In regard to the mode of its production it is easy to comprehend that inordinate uterine action must play the most important part; but powerful uterine contractions alone will hardly cause laceration of a healthy vagina with a normal pelvis, unless there be some unnatural roughness or projection on the interior of the pelvis. But if there be any obstacle or hindrance to the advance of the fetus, after its head has cleared the os uteri, under these circumstances,

the vagina will have to sustain a degree of traction or extension exactly equal in amount to the strength of the pains. Hence it is often found in practice that for the production of the laceration, uterine action and obstruction from some cause or other have concurred.

In almost all cases the head had not only entered the pelvis, but in the majority of them was fully engaged in its cavity at the time of the rupture occurring; and the plain inference to be drawn, I think, from these facts is, that contraction of the brim of the pelvis is not by any means so influential a cause of laceration of the *vagina* as it is of rupture of the uterus, especially of its neck. Simple over-distension of the vagina, as from the forcible extraction of an emphysematous child or hydrocephalic head, might cause it to burst. In this case the greater the capacity of the pelvis the more risk would there be of rupture. On very many occasions the vagina has been torn by attempts to force the hand into the uterus for the purpose of turning the child, or of rectifying some real or fancied malposition of the head. It has also been lacerated by the premature or unskilful use of the forceps.

Many other causes for rupture of the vagina are laid down by authors, such as violent movements of the fetus, obliquity of the uterus, attitudes of the mother, &c., &c., which I do not think it worth while to stop and examine, as they seem to be drawn more from theoretical consideration than clinical observation. That mechanical violence, inflicted on the abdomen during labour, might be competent to tear the vagina not only seems highly probable but is confirmed by a case related in the work of Drs. Sinclair and Johnston.

With respect to the etiology of rupture there is one point on which the vagina and uterus stand in marked contrast, namely, that whilst the latter is frequently burst by its own active contractions, the vagina never is, nor can be.

Though I have thus described many causes for the production of this accident, it must still be confessed that in no small number of cases there was really no assignable cause for its occurrence—no pelvic deformity, no malposition, no disproportion, no violent uterine action—so that we have yet much to learn upon this point in the history of the lesion. Some of the older writers regard vaginal laceration as a more fatal accident than uterine laceration. This opinion was not deduced from any clinical facts, but seems to have been based on the observation that a rent in the uterus underwent

a diminution of size in consequence of the contractions of the organ; whereas the absence of any such contraction in the vagina allowed the laceration of this canal to retain its full size. The reasoning seems plausible, and the facts on which it rests are undoubted; nevertheless it is a fallacy, and supplies an apt illustration of the danger of *à priori* conclusions in medicine.

The *prognosis* to be formed of laceration of the peri-uterine portion of the vagina must always be grave, but yet qualified according to the circumstances of the particular case. Let us first inquire what is the average mortality in the general run of cases of this accident, and then examine what are the special conditions which should guide us in forming a judgment upon any individual case. I am sorry to say we do not possess any adequate trustworthy body of facts from which a conclusion might be drawn respecting the former of these questions, *i.e.*, the average mortality among cases of this accident. Dr. Trask's statistics we can not safely use for this purpose in consequence of his observing no distinction between cases of rupture of the vagina and rupture of the uterus. A collection, even, of all the published cases of ruptured vagina, valuable though such would be, would not supply just data to go upon, and for the simple and obvious reason, that they do not represent *all the cases* that have actually occurred, but consist chiefly of the exceptional ones—picked cases—those, namely, which were remarkable from the fact of the patient recovering.

To form any, or the barest, approximation to the truth upon this important point, therefore, I am obliged to go upon the data supplied by the experience of the Rotunda Lying-in Hospital, though fully aware that these data are not by any means sufficiently extensive to yield the true average.

This experience, then, furnishes thirty-five cases of laceration of the vagina, and of these four patients recovered; whilst of the seventy-three remaining cases, where the rupture was exclusively or chiefly confined to the uterus, only *three* recovered, *one* under Dr. Clarke, *one* under Dr. M'Keever, and *one* under Dr. M'Clintock; but it is very questionable whether the first and last of these cases should not be included in the former category, namely, lacerations of the vagina. Leaving them as they are, however, there is a wide difference between four recoveries out of thirty-five cases and three out of seventy-three—in other words, between twelve per cent. and four and a quarter per cent.

It would be highly interesting and important to know the actual

rate of mortality among cases of rupture of the uterus; but in truth we do not at present possess the requisite data for determining this point. Dr. Trask's most valuable and elaborate statistics cannot, for reasons already mentioned, yield a correct solution of the question.

My own researches lead me to believe that rupture of the uterus above the os is far more dangerous than laceration of the vagina, and that a large proportion of the cases published as examples of recovery from rupture of the uterus were in reality examples of laceration of the vagina, or of the vagina and os uteri. This idea is not original; Professor Boer of Vienna, Professor Dubois and M. Danyau of Paris have expressed a similar opinion. Danyau collected seventeen cases of ruptured vagina, in which the fetus escaped into the cavity of the belly, and of these cases *four* ended in recovery. I have collected, from easily accessible sources, fifty-one cases of laceration of the vagina, including *thirteen* instances of perfect recovery.

