Papers on the female perineum, etc / by J. Matthews Duncan.

PAPERS

ON THE

FEMALE PERINEUM,

ETC.

BY

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TO

MY COLLEAGUES

IN

SAINT BARTHOLOMEW'S HOSPITAL,

IN RECOGNITION OF

THE KINDNESS OF THEIR RECEPTION

IN

1877.

PREFACE.

SINCE the papers which form the chief part of this work were originally published, the author has undergone a somewhat sudden, and entirely unexpected translation from Edinburgh, and its Infirmary and Maternity Hospital, to London and to St. Bartholomew's Hospital. Although his position and occupations in London are nearly identical with those he enjoyed in Edinburgh, yet the difference has been enough to entail some change in his plans. He contemplated a series of papers which, when collected, might have formed a nearly complete work on the subject which is only fragmentarily treated in this little volume; and he publishes it now as it stands, while it retains its freshness for himself, because he foresees for his spare hours full employment for a long time in a somewhat different gynæcological line of work.

The following references show when most of the chapters of this book made their appearance, before being furbished up for their present places.

"Remarks on the inevitable and other lacerations of the orifice of the vagina and near it, in primiparæ": *Edinburgh Medical Journal*, March, 1876.

"On the lacerations of the external genital organs (except the hymen) during labour in primiparæ": *The Obstetrical Journal of Great Britain and Ireland*, January, 1877.

"On central rupture of the perineum": *Gynæcological Transactions*, vol. i. 1876.

"On rupture of the perineum, and especially in the division of the perineum and recto-vaginal septum by post-partum sloughing": *Edinburgh Medical Journal*, April, 1876.

"On some of the relations of the fœtal head to rupture of the perineum, and injuries of the external genital organs": *Edinburgh Medical Journal*, February, 1877.

"Procidentia of the pelvic viscera": *Edinburgh Medical Journal*, January, 1872.

"Case of procidentia uteri": *Edinburgh Medical Journal*, July, 1877.

"The function of the perineum in procidentia uteri": *Edinburgh Medical Journal*, February, 1871.

"The restoration of the perineum": *Edinburgh Medical Journal*, November, 1871.

I have to express my sense of obligation to Dr. Clement Godson for the trouble he has taken in giving me valuable assistance in passing the work through the press.

71, Brook Street,
December, 1878.

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PAPERS

ON

THE FEMALE PERINEUM.

CHAPTER I.

Distinction of vaginal from vulvar orifice.—Remarks on the anatomy of the external parts.—Inevitable laceration of vaginal orifice in primiparæ.—Description of vulvar orifice.——Time of occurrence of ruptures.—Description of the inevitable laceration in primiparæ.—Causation of rupture.—Prevention of rupture.—Rare case.

THE orifice of the vagina and the obstetrical perineum, whose anterior edge or fourchette forms part of the vulvar orifice, have no direct connexion. Between them, that is, between the fourchette and the vaginal orifice, is interposed the fossa navicularis. The orifice of the vagina I believe to be invariably injured in the natural labour of a primipara. At least, I have never seen it otherwise. The perineum, or its anterior edge, the fourchette, or, in other words, the posterior margin of the vulvar orifice, frequently escapes laceration, as the sequel will show.

Priestley* has pointed out carefully the distinction between the fourchette and the orifice of the vagina, and notices the frequent laceration of the latter in primiparæ. He considers the vaginal orifice as offering more resistance to the exit of the fœtus than the fourchette or posterior part of what I shall describe as the vulvar orifice. But I find no evidence of this; the facts proving only that the vaginal orifice is less distensible than the fourchette, both being justly supposed to be subjected to nearly, if not exactly, the same influences, tending to produce injury. Observing at the bedside, I find the vaginal orifice tear posteriorly, in the manner afterwards described, without much suffering to the patient. The examiner's finger can detect this yielding long before the more powerfully resisting, or at least longer resisting, fourchette is passed over by the advancing fœtal head.

It is not only anatomically that the orifices of the vagina and vulva are distinct from the perineum; they ought to be distinguished practically. When the head is on the perineum, or has just passed beyond the outlet of the ligamentous pelvis —"out of the bones," as I have heard midwives call it—it is generally described as retained by a rigid perineum. But this description is plainly often

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* *Medical Times and Gazette*, March 13, 1858, p. 262.

inaccurate, for the perineum has yielded as much as can be expected or wished of it, and yet the head is not born. This condition is seen almost exclusively in primiparæ, and it is the orifice of the vagina or of the vulva, not the perineum, that is indilatable or rigid. In such cases the birth is often completed without injury of the perineum, the frænulum or fourchette remaining entire. When the indilatability of the orifice and lowest part of the vagina is great, and demands interference by the practitioner before the head has descended so far as to be amenable to pressure on the glabella, the forceps is applied; and, under such circumstances, I have often delivered without any injury of the perineum resulting, though certainly not without any injury of the orifice of the vagina.

Errors in the common descriptive anatomy of the vulva are so common, even in books of the highest repute, that, were there no other reason, it would be necessary here to give an account of it, so far as my present subject demands; and, in doing so, the errors referred to will be made plain enough.