From the foregoing facts and observations I think it is justifiable to draw the conclusion that the danger to life from vaginal laceration is very much less than from uterine laceration. A most interesting question here presents itself. What is the cause of this difference? Why should rupture of the uterus be so much more dangerous than that of the vagina? In very many fatal cases (Trask mentions twelve) of uterine laceration the peritoneum is unbroken; and of the *thirteen* recoveries from vaginal laceration, in my collection, *twelve* had the peritoneum involved in the tear. We may safely assume, therefore, that the implication or non-implication of the serous membrane has nothing whatever to say to this difference. Mr. Goldson, who has the merit of being the first English writer to draw attention to the subject of vaginal lacerations, assigns as a reason of their being less dangerous than uterine lacerations that the delivery of the child is accomplished with so little difficulty. This refers, I presume, to the instances where the child has escaped into the cavity of the belly; of such cases, and of them only, the assertion is strictly correct.

If we look to the comparative importance of the two organs, as indicated by their organization and by the effects of their diseases, especially puerperal diseases, we must at once admit that the uterus stands much higher in the scale than the other.

Again, the changes which are set up in the uterus, immediately on the completion of the act of parturition, are most unfavourable

to the repair of any injury or wound of its structure. A general disintegration and removal of the uterine structure is going forward, attended by a degradation of its tissue. This series of processes has been well described by Dr. C. West, and is looked upon by him as an influential cause of the great mortality following the Cæsarean operation.—*Med. Chir. Trans.*, Vol. XXXIV.

In forming a prognosis upon any individual case the exemption or implication of the peritoneum is a circumstance which, if known to us, should have considerable weight. The cases in which it escapes are extremely rare; and when the tear engages the posterior region of the peri-uterine vagina it is hard to conceive it possible for the serous cavity to avoid being opened. I only know of three cases where the peritoneum was stated not to be involved, and one of these recovered. Dr. Collins gives a case where the rent was situated anteriorly, not involving the peritoneum, and yet the woman died almost immediately upon delivery. We have already seen that in several of the recorded fatal cases of uterine rupture the serous covering of the womb was intact. All these facts would seem to show that whether the peritoneum be engaged or not has comparatively little influence upon the result.

Another important circumstance to take into our consideration, in reference to prognosis, is the amount of hemorrhage. A great source of danger in all these cases is the extravasation of blood into the peritoneal cavity. The experience derived from operations upon the abdomen gives the strongest confirmation to this.* We cannot always know, however, whether any or much blood be effused internally, as the quantity of external discharge is not an infallible index, though supplying ground for probability

Of course the greater the extent of the laceration the greater, *cæteris paribus*, will be the danger.

The severity of the constitutional symptoms immediately supervening on the accident deserves careful consideration in estimating the chances of recovery. A great amount of shock would indicate either an extensive injury, or large effusion, or a highly irritable

* Some surgeons are of opinion that effused blood has not, by itself, an irritating effect upon the serous membrane, but that it is the presence of air along with the blood that does the mischief, by inducing decomposition of the latter. Decisive facts are wanting to clear up this point, as the circumstances under which blood most commonly enters the serous sac will also allow the admission of air. Even should the opinion of these surgeons be confirmed, the statement in the text will not thereby be affected, as in nearly every instance of vaginal laceration there is almost nothing to prevent the admission of air.

state of constitution, rendering the patient a bad subject for any accident or operation. The almost total absence of shock in the two cases of recovery from extensive vaginal laceration recorded by Dr. Ross, of Hamburg, was a very remarkable feature. These two cases occurred in the same woman, in her fourth and fifth labours.

Whether the rent be situated anteriorly or posteriorly does not seem to have any influence upon the result.

The length of time elapsing between the occurrence of the accident and the delivery of the patient is an important element in our calculation. The shorter this interval the better for the patient.

The escape of the child through the rent into the cavity of the belly must be regarded as an aggravating circumstance; and yet Danyau's collection of cases, already alluded to, in all of which it occurred, show good results, namely, four recoveries out of seventeen cases.

I need hardly add that the presence of an unreduced portion of intestine in the vagina would almost deprive the patient of any chance of recovery. In one such case (recorded by M. Percy, and mentioned in Baudelocque) the patient died the third day, with all the symptoms of strangulated hernia. On the other hand, to show us we should never despair, there is the memorable case of Dr. M'Keever's, in which nearly four feet of intestine prolapsed through the rent in the vagina, and eventually sloughed off; and yet this patient recovered.

The train of symptoms, when fully developed, which vaginal laceration produces is nearly the same as that following upon uterine rupture. There is no symptom peculiar to the one or to the other accident, so far as we at present know, and, therefore, no single symptom pathognomonic of either. Nevertheless, as regards the frequency and the prominence of individual symptoms, experience does show a considerable difference between the two lesions.

Before going further I should remark that there are no premonitory symptoms, properly so called, of laceration of the vagina. Of course we might apprehend its occurrence in a patient whom we know to have a diseased vagina, or a narrow outlet, or any osseous projection of the pelvis; and, in any case, the continuance of powerful expulsive pains, without advance of the head, after this had entered the pelvic cavity, should suggest to our mind the possibility of the vagina giving way. If one or other of the above

predisposing circumstances were present in the case the possibility would be changed into a strong probability.