In the primipara, and it is her exclusively that we here describe, the orifice of the vagina is easily made out by observing the hymen (Fig. 1, *m*), as it presents, more or less injured by sexual connexion. The outer or larger margin of the hymen or its margin of insertion is the exact limit of the

vagina, the margin of the vaginal orifice (Fig. 1, *e, e, e, e, e, e*). Near to the anterior or upper margin of the orifice is the urethra (Fig. 1, *a*).* At the sides of the orifice are the lower ends of the nymphæ, but there is quite a considerable interval between them and the vaginal orifice. Remote from the nymphæ, and closely adjoining the posterior margin of the vaginal orifice, are the openings of the glands of Duverney or Cowper (Fig. 1, *d, d*). These openings are in the fossa navicularis. This is a boat-shaped cavity (Fig. 1, *b*), lying between the orifice of the vagina and the fourchette or anterior marginal portion of the perineum. This cavity has really no shape; or rather it has that which is given it when it is examined by separating the labia majora, as in Fig. 1. Then, it is boat-shaped or navicular, and is big enough to admit the point of the little finger. The labia majora are not united posteriorly. They form separate piers (Fig. 1, *f, f*), parallel to and touching one another, and ending somewhat abruptly, their points looking posteriorly. They are connected by the perineum (Fig. 1, *h, h*), which forms their posterior commissure, and whose anterior margin (Fig. 1, *c*) is called frænulum, or more frequently fourchette. The perineum is described as extend-

* On this point see some criticisms by H. O. Hyatt. *American Journal of Obstetrics*, April 1877, p. 253.

ing from the fourchette to the anus (Fig. 1, *g*), and it has its central raphé.

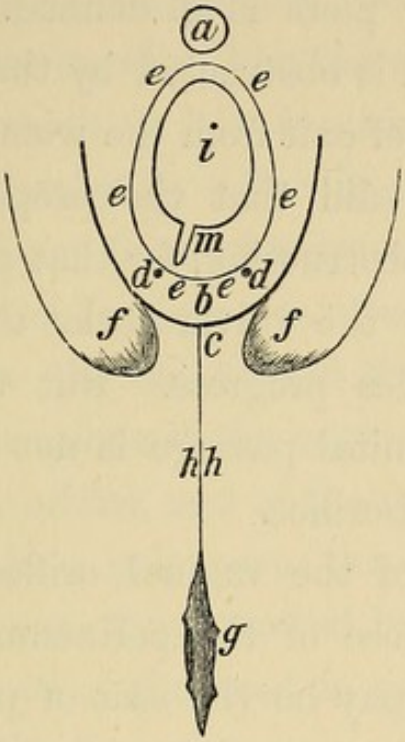

Fig. 1.

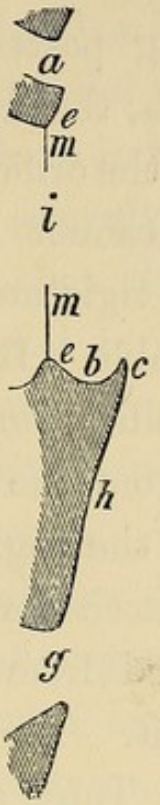

Fig. 2.

Fig. 2 is a plan of a vertical section in a sagittal plane, in which the lettering is as in Fig. 1. It is intended to make the description of these parts more clear.

After a natural labour the pudenda lose their characteristic appearances. The hymen is partially or completely destroyed. If the orifices of the ducts of Duverney's glands are not discoverable, it is impossible to say exactly where any part of the vaginal orifice is, except when distinct remains of hymen are seen. The distinction of the fourchette or posterior margin of the vulvar outlet

from the margin of the vaginal orifice cannot now be often made with any exactness. The labia majora have shrivelled, and the position of their projecting posterior piers is ill defined. If, in a multipara, the head is obstructed by the indilatability of the orifices of exit from the woman's body, then it cannot be said that the proper vaginal orifice is rigid and obstructing, for that part is not recognisable. It is the vulvar outlet that, by its indilatability, impedes progress. But the vulvar outlet from the genital passage is not the same thing as the vaginal orifice.

The lacerations of the vaginal orifice, as distinguished from those of the perineum, are very important. They may be the seat of pyæmic infection. Those of the posterior part of the vaginal orifice may be the commencement of greater lacerations; and they may be not only the commencement, but also predisposing causes of further laceration.

The lacerations of the vaginal orifice are not only to be distinguished from those of the perineum, but also from the other lacerations of the vagina. These are splits of the vaginal tissues of greater or less depth. They often are quite distinct from the upper vaginal lacerations connected with laceration of the cervix uteri, just as they are distinct from the lower vaginal lacerations connected with the vaginal orifice. They are produced by over-disten-

sion of the canal, and, as might be expected, are longitudinal in direction.

It would appear that, in the Darwinian progress of the species, the head of the fœtus has increased in size more rapidly than the orifices and passages, through which it has to come, have increased in size or dilatability. For it can scarcely be supposed to be a final arrangement that the cervix uteri should be torn so often as it is in giving passage to the child; and the same may be said of the lacerations of the vagina, the vaginal orifice, the vulvar orifice, and of the perineum.

When, in a primipara, the head has distended the perineum, it is arrested by the vaginal orifice. During a pain, the head is propelled against the orifice in the line of its axis, or nearly so. A part of it acts on the orifice as a wedge projecting through it, and helping to dilate or distend it, or to burst it. If the orifice is unyielding, the pains push it as a whole more and more forwards, and, among other consequences of this, there is great elongation of the perineum. All parts of the circle are pushed forwards, but the curvature of the passage leads to the posterior part being farthest projected forwards.

Similar statements may be made regarding the vulvar orifice.

In this condition of matters, it is not one part of the orifice that is stretched, but the whole of it;

and, considering the shape of the fœtal head, it is at every point probably not equally, but nearly equally, stretched. The force tending to tear it, is acting nearly uniformly at all points of the circumference of the orifice. The condition of parts may be imitated by pushing a four-inch globe through a circular orifice of a considerably less diameter, in a sheet of indiarubber. The sides of the orifice are stretched in a longitudinal or antero-posterior direction, while they are distended in a circular direction or at right angles to the longitudinal tension.

In this crisis, the distended orifice of the vagina in the primipara does not yield, at the same time retaining its entirety. It yields, and at the same time is lacerated; and I know of nothing that can modify the tearing, unless such delay as may insure all the dilatation possible before laceration commences; and such modification of the direction of the propelling pressure as may perhaps diminish the laceration of the posterior parts. When laceration has begun, further enlargement of the orifice is comparatively easily attained by further laceration. Whatever other laceration takes place, there is some at or near the mesial line posteriorly. As I have already said, I have often seen primiparæ delivered, and even by forceps, without any perineal laceration, the fourchette being entire; but I have never, in such a case, separated the labia and

examined the vaginal orifice without finding a laceration of its posterior part.

It is quite common to hear assertions of the complete absence of laceration in primiparæ, but I have never been satisfied that, in the cases referred to, a sufficiently careful examination has been made. To do it, one requires a good light, an assistant, and a sponge.

It is scarcely necessary to remark, that the laceration of the vaginal orifice is frequently the first step to laceration of the fourchette, or of the perineum more extensively. But all lacerations of the perineum are not mere extensions of tears beginning anteriorly. Lacerations commencing in the vaginal orifice, or in the fourchette, lead to many, probably to most, perineal lacerations, which may therefore be called secondary. But there are primary and essential or independent perineal lacerations, as is proved by the occurrence of central rupture.

The inevitable posterior laceration of the vaginal orifice is not the only one that occurs. It is occasionally alone, but generally there are others. There is sometimes laceration of the side of the orifice anteriorly, where the parietal tuberosity has pressed, and this tear may extend into the adjacent nympha, and bleed freely. I think the left side is more frequently the seat of this tear than the right; and this is explained by a study of the mechanism

of the delivery in a first or left occipito-anterior position. In it, the right parietal tuberosity is born before the left; and when the left is passing, a greater ploughing pressure is exerted on the vaginal orifice than was exerted by the right tuberosity when it passed. This is a consequence of the greater dimensions of the part passing when the left tuberosity is in the orifice than of the part passing when the right was in the same orifice.

Sometimes, irregular lacerations take place, little detached flaps being left hanging. These are probably produced by the tension at the orifice in a longitudinal direction, aided, perhaps, by a slight degree of friction, producing tears in a circular direction, and the subsequent detachment or pushing off of tags.

These tears in a circular direction affect chiefly, but not exclusively, the vulvar orifice. As we have already said, the vulvar is a distinct opening from the vaginal. The latter is, at all times, constituted by the outer margin of the hymen, or by the hymen itself. The vulvar orifice is, for our present purpose, the orifice of passage for the child into the world, the last maternal part which it has to permeate. It is therefore to be studied and described as it is during this passage. It is to be made out by the situation of the tears which take place in it. These, radiating from the orifice of the

vagina and passing through its margin, indicate, on examination after delivery, where it was. Besides, it may be made out by examination during the passage of the head.

Posteriorly the vulvar orifice is constituted by the fourchette. Laterally and posteriorly it is constituted by the labia majora. Laterally and anteriorly by the posterior extremities of the nymphæ or labia minora. Anteriorly by a fold formed in the vestibule, between the clitoris and the orifice of the urethra. Beneath the fold thus formed, as the head is passing, can be felt the orifice of the urethra distorted, as the anus is while the head is passing over the perineum.

Important tears of this orifice occur at its anterior margin, special importance arising from the hæmorrhage (sometimes fatal*) which they occasionally produce.† The tear takes place before the child's head is born, and the event may be diagnosed, if a sufficient interval of time elapses, by the period of its occurrence and its anterior position at the occipital region of the fœtus, blood being found in that situation.‡

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* For references, see *Annales de Gynécologie*, October, 1876, p. 287.

† Kleinwächter (*Grundriss der Geburtshülfe*, s. 303) and others (Milne, *Edinburgh Medical Journal*, March 1877, p. 842) are indubitably in error in regarding these and perineal injuries as the consequence of mismanagement of the labours.

‡ For an account of a similar diagnosis by bleeding, see a paper by

Vestibular injuries are not lacerations of the vaginal orifice, but rather analogous to the laceration of the perineum posteriorly. When the vestibule is distended and developed anteriorly, as the anterior part of the perineum is posteriorly and subsequently, the place of the fourchette is taken by a fold of the vestibule. The edge of this vestibular fold tears, and the tear may extend forwards to the clitoris or backwards by the side of the urethra.