Let us now briefly review the *symptoms* which may follow upon the accident in question. The number and severity of these will, as a general rule, bear a proportion to the extent of the injury and to the constitutional irritability of the patient. The latter has, I believe, the more influence, a great deal, of the two, in the production of any shock as a consequence of the lesion. It is reasonable to suppose that the exemption of the peritoneum from implication in the laceration would tend to lessen or avert the disposition to nervous shock. Certainly in two out of three cases where the peritoneum was not involved there was a total absence of symptoms of collapse Even where the serous membrane is extensively torn there may be comparatively no indication of shock to the system, as in the following case of my own:—

Case I.—A short plethoric woman was admitted, in labour of her first child, in the afternoon of 25th December. The dilatation of the os uteri was not completed for nearly thirty hours; but the second stage was short, and a dead female child was born, by the natural efforts, at 5 a.m. of the 27th. When seen a few hours afterwards, at morning visit, her pulse was observed to be very frequent, but there was no other symptom to arrest attention. At 7 p.m. of same day the pulse had risen to 126, and was extremely weak; the face was rather congested; the tongue dry and coated; the belly full and tympanitic, and extremely tender to pressure; the respiration laboured. The woman was evidently in the most imminent danger. I should remark that she had no vomiting then, or at any time previously since the commencement of her labour. She expired at 8 a.m. of the 28th. There was a good deal of bloody effusion into the abdomen, with marks of incipient peritonitis. In the posterior part of the vagina, just below the os uteri, was an extensive laceration involving all the tissues of the canal, and engaging nearly three-fourths of its circumference. The perineum was torn, and the vulva was rather sloughy.

On the other hand, with no greater amount of injury than occurred in the case just related, the effect on the vital powers may be so overwhelming as speedily to extinguish life, of which the following case (which occurred when I was a pupil at the Lying-in Hospital, in Dr. Charles Johnson's mastership) is a good example:—

Case II. occurred at the hospital in the year 1841. The woman was in her fourth labour, and before admission had been eighteen hours ill. The arm and shoulder were presenting; turning was effected without any unusual difficulty, and a living boy extracted. The patient at once began to sink, and expired in two hours, despite of everything that was done to sustain and rally the vital powers.

At the *post mortem* examination an extensive laceration was discovered in the posterior part of the vagina, and just at its junction with the os uteri.

Doubtless the operation of version here contributed somewhat to the shock under which the patient sank.

Setting aside exceptional cases, then, I think it will hold good as a rule that the symptoms of collapse are not developed so soon, or in such a marked manner, after vaginal laceration as they are after uterine rupture. I only speak of what occurs at the outset. Of course, with the lapse of time, and if the woman be not delivered, it is to be expected that marked indications of depression of the vital powers will present themselves. Thus, in the following case there was an interval of nearly seven hours from the occurrence of the laceration until the woman was brought into the hospital, which is sufficient to account for the symptoms of prostration being so decided at the time of my seeing her:—

Case III.—This woman fell in labour of her fourth child on the 22nd October, 1859. Early in the morning of the 23rd she was seen by a pupil, who, finding her case dangerous, and her circumstances the most wretched that can well be conceived, brought her off to the hospital in a car. I first saw her at 8 a.m.; she was then in a state bordering on collapse, with a scarcely perceptible pulse, cold surface, pinched face, some vomiting, and slight red discharge from the vagina. She complained of great pain in the lower belly, with extreme tenderness on pressure; and she said that the labour pains had suddenly ceased between 1 and 2 o'clock, a.m., since when the soreness of the belly had come on. The fetal heart was nowhere audible; the head had partially descended into the pelvis, and lay transversely, midway, in fact, between the third and second positions. The proper uterine tumour, hard and defined, could be felt at the level of the umbilicus; above and behind it a movable tumour could just be distinguished, which I took for granted was part of the fetus; but I could not minutely examine it owing to

the extreme tenderness of the abdomen. There had been some vomiting before her admission to the hospital. I delivered by perforation; the child, a girl, was evidently dead for some hours. The placenta came away immediately, with slight traction of the cord. She was very weak after delivery, but rallied in the course of a few hours, under the diligent use of restoratives. Vomiting and debility were the prominent symptoms during the four days that she survived.

Autopsy.—Extensive peritonitis, with large quantities of lymph; uterus pretty well contracted; the vagina separated from its uterine attachment, posteriorly, by a large transverse rent about four inches long; the conjugate diameter of the brim measured three inches and three-quarters.

I have no doubt whatever it was the fetal buttock or lower extremities that we felt before delivery, above and behind the uterus, as the same has been noted by other observers in cases where, as here, the head was still in the pelvis. Bearing in mind the position of the rent, I confess I cannot clearly comprehend how the trunk of the child gets out of the uterus into the abdomen, its head remaining all the while in the pelvis. To pass through the rent head-foremost would be intelligible enough; but in the cases I speak of the head does not change its position, or is the last part to recede out of the genital canal.