As to the important point, the order of time in which the lacerations of the orifices occur, I can give no good statement. Only, it is quite sure that they all take place before the perineum is torn as an extension of the laceration of the vaginal and vulvar orifices. When the perineum is so torn, the extreme tension of both orifices is of course annulled, and the liability to further lacerations removed. Thus, I have actually observed an early ordinary but large perineal rupture in a primipara occur alone, its extent and earliness obviating the tendency to other ruptures.

The inevitable laceration of the orifice of the vagina in natural labour in primiparæ takes place at or near the mesial line, in the posterior border of the orifice. It extends longitudinally, passing

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Budin, "On a Diagnostic Sign of Vaginal Hæmorrhage during Parturition." *Obstetrical Transactions,* vol. xix. 1877, p. 287.

posteriorly along the vaginal wall, and anteriorly into the fossa navicularis. The laceration goes through a triangular mass of tissues, whose apex is the orificial margin, the part (generally, not always), first torn, and whose base or longest side is the line of the middle of the bottom of the wound made. It is interesting, during labour, to watch the progress of this tear. The first little laceration or nick may be felt to be gradually increased till the full extent of the laceration is produced. If the head retreats, the wound may be felt to be of some depth, its sides collapsing; but, if it only partially retreats, some tension remaining, and the finger is passed to examine, then the wound has no depth, but presents an extended, lozenge-shaped surface, whose margins may be recognised, and whose four angles are placed, one just behind the fourchette, one higher up in the vagina in the mesial line, and the other two at the now remote but formerly conjoined parts of the margin of the vaginal orifice at which the split or laceration began. After delivery, the wound resumes comparatively small dimensions; but, by proper manipulation, it may still be shown, by separation of the labia (in imitation of the distension by the fœtal head), to have the characters above described as present during the passage of the head.

Before concluding, I shall enter briefly on the

causes of this kind of rupture, although their consideration does not form an essential feature of the subject, because the causes are nearly identical with those of ordinary perineal ruptures.

There is no doubt in my mind that, in certain cases, there is what may be called rottenness of tissue, which destroys the power of the tissues to resist laceration or bursting. In some women, and occasionally at least very markedly in the syphilitic, this condition is very easily demonstrated. It is a condition also of many inflamed tissues, and this is exemplified in the perineum.

The element of time is important in the study of causes, for there is general consent that a part rapidly dilated may give way, while the same part slowly dilated may be induced to yield and dilate without tearing or giving way. This is almost a truism, illustrated, as it may be, in many tissues, living and dead.

The element of time cannot be fully considered without simultaneously attending to the element of force or pressure. Of course, all tearing is effected by a pressure superior to the resistance. A pressure slightly superior to the resistance may only prove itself to be so after many attempts and considerable lapse of time, and, it may be, without laceration, except what is inevitable; whereas a greater pressure may rapidly overcome the resist-

ance, and will probably do so by producing one or more lacerations.

The element of force or pressure cannot be fully studied without taking into consideration the child's head or the body propelled against the resistance. Now it appears to me that the head must be regarded as a blunted or pointless wedge. A point is not required, because there is already a passage which needs only farther dilatation, not new formation. The wedge-shaped head will be more efficient in proportion as it is sharper: and this condition of sharpness will be increased by three circumstances that are subjects of frequent observation. First, it is evident that the overlapping of bones will increase the sharpness and power of the wedge. Second, the smaller the fœtal head, the sharper its wedge-like shape. This may offer an explanation of the circumstance demonstrated, or nearly so, by Hecker,* that the mere size of the head is not in direct proportion to the frequency of laceration of the perineum. Thirdly, the recent caput succedaneum may act as a wedge on parts not otherwise subjected to any distending pressure, and it may also increase the sharpness of the already previously acting wedge-shaped portion. Of course, in this theory, it is taken for

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* *Klinik der Geburtskunde*, s. 143. See also Liebmann, *Zeitschrift für Geb. und Gyn.*, Band i. Heft 2, s. 403.

granted that the edge of the caput succedaneum is below, or acting on, the part to be dilated. Lastly, the wedge-like shape will be changed by projections such as the parietal protuberances, which will diminish the sharpness of the wedge so far as these particular parts are concerned, and increase the likelihood of laceration by these parts.

The direction of the propelling power is also to be taken into account, and may be regarded as always producing greatest pressure on the posterior part of the passage, the part which has to undergo the most extensive dilatation.* Referring to the commonly used term, circle of Carus, we may point out that this direction of special pressure is a matter of course; as it is true of all curvilinear motion, the counter pressure on the convex side being required to produce the deviation from a straight course.

The part that is weakest will always, *cæteris paribus*, be the first torn. The actually weakest is probably the posterior mesial part; and, as has just been stated, it has to endure the disadvantage of being subjected to greatest pressure.

If a laceration is inevitable, treatment to prevent it can be of no avail. But all the lacerations of

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* For an account of the amount of distension, and its paramount extent transversely or at right angles to the ordinary direction of laceration, see Kehrer. Ueber Dammrisse. *Zeitschrift "Der praktische Arzt."* 1878.

the orifice of the vagina are not inevitable; and that one which is so may be treated with a view to prevent its extension beyond the inevitable degree.

Two important elements in the causation of laceration are susceptible of modification with therapeutical objects by the practitioner, namely, time and direction. The accoucheur can prevent the precipitate expulsion of the child, and its attendant evils.* He can, by supporting the perineum, modify the direction of its advance, and resist any undue pressure posteriorly or inferiorly arising from the curvilinear motion of the fœtus.

Here naturally falls to be discussed the important and disputed question of the value of the practice of supporting the perineum. Both for and against the practice much has been said by authors who deserve and command respect. Leishman† and Graily Hewitt‡ are against the practice. I am, meantime, decidedly in favour of it, being thus in accord with the immense majority of the profession both now and in past times.

On both sides,§ that is, for the defence and the

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* If any one wishes to enter still more exactly on this subject he will find hints of guidance in the paper of Dr. James on the physics of the bladder, *Edinburgh Medical Journal*, October, 1878.

† *Glasgow Medical Journal*, January, 1860.

‡ *On Supporting the Perineum.* London. 1861.

§ On this subject see some remarks by Warren Sawyer. *Chicago Medical Journal and Examiner*, May, 1878.

attack, arguments are mainly relied on. To me, it appears that the arguments in favour of the practice more than counterbalance those advanced against it. Especially do I consider those advanced (though not for the first time) in the few preceding paragraphs as unanswerable, so far as the perineum is concerned; and it is the perineum which has hitherto alone been considered. But it is plain that to consider only the perineum, is to neglect most important lacerations of other parts, and especially of the vestibule. If the saving of the perineum is effected at the expense of other equally important lacerations, there may be no saving on the whole, no securing of better conditions for the mother.

This matter is one which will not be finally settled except by experience. Two series of cases must be compared: in the first, there shall be no support given to the perineum, and the number and extent of the lacerations of the external parts shall be noted: in the second, the perineum shall be carefully supported, and the number and extent of the lacerations of the external parts shall be noted. Then the number and extent of the lacerations in the two sets of cases may be compared. But the result of this comparison can be held as conclusive only so far as to decide whether the number and extent of lacerations is increased or

diminished by supporting the perineum. If the difference between the two sets of cases shows only a variation in the number and extent of each different laceration, not in the relative proportions as to number and extent of one laceration to another, then the question of the value of supporting the perineum will be settled. But if the difference between the two sets of cases shows a variation in the proportional number and extent of the different lacerations, then the question is still unsettled. For it is evident that, if vestibular lacerations are more important than perineal, the diminution of the latter and simultaneous increase of the former may be an injury rather than a benefit to the mother, or, on the whole—that is, in other words—the whole injuries may be less numerous and less extensive, and yet more dangerous, or the opposite. It is thus evident that a further inquiry may be necessary to contrast the results of the former regarding extent and number, an inquiry which shall decide which lacerations are more and which are less grave. The question is to be definitely set at rest, not by *à priori* arguments, but by the method of experiment, the experiments being in this case made for us by Nature.

Before concluding this chapter, I mention an uncommon case which recently came under my observation, because it has an appearance of not

being in accordance with the inevitable* character of the injury of the posterior part of the vaginal orifice in primiparæ.

Case I.—In this primipara the posterior part of the hymen was uninjured after the birth of a mature fœtus; but the posterior part of the vaginal orifice had suffered injury. The mucous membrane of the posterior part of the vagina, near to and including the orifice and hymen, was entire. The fourchette was entire; but there was an antero-posterior laceration of the middle of the floor of the fossa navicularis. The finger could pass through this laceration into the submucous tissue of the orifice of the vagina, nothing but a thin layer of mucous membrane intervening between the finger so passed and the orifice. In this case, then, the orifice of the vagina was lacerated posteriorly, the laceration affecting the submucous tissue, and sparing the mucous membrane and hymen.

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* Dr. Edouard Martin (*Annales de Gynécologie*, October, 1876, p. 285) is not quite correct in ascribing to Schroeder the same opinion as I hold as to inevitableness. Schroeder holds that, as a rule—not invariably—the entrance of the vagina is torn: and this frequent or regular ordinary laceration he describes as generally in the fossa navicularis, not in the orifice proper, as I describe it. See also Schroeder's *Schwangerschaft, Geburt*, &c., s. 167.

CHAPTER II.

On the lacerations of the external genital organs (except the hymen) during labour in primiparæ—Comparison with multiparæ—Examination of lochia—Painfulness—Stellate or radiating and circular lacerations—Central rupture—Frequency of it—Cracks of perineum—Vestibular lacerations—Comparative frequency of lesions—Catheterism, supporting the perineum, and forceps, in reference to lacerations.

THE following inquiry was undertaken with a view to acquiring greater exactness of knowledge, and to the correction of positive errors and omissions which are to be found in our best works, including text-books. The extent, variety, and number of the injuries will, indeed, probably astonish most obstetrical readers.