By some it is supposed that the severity of the constitutional shock depends on the amount of hemorrhage resulting from the laceration. Though I would not altogether exclude hemorrhage from having some effect this way, yet hemorrhage in any considerable quantity is rarely present; and, besides, both analogy and experience justify us in considering that its influence must be comparatively very small.

Vomiting is by no means constantly present in vaginal laceration, and the matter ejected very rarely possesses the coffee-grounds character. This latter character was wanting in each of my cases. Nevertheless vomiting is a symptom whose appearance in the second stage of labour should always put the attendant on his guard, and awaken a suspicion of rupture somewhere.

The same may be said of *hemorrhage* coming on after the woman has entered the second stage of her labour. When the consequence of rupture the sanguineous discharge is seldom profuse, or sufficient to occasion, by its quantity merely, any alarm for the safety of the

patient. It is a symptom pretty generally present in ruptures, and more so, perhaps, in vaginal than in uterine ones. The contrary to this might have been expected from the greater size and number of the uterine vessels. But the vagina is surrounded by a venous network, capable of yielding blood for a considerable time, in consequence of the entire absence of valves, and of any special arrangement (such as the uterus possesses) for compression of the bleeding vessels.

More or less complete *cessation of the labour pains* occurs in most instances of lacerated vagina. In a few, however, the uterus continues to act, assisting the removal of the fetus, or even effecting its expulsion as well as that of the placenta. This actually took place in four out of the fifty-one cases which I have tabulated. One of these occurred under my own observation, and was the first case I related; another occurred to Dr. Collins; a third is recorded by Dr. Ingleby, and a fourth happened in the practice of Smellie. The very fact of the escape of the fetus through the laceration—an occurrence very far from uncommon—supposes the presence of uterine contractions of moderate strength, at all events.

Case IV.—This was a large stout woman, in her second labour. The os uteri was fully dilated, and the membranes ruptured, about midnight, after which time the uterine contractions became very strong and frequent, and she herself was restless and unmanageable. When I saw her, at 9.30 a.m., the pulse was 112; there was a large tumour on the head, which had descended into the pelvis, but not entirely, and was firmly wedged there; the pains were apparently most powerful, but making no impression whatever on the fetal head; she was very restless, and the sides of the belly were tympanitic. The most careful auscultation failed to detect any trace of the fetal heart.

I felt that she should be delivered without delay, though I freely confess I did not suspect the existence of any laceration.

After perforation the head was brought away without difficulty; the child, a boy. On dividing the cord the blood contained in it was found to be coagulated. The pulse continued frequent from the time of delivery, and the same evening she complained of pain in the belly, which was full and tender. At seven o'clock of the next morning, after a restless night, she suddenly began to sink, and expired within an hour.

Autopsy.—Well-marked peritonitis, with lymphy exudation;

serous and sanguineous effusion in the lower belly; in the posterior and left side of the vagina, rather low down, and freely communicating with the peritoneal cavity, was an extensive laceration. The pelvis appeared of normal size.

This case was remarkable, first, for the absence of all the characteristic symptoms of laceration; and, second, for the sudden and unexpected manner of her death.

I have related the case chiefly to show that the pains may go on after the occurrence of a vaginal laceration; but it also illustrates the difficulties which occasionally beset the diagnosis of the lesion in question. In this respect the case bears a strong resemblance to the first one detailed.

Contrary to the opinion of Churchill and some other authors, *recession* of the presenting part does take place, slightly, in the greater number of cases of vaginal laceration, and totally in those cases where the fetus slips into the sac of the peritoneum. This last symptom (the escape of fetus into belly) is much less rare in vaginal than in uterine lacerations. For this two reasons may be assigned—first, the continuance of uterine contractions, and second, the uncontracted patulous state of the rent in the vagina. The same reasons will serve to explain why the placenta on some occasions follows the child into the abdominal cavity.

Where the fetus has partially or entirely escaped out of the uterus and into the belly, its limbs and body are readily distinguishable through the abdominal parietes, unless these be enormously loaded with fat, or the belly become very tender. Sometimes the contracted uterus may, by the same mode of examination, be felt and recognized with great ease. Short of feeling the laceration itself, there is no more demonstrative proof of its existence than the symptoms just mentioned. But it is only within a limited, though variable, period that the child can be thus distinctly recognized. In the course of a few hours the belly becomes swollen, and tense, and tender, and the patient connot tolerate any manipulation of the part. Under these circumstances it would be very difficult, or impossible, to discern the limbs of the extra-uterine fetus.

Prolapse through the laceration, of intestine or omentum, into the vagina, or even its protrusion externally beyond the vulva, is not an unfrequent complication of lacerations of this canal, though an extremely rare consequence of ruptures of the fundus or body of the uterus. This may, in great measure, be accounted for by the

uncontracted state and thin edges of the vaginal laceration. Of the fifty-one cases I have collected of vaginal laceration, there was a hernia of the intestine or omentum in *eleven*. This hernia in *two* instances actually occurred before the removal of the fetus; and in *one* most remarkable case (that recorded by Dr. M'Keever) it took place on the fourth day after delivery.

The position of the intestines above and behind the gravid uterus prepares us for what experience shows to be the fact, namely, that the prolapse of intestine is more apt to take place when the laceration is situated in the posterior wall of the vagina, though it has occurred when the rent was in front.

Cessation of the fetal heart's sounds—a useful corroborative sign of rupture of the uterus, and one to which I particularly drew attention many years ago[a]—would seem to be of equal value in ruptures of the vagina; for, of twenty children delivered naturally or by non-destructive operations, after laceration of the vagina, only one was born living. But this instance proves nothing, as the child was delivered by the very act—turning—which tore the vagina; so that the interval between the two events, viz., the laceration and delivery, could have been only a few moments. I think it very probable, however, from the lesser intensity of the symptoms in laceration of the vagina, that the death of the fetus does not supervene quite so soon as after rupture of the uterus. Unfortunately facts are still wanting to enable us to determine this important and interesting point.

Subcutaneous emphysema of the lower belly is a rare, but, when present, a reliable symptom of ruptured uterus.[b] I cannot say whether it ever takes place after vaginal laceration. I have not myself met with it, nor seen any mention of it in published cases; and I am disposed to think, for anatomical reasons, that it is much less likely to follow vaginal than uterine ruptures.

We now come to speak of the *treatment* of laceration of the

[a] See a "Memoir on the Use of Auscultation in the Treatment of Labours," published in Vol. iv. of this Journal (August, 1847).

[b] The first time, I believe, that emphysema of the hypogastrium was observed as a symptom of rupture of the uterus was in a case which fell under my care at the Lying-in Hospital, in the month of August, 1855, and of which an account was published in the number of this Journal for November, 1857, page 450. Since then the presence of this symptom has been observed by others. Dr. H. G. Croly, of this city, has published a remarkable case of laceration of the bladder, from fracture of the pubis, in which, reasoning from analogy, he was led by the presence of this symptom, and this only, to diagnose the fatal injury to the viscus. The accuracy of the diagnosis was verified at the *autopsy*.—*Vide* Medical Press for March 9, 1859.

vagina, and I venture to affirm that if there be a point of practice on which medical men are unanimously agreed it is this, that immediate delivery should be resorted to once it is ascertained, beyond a doubt, that the vagina or the uterus has been lacerated in the progress of labour. This may be laid down, then, as an incontrovertible axiom. The only conceivable exception to it is where the patient happens to be so prostrated as to seem unable to bear the shock of immediate delivery; here it might be necessary to delay the performance of the operation for a short while, till she was somewhat recruited by the administration of stimulants.

There are four ways by which delivery has been effected in the class of cases before us, namely, the forceps, the crotchet, version, and gastrotomy. Upon each of these I shall offer a few, and only a few, remarks.

If the child have escaped into the abdomen, or if the head have receded out of the pelvis, the use of the forceps is impracticable. Even in the more numerous class of cases where the head remains still in the pelvis, the forceps is rarely the most judicious mode of delivery, for this reason, that there often exists some disproportion between the head and the pelvis; and also because, as we have already seen, the fetus rarely, if ever, survives the laceration for many minutes. Where proof is afforded of the child's actually being dead, the forceps should never, in this or any other class of cases, be preferred to the crotchet as a means of delivery, inasmuch as the latter (crotchet) is the safer mode for the mother.[a] Among my cases of laceration of the vagina was one delivered by the forceps, not on account of the laceration, whose existence, indeed, was not suspected at the time, but for convulsions:—

[a] I am anxious to guard against the above observation being misunderstood, or its application carried too far. What I contend for is, that delivery by the crotchet is, *cæteris paribus*, a safer operation for the mother than delivery by the forceps; and I am fully convinced that reason, experience, and statistics rightly used, all concur in establishing this position. It is of great practical importance to have this question clearly determined, in order to guide us as to the mode of delivery in all those cases—and they form a numerous group—in which the fetus is dead.

In thus claiming for this operation almost the only merit which belongs to it, let it not be supposed that I am undervaluing the forceps. Quite the reverse. Craniotomy should never be an operation of *election* if the fetus be living. Any evidence of the child's vitality introduces into our calculations a new element which forbids all comparison between the crotchet and the forceps, and renders the former wholly inadmissible, except as a last alternative, and when no other resource is left us of saving the life of the patient. Here it truly is an operation of *necessity*.

Case V.—This was a large robust woman, in labour of her first child, and admitted at 4 p.m. At 7.30 the head was descending in the pelvis and the fetal heart was audible, but there was occasional vomiting. At 10 p.m. a severe convulsive fit occurred, whereupon she was immediately chloroformed, and delivered by the forceps of a dead male child. I was not present at the delivery, but I believe it was effected with ease. There was some post-partum hemorrhage, and at eleven o'clock she had a second fit. The next morning she was heavy and stupid, with a slender weak pulse, and frequent sickness of stomach. The existence of a small thrombus was discovered in the left nympha. At 5 p.m. of this day she had a third fit. She regained intelligence, but died on the fifth day, with obscure symptoms of metro-peritonitis. Curious to say, her pulse was never above 110, and the day she died it was only 88. She could not be persuaded to take the stimulants which were ordered for her.