The cases were all deliveries in the Royal Maternity Hospital of Edinburgh during one of my short incumbencies as ordinary physician. The women alleged primiparity, and in all there was, in the condition of the hymen, corroborative evidence of the truth of their assertion. The condition of the hymen is not stated in the reports of the cases; but I am responsible for all the statements of injuries, the examinations and reports having been made by myself. The statements as to the position of the head and as to the bleeding

were in some cases verified by me; but for these MM. Macdougall, Nelson, and Graham are responsible, being the house-surgeons who had charge of the deliveries. In the cases will be found no negative statements, but only the actual injuries observed in each. When the anterior edge of the perineum alone is referred to, as for instance in a laceration not amounting to half an inch in linear extent, it is called the fourchette. An ordinary perineal laceration includes a laceration of the fourchette, although the latter is not mentioned.

It may be here remarked that there is a very great difference, in respect of injuries of the external genital organs, between primiparæ and multiparæ. The former never escape without injury or injuries other than of the hymen merely. The multipara, on the other hand, may bring forth her child without a scratch being produced; or she may have merely a slight laceration of the mucous membrane at the posterior part of the vulvar orifice, or only a vestibular laceration.

To the clinical instructor deliveries without injury in multiparæ are valuable as affording him opportunities of demonstrating the true character of the lochia; for, when there are lacerations, the commixture of this discharge with pus renders the demonstration extremely difficult and unsatisfactory. But, to the pathologist, the presence of injuries in primiparæ, and their comparative

slightness or absence in multiparæ, have the gravest significance, for these circumstances no doubt offer a substantial part of the explanation of the far greater mortality among the former than among the latter. The greater amount, also, of the injuries in elderly than in young primiparæ, as described by Hecker and Winckel,* is surely also a part of the explanation of the increased mortality of the former.

An important clinical observation in connexion with these lacerations is the frequently small amount of pain which they occasion after confinement, and the want of any apparent relation between the amount of injury and the amount of pain suffered after delivery. In Case XII. the lacerations were numerous and very severe, the vulva having the appearance of being gashed in various directions, yet the woman declined to admit she had any pain in the pudenda, and catheterism was frequently performed without any complaint being elicited.

The injuries are called lacerations and tears, because these words express their mode of production. Most were like clean cuts, some more or less ragged on the edge. Others might be called deep abrasions and have been designated ulcers.†

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* *Berichte und Studien*, Band ii. s. 232. Leipzig, 1876.

† Simples ulcérations déterminées par les frottements énergiques

The injuries that can be discovered in examining women after delivery are, for the most part, arranged around the vulvar opening in a stellate manner radiating from a centre. This is what is naturally expected, the lacerations resulting from distension of this orifice, the strain being in the direction of the nearly circular margin of the aperture, or at right angles to radii from the centre of the orifice, while the lacerations are, of course, more or less in the direction of radii. Of the eighty-nine injuries described in these reports of twenty-five cases, eighty-three were of this stellate character, or about 93 per cent.

But all the injuries were not of this stellate character, or produced by distension of the orifice of the vagina, or of the vulvar orifice of exit. Some were evidently the result of longitudinal or axial strain, which naturally gave rise to lacerations more or less circular or parallel to the margin of the distended orifice—that is, transverse to the direction of the strain. Priestley* has described a remarkable case of this kind, where the laceration was inside the proper orifice of the vagina; and among my twenty-five cases there are found examples in the Cases IX., XXIII., and XXV., or in about 12 per cent. Sometimes, as in Case IX.,

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qui se produisent pendant l'expulsion." Joulin, *Traité complet d'accouchements*, p. 892.

* *Medical Times and Gazette*, March 13, 1858.

the orificial margin is detached partially; and, one end of the detached portion being torn across, hangs loosely as a flap.

Besides these two kinds of injuries, there is a third among those visible on examination—namely, the central perineal ruptures. While the two former are connected with the vaginal and vulvar orifices, this last has no relation with any strain on the vaginal or vulvar orifices. It is the result of over-distension of the passage leading towards the vaginal orifice, the strain being transverse to the axis of the passage and the laceration in the direction of the passage. Indeed, considering the uniform structure of the parts, we hold the direction of the injury to indicate the direction of the strain as being at right angles to it. Among the injuries described in the twenty-five cases, three cases, or about 12 per cent., belong to this last or central perineal category—namely, Cases IV., VII., and XII.

These central perineal ruptures, as they either do not penetrate into the vagina from without, or are conjoined with ordinary perineal rupture, may not readily have their true character recognised; and I have therefore, in another chapter, directed special attention to them. But there are points in connexion with the slightest kind, such as are beautifully exemplified in Case IV., that demand particular description. In that case the direction

of the long slight central perineal laceration was sagittal, occupying the position of the raphé. This direction of the injury indicates that the strain was in direction coronal, or from one ischial tuberosity to the other. The laceration affected only the superficial layer of the corium, while the deeper layer and the epithelium remained entire. This depth of the laceration was easily verified during the progress of the case, for during the second and third days of childbed the epithelium was peeled off, and the laceration could easily be examined. Then it was linear, and could not be observed but by separation of the edges. The skin was merely cracked or partially split. The epithelium, though subjected to the greatest strain, did not yield, while the superficial part of the subjacent corium yielded, and a little blood became effused beneath the epithelium. It appears to me that we have here the pathogeny of the cracks of the abdominal and mammary integument occurring in pregnancy and at other times.* The epithelium remains entire, while the subjacent corium is cracked by a process very slow compared with the perineal cracks or splits under immediate de-

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* The same explanation holds good for the numerous short silvery lines or striæ in which the corium is only cracked, not completely divided; and for the bluish, riband-like fissures in which the whole corium is torn through, leaving a vacancy in the bluish parts that is easily felt. The danger of disturbing the epithelium of these cracks and lacerations, and so removing their epithelial, antiseptic, safeguard, is illustrated in the ulcers which are occasionally produced by continued poulticing.

scription. The kind of cracking is observed not only in central perineal ruptures, but also as short extensions or continuations of ordinary perineal ruptures beginning at the fourchette.