The *autopsy* revealed peritonitis, and a sloughy condition of the interior of the uterus, which contained a portion of the membranes in a fetid state. An irregular aperture was found in the vagina, very low down, towards the right side, and rather behind. This rent did not communicate with the peritoneum

It may be supposed that the laceration here was caused by the forceps. I do not think so, however, and for the following reasons:—

1. The patient had vomiting in the second stage of labour.
2. The child was quite dead at birth, though ascertained to be living two and a-half hours previously.
3. The laceration was not situated in the place most likely to be torn by the unskilful use of the forceps.
4. The operator was not a novice, but one accustomed to the use of the instrument.

This is the only case I have met with where the peritoneum did not participate in the laceration. Of the two very grave accidents which complicated her labour, namely, convulsions and lacerated vagina, the former had the greater share, I think, in causing her death. In one of Collins' cases, also, the same double complication occurred in a primipara, and with a like result.

Whilst speaking on the use of the forceps I must beg leave to give the particulars of another case, as it helps to illustrate this part of my subject.

Case VI.—A woman was admitted at midnight, in labour of her eighth child. At 6 a.m. the os uteri was fully dilated and the pains regular. About seven o'clock there was a cessation of the labour pains, and a short time afterwards she vomited. As she did not make any complaint these symptoms attracted no particular attention, till she was seen at nine o'clock by Dr. Jennings, then senior assistant, who at once suspected that some laceration had taken place. Her pulse was now rapid and weak; there was vomiting, and some discharge of blood from the vagina; the fetal heart was wholly inaudible; there were no labour pains present, and the limbs of the child could be felt in the abdomen; the head was in the pelvic cavity. Being myself from home, Dr. Shekleton saw this patient, and at once proceeded to deliver her with the forceps, but in the attempt to do so the head receded quite out of reach; whereupon he introduced his hand, and extracted the child by turning: the placenta soon followed, and there was no hemorrhage. She was very slow in rallying, and was greatly annoyed with vomiting and meteorismus during the next three days. On the fourth day the belly was very much distended, and an enema was given in the hope of lessening this tympanitis. The bowels were acted upon by the enema, and at the same time a large quantity of grumous blood was discharged from the vagina. She died on the fifth day.

At the *autopsy* we found peritonitis, and much extravasated blood in the belly; the uterus was well contracted; there was an extensive laceration in the upper and posterior part of the vagina; this was rather to the left side, and took a somewhat oblique direction, so as to engage the os uteri in a slight degree; the pelvis was well formed, and there was no trace of any pre-existing disease of the vagina

The crotchet has, mechanically speaking, a wider range of applicability than the forceps; and, for reasons already assigned, is more frequently to be preferred in the cases under consideration. The introduction of the perforator requires some caution, else the head may be pushed out of the pelvis, which would probably necessitate delivery by turning. To avoid this we should, if possible, select a fontanelle where but little force would be required to penetrate, or fix the point of the instrument on a spot of the head as near to the side of the pelvis as possible, so that the opposite side may form a point of resistance. A slight curve in the extremity

of the perforator will here be of assistance to us in avoiding upward pressure.

If neither the forceps nor the crotchet be deemed capable of effecting delivery our next alternative is *turning*. The particular circumstance which generally obliges us to resort to this mode of delivery is the partial or complete recession of the child out of the vagina. Should the entire fetus have passed into the belly, it may still be followed by the hand, and extracted without any great difficulty, though much care is requisite to avoid drawing down along with it some of the intestine or omentum. This caution is the more needful if the rent be situated in the posterior part of the vagina. Though several hours may have elapsed from the moment of the laceration we are not, on this account, to be deterred from pursuing the fetus with the hand, and endeavouring to withdraw it through the rent, as such a proceeding is not only warrantable but generally quite feasible.

For example, in a case of my own there was an interval of four hours between the occurrence of the accident and the performance of turning; in Mr. Ross' case there was a like interval (this patient recovered, moreover); in a case of Collins' the interval was twelve hours; and in Mr. Goldson's case it reached to twenty-six hours; yet in none of these instances was difficulty experienced in seizing and bringing down the fetus out of the peritoneal cavity and through the vaginal laceration. Where the child has slipped into the belly, through a rupture exclusively confined to the uterine structure, the same facility in turning is not to be expected, because with the contraction of the womb the rupture will undergo a proportionate diminution in its size.

Baudelocque, with his accustomed shrewdness, has noticed this practical difference between uterine and vaginal lacerations; and certainly the point is one well deserving of attention.

If the child have been so many hours in the belly that its extraction *per vias naturales* is impossible, or possible only by doing great violence to the soft structures, then the easier and less dangerous course would be to remove the child by gastrotomy; or, even though no unreasonable length of time had elapsed since the recession of the fetus into the peritoneal cavity, yet if the patient had a contracted pelvis, and was come to the full time, I am convinced it would be giving her a better chance of recovery to withdraw the fetus by the abdominal section than to subject her to the tedious and troublesome business of delivering it according to

the ordinary method of turning. In giving this qualified sanction to gastrotomy I am justified by the numerous recoveries which have followed the operation when performed for rupture of the uterus; in fact a larger proportion of cures have resulted from this than from any other mode of delivery; and I cannot suppose it would be less successful after laceration of the vagina, though I am sure it would not be so often necessary.