The vestibular lacerations had sometimes the character of deep abrasions, but generally were very like incisions or clean sharp-edged cuts, and these often bled freely and for a long time. Some of them bled freely when their edges were separated two days after their occurrence, but none of them caused alarm or required special attention. They took place before the birth of the whole head, and the bleeding from them could be observed before the head was completely born. No doubt all of these stellate lacerations of the vulvar orifice take place in the same way as the ordinary perineal rupture, the tear beginning at the edge of the distended part forming the vulvar orifice and running backwards through the whole thickness of the edge; and, it may be, even beyond the part wholly fissured, along the outer or inner surface of the tissues forming the margin. That the vestibule is folded in this way I have repeatedly verified by examination, finding the orifice of the urethra considerably within the distended vulvar orificial margin, formed by a transverse fold of the vestibular mucous membrane.

While in none of the twenty-five cases was laceration of the posterior margin of the vaginal orifice absent, in not one was it the only injury

present. It was always accompanied by some other tear. In one case, the VIth, there were eight separate lacerations.

In Cases VI., X., XIV., XXI., and XXV., or in 20 per cent., the vaginal as distinguished from the vulvar orifice had other stellate lacerations besides the inevitable posterior one.

In several instances the vestibular and anterior lacerations were more extensive than the perineal and posterior; but the latter generally were the predominant injuries in their extent. At the same time it is an important and unsettled question whether mere extent is the proper measure of pathological importance or not.

While the posterior or perineal lacerations were almost invariably in the mesial line or very near it, the anterior vestibular lacerations were very rarely mesial. In only one vestibular laceration was the position mesial—Case XV.

In ten cases out of twenty-five the perineum escaped unhurt, the fourchette being entire. In only nine cases out of twenty-five was the vestibule untorn. In other words, the perineum was more or less torn in 60 per cent., the vestibule in 64 per cent. In the much larger collection of cases by Schroeder* he found the perineum more or less

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* *Schwangerschaft, Geburt,* &c., s. 163. See also Liebmann, *Zeitschrift für Geb. und Gyn.*, 1877, Band i. Heft 2, s. 396.

torn in 61 per cent. Besides these perineal tears there were, it must be remembered, in the twenty-five cases, many tears of the vaginal orifice, of the nymphæ, and of the labia.

On the right side there were twenty lacerations, on the left side twenty-seven. Probably, here lies some part of the explanation of the greater frequency of phlegmasia dolens, and of perimetritis and parametritis, on the left than on the right side.

Eighteen fœtal heads were delivered in the first position, and among these cases there were twenty-nine orificial injuries; of which twenty-nine, twelve were on the right and seventeen on the left side.

Seven fœtal heads were born in the second position, and among these cases there were eighteen orificial injuries; of which eighteen, eight were on the right and ten on the left side.

Before leaving this interesting subject, I shall call attention to some important matters.

It has been shown by Winckel* that catheterism is more frequently required in childbed the greater the injury of the perineum; but it is probable that the relation, as yet undecided, between the necessity for catheterism and vestibular lacerations, may be even closer.

The value of supporting the perineum, although

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* See also Croom, *Medical Examiner*, January 17, 1878, p. 54.

demonstrated theoretically, has not been proved experimentally, that is, in the only irrefragable manner. But even if it were proved experimentally so far as the perineum merely was concerned, that is in maintaining its entirety, that would not prove its value on the whole, for there would remain to be investigated the question whether the saving the perineum did, or did not, increase the number or severity of the injuries of the other parts of the vaginal and vulvar orifices.

It is well known that at the present day there is a very great tendency in the profession to the more and more frequent use of the short forceps, a tendency fostered by the use of chloroform in labour, and one which, in my opinion, demands repression, not encouragement.* Now the question of the utility of frequent use of the forceps is very far from being decided. One of the elements of it is the number and severity of injuries caused by forceps delivery, as compared with those caused by spontaneous delivery. It has been shown that perineal injuries are much more grave and frequent in forceps deliveries than in spontaneous births; but it has still to be decided what part the use of this instrument plays in causing this evil consequence, and further, what influence forceps delivery

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* On this subject see Winckel, *Berichte*, &c.; Spiegelberg, who cites Dohrn, *Lehrbuch*, 1878, s. 406; see also an elaborate paper by Galabin, *Obstetrical Journal*, December, 1877.

has on the number and severity of other vaginal and vulvar injuries.