Two successful cases of gastrotomy, after rupture of the uterus or vagina, have been recently published—one by Dr. Dyer (*British Medical Journal* for September 9, 1865), where the interval between the occurrence of the rupture and the extraction of the child was four hours and a-half; and in the other case, related by Dr. Crighton (*Edinburgh Medical Journal*, 1864), the interval was fourteen hours. In neither case was there any attempt made to withdraw the child by turning.*

Dr. Murphy strongly advocates gastrotomy in all cases of rupture where the child has escaped into the belly; but I cannot altogether agree with him that "when the child is in the cavity of the abdomen, forced thither by the uterus or by the hand of the practitioner, the only operation that appears to give a reasonable chance of success is gastrotomy." This opinion may hold good if there be pelvic deformity, or if the seat of rupture be the body or fundus of the uterus; but it is not tenable, I think, if the rupture be in the vagina or os uteri, and that the pelvic capacity is unabridged.

I have before remarked that the placenta sometimes follows the child through the vaginal rent into the general cavity of the abdomen. Where this has occurred its artificial extraction should be effected immediately after that of the child. In doing this the excellent rule of following the cord as our guide to the placenta should be implicitly attended to. On the other hand, if the placenta remain still in utero, we may ordinarily wait for ten or fifteen minutes, to allow time for the natural efforts to expel it. Should

* A deeply interesting question here suggests itself. The recoveries after gastrotomy (for ruptured uterus or vagina) greatly exceed the recoveries from Cesarean section, which is quite contrary to what we might, *à priori*, have supposed. How is this difference to be explained? The gastrotomy group of cases, as a whole, probably possessed somewhat better constitutions; but surely this is not sufficient. Herein, I think, lies the cause of difference—the situation and direction of the artificial opening in the genital canal. In the one category the opening is longitudinal, and is situated in the fundus and body of the uterus; in the other category it is circular or oblique, and occupies the vagina or neck of the womb.

it not then come away, however, and that gentle pressure on the uterus, with traction of the cord, fails to dislodge it, our best course, I believe, is at once to set about extracting it manually. It may be worth while remarking that I have never but once found it necessary, in any case of ruptured uterus or vagina, to pass the hand into the uterine cavity for the purpose of removing the after-birth; but I can readily understand that such an operation will require extreme care and gentleness in its performance, if we would avoid increasing the damage that the soft parts have already sustained.

The placenta having come away, we can now ascertain, if we have not already done so, the exact situation and extent of the laceration. At the same time we should make sure that no portion of gut has prolapsed through the rent. We should next endeavour to place the edges of the laceration as accurately in contact as can be done under the circumstances.

It can scarcely be doubted but that the permanent retaining of the torn parts in apposition would conduce to the chances of the patient's recovery; and, with the proper instruments, I really think there could not be any great difficulty (the vagina being so relaxed and capacious) in making two or three—not more—stitches with wire suture, just to hold the edges of the laceration together.[a]

Of course, I fully concede that the circumstances under which this accident commonly occurs are such as to preclude the possibility of attempting this. But I need not remind you that our object should be to find out what is the utmost art can do to remedy this accident; and, knowing this, our endeavour should be to carry it out in practice as far as circumstances will admit.

[a] Dr. Marion Sims relates (in his "Clinical Notes on Uterine Surgery") two cases which have a close bearing on the subject before us, as in each the peritoneal cavity was opened during operations upon the uterus. In one case the opening was through the cervix, and "would easily have admitted the passage of three fingers at a time into the peritoneal cavity" (p. 133). In the other case the chain of the écraseur made "an immense hole of a semilunar form, in the *cul-de-sac* of the vagina, through which we could look for three or four inches up into the peritoneal cavity, and observe the movements of the viscera with every respiratory act" (*op. cit.*, p. 207). Now, in each of these instances he closed the opening by bringing the edges together with metallic sutures, with as little delay as possible, and *both patients recovered*. In the former case he carefully removed, by means of sponge probangs, the blood which had forced its way into the cavity of the peritoneum, and closed the wound completely by five or six points of suture.—This woman "recovered rapidly." In cases of lacerated vagina or cervix I do not see why the same means should not be used to remove the blood which may have got into the serous cavity, and whose presence there must exercise a pernicious influence.

The soundness of the principle on which the above suggestion is based can hardly be disputed. Whenever a serous cavity is penetrated, whether accidentally or intentionally, is not the first step towards effecting a cure to carefully close the unnatural opening, and by union of the wound to permanently seal up the cavity again?

The passing of the sutures could not occupy many minutes, neither could this proceeding add to the existing dangers. Practically, the only difficulty I see in the way of carrying out the suggestion, supposing we have the necessary instruments at hand, is how to command a sufficiency of light, as of course the patient cannot be moved; but this difficulty is not one of an insuperable kind.

The exhibition of stimulants is usually needful during and immediately after delivery; nor can we safely suspend their use until decided symptoms of reaction begin to show themselves.

The subsequent treatment it is needless for me to describe, as it is essentially the same as that required in rupture of the uterus. The main points to be attended to, I think, are these, viz.:—

1. To enjoin absolute quietude of body. The urine should be drawn off with the catheter, to save the disturbance which the use of the bed-pan would cause.