Case II.—E. B., aged nineteen, delivered August 2nd, and examined August 4th. The head was born in the first position. Child male, weighing 6 lbs. 8 oz. Bleeding during birth of head not watched for. The posterior margin of the vaginal orifice is torn. The left labium is deeply abraded over a surface a little more than half an inch broad, and nearly on a line with the middle of the vaginal orifice.

Case III.—J. S., aged thirty-two, delivered on August 8th, and examined August 11th. The head was born in the first position. Child female, weighing 10 lbs. 9 oz. The vaginal orifice is lacerated posteriorly, and in continuity with it the perineum for three-quarters of an inch.

Case IV.—M. K., aged twenty-five, delivered on August 8th, and examined on the following day. The head was born in the first position. Child male, weighing 7 lbs. 8 oz. Outer layer of corium split as far back as the margin of the anus; the epithelium entire, and its translucence allowing a line of ecchymosis to be seen beneath. Posterior margin of vaginal orifice lacerated, and in continuity the fourchette for one-quarter of an inch from its margin.

Case V.—C. M., aged twenty-two, delivered on the 10th of August, and examined on the follow-

ing day. The head was born in the second position. Child male, weighing 7 lbs. Bleeding from anterior part of vulva was observed before the birth of the head. Vaginal orifice lacerated posteriorly. Vestibular laceration a little to left of mesial line, and extending from about one-quarter of an inch below the clitoris to about one-quarter of an inch in front of the urethra.

Case VI.—J. F., aged eighteen, delivered August 13th, and examined on the following day. The head was born in the second position. Child male, weighing 7 lbs. Bleeding from the anterior part of the vulva was noticed during the birth of the head. Perineum lacerated antero-posteriorly to the extent of one inch. Posterior part of vaginal orifice lacerated. Two longitudinal lacerations, or at right angles to the hymeneal insertion, on the left side of the vaginal orifice, and with about one-quarter of an inch of interval between them. A single similar laceration on the right side of the vaginal orifice. Deep laceration, half an inch long, through the right nympha at the preputium. Two irregular lacerations on the left side of the vestibule.

Case VII.—E. C., aged twenty-four, delivered August 14th, and examined the following day. The head was born in the first position. Child male, weighing 6 lbs. 8 oz. Bleeding from the anterior part of the vulva during the birth of

the head was observed. Posterior part of vaginal orifice lacerated. Laceration of perineum an inch and a quarter in sagittal extent. The posterior vaginal wall is lacerated. Between the lacerated perineal skin and the lacerated vaginal wall a bridge of tissue persists, uniting the two sides; and behind this is an aperture, from the perineal laceration into the vagina, sufficient to admit the little finger.

Case VIII.—C. F., aged eighteen, delivered August 16th, and examined on the following day. The head was born in the first position. Child male, weighing 5 lbs. 10 oz. Bleeding from the anterior part of vulva was observed during the birth of the child's head. Vaginal orifice lacerated posteriorly, but a little to the left of the mesial line. A vestibular laceration extends from the right side of the urethral orifice to the clitoris, being about half an inch in extent.

Case IX.—Mrs. I., aged twenty-seven, delivered August 16th, and examined the following day. The head was born in the second position. Child female, weighing 7 lbs. 8 oz. Slight bleeding was observed from the anterior part of the vulva before the birth of the head. The vaginal orifice is lacerated posteriorly. At the level of the middle of the vaginal orifice the left labium presents a wound which extends backwards, crosses the mesial line of the perineum, and extends a little to its right

side. Where this wound ends, a flap or tag is hanging, about one-quarter of an inch broad, about an inch long, and it can be stretched. It is dark and sloughy at its extremity. The fourchette forms part of the flap, and is therefore entire, but it is detached. The flap can easily be made to fit to the wound, which has been produced by its detachment. There is a vestibular laceration about half an inch long, and extending upwards from the right side of the urethra.

Case X.—J. M., aged eighteen, delivered August 16th, and examined on the following day. Head was born in the first position. Child female, weighing 6 lbs. 8 oz. Bleeding was not observed to take place from the anterior part of the vulva during the birth of the head. Perineum lacerated in the usual way to the extent of an inch, and to within less than half an inch of the anal orifice. Vaginal orifice lacerated posteriorly. About the middle of the right side of the orifice of the vagina a laceration of this part at right angles to the hymeneal insertion. A deep vestibular laceration, still bleeding eighteen hours after delivery, extends from the hymen, and passes by the left side of the orifice of the urethra upwards to within half an inch of the clitoris.

Case XI.—M. A., aged twenty, delivered on September 4th, and examined on September 6th. The head was born in the first position. Child

male, weighing 7 lbs. 6 oz. Bleeding from anterior part of vulva was observed before the birth of the head. The vaginal orifice is lacerated posteriorly, and the perineum also to the verge of the anus; but, for half an inch from the anus, in a direction anteriorly, the skin is only cracked, not completely divided. Posterior extremity of left nympha and adjacent vestibule lacerated, but not deeply.

Case XII.—M. S., aged twenty-eight, delivered on September 5th, and examined on the following day. The head was born in the first position. Child male, weighing 6 lbs. Bleeding from the anterior part of the vulva was observed before the birth of the head. Perineum torn to within half an inch of the anus. The fourchette is lacerated. Between the lacerations of the fourchette and of the perineum is a narrow, transverse band of entire skin