2. The opium treatment should be fully carried out.

3. Nourishment, in the form of beef-tea, strong mutton-tea, or chicken-tea, should be given in small quantities, and at short intervals.

4. If the symptoms of peritoneal inflammation become developed, I would apply leeches over the seat of the greatest tenderness, in numbers proportionate to the patient's strength; and would employ mercury externally and, with due care, internally.

5. The utmost caution and reserve should be used with regard to purgative medicine. Some days should be allowed to pass before any attempt be made to procure an evacuation from the bowels.

Where a patient escapes the more immediate dangers arising from the nervous shock, and from peritoneal inflammation, there is, at a later period, yet another danger to which she is exposed, and that is pelvic abscess, behind or to either side of the uterus, and in connexion with the injured structures.[a] I do not know whether

[a] This danger seems to have entirely escaped the notice of systematic writers upon lacerations of the uterus and vagina. Nevertheless a careful perusal of the clinical records of this accident will serve to convince one of its existence.

this result ever follows ruptures of the uterus. All the examples I have found of it were cases of laceration of the vagina; and I can well suppose that it would not be at all so likely to supervene upon a rupture of the fundus or body of the uterus. In some, if not in most instances, we may attribute this abscess to the entrance of blood and air into the peritoneal sac; whereupon, as happens in certain exceptional cases of idiopathic pelvic hematocele, the cyst which forms around the effused blood takes on suppurative action. In the idiopathic or spontaneous pelvic hematocele suppuration is extremely rare; whereas in the traumatic pelvic hematocele, that, namely, which results from vaginal laceration, suppuration is not uncommon, and is to be accounted for partly by the presence of the rent in the vagina, and partly by the presence of atmospheric air along with the extravasated blood.

Pelvic abscess formed in three of Collins' cases of laceration of the vagina. One of these cases recovered and two died, and in each of these it was ascertained at the *necropsy* that the psoas muscle was more or less involved in the abscess. One patient died on the sixth and the other on the twenty-sixth day. When I was an assistant at the Lying-in Hospital I saw a patient who, on the forty-second day after a rupture of the vagina or cervix, died in consequence of an extensive abscess at the left side of the pelvis, extending upwards to nearly as high as the origin of the psoas muscle.

A recovery from laceration of the vagina and cervix occurred under my own care, at the Lying-in Hospital, in 1860, the details of which Dr. Byrne read to the society; and in this instance a very offensive puriform discharge was observed flowing from the vagina on the twelfth and succeeding days.*

A case is related by Collins which clearly shows the possibility of internal secondary hemorrhage occurring. The laceration was situated "anteriorly, at the union of the uterus and vagina." The woman sank on the ninth day, and at the *autopsy* the immediate cause of her death was found to be hemorrhage into the abdominal cavity. A slight discharge of blood from the vagina had shown itself some hours before dissolution.

In my sixth case (already related) it may be remembered that on

* I have not included this case amongst the examples of laceration of the vagina as the full extent of the tear was not ascertained, although it is certain the vagina was chiefly, if not exclusively, implicated.—See Dr. Byrne's report of the case in Vol. xxxiii. of this Journal.

the fourth day, after a movement of the bowels, produced by the enema, a considerable quantity of grumous blood was discharged from the vagina. This, I have no doubt, came from the peritoneal cavity, as a great deal of the like fluid was found in it after death. Most probably, however, all this blood had been extravasated a short time subsequently to the laceration. Although not exactly in point, still the clinical fact is worthy of note.

I shall now briefly recapitulate the principal points in respect to which laceration of the vagina or os uteri seems to differ, at all events in some degree, from rupture of the cervix or body of the uterus:—

1. Premonitory symptoms are very rare.

2. The immediate constitutional effect of laceration of the vagina is not, on the whole, so profound as that arising from rupture of the uterus.

3. Vomiting is occasionally a symptom of the accident, but it is not of the *coffee-grounds* character.

4. The laceration is very rarely, if ever, induced by deformity of the pelvic brim.

5. The head is commonly engaged in the pelvis at the time the laceration occurs.

6. The tear can in no way be attributed to contractions of the structure directly involved.

7. The laceration almost always takes a circular direction, and

8. Remains patulous, or at least shows very little disposition to contract.

9. The escape of the fetus into the peritoneal cavity follows more frequently upon vaginal laceration than upon uterine rupture.

10. The escape of the placenta, likewise, through the laceration is more apt to take place here than in ruptures of the uterus.

11. Prolapse of the intestine, also, is a less rare complication of vaginal laceration than of uterine rupture.

12. The operation of turning is found to be practicable for a longer period after laceration of the vagina than of the uterus.

The four preceding characteristics (Nos. 9, 10, 11, 12) naturally result from the peculiarity stated in No. 8, which belongs to lacerations of the vagina or os uteri.

13. There is a greater liability to pelvic abscess after vaginal laceration; and this we may, in some degree, attribute to the greater likelihood of atmospheric air entering the belly through the solution of continuity in the vaginal canal.

14. Lastly, a comparison of the mortality of these two lesions clearly proves that vaginal laceration is a much less fatal accident than uterine rupture.[a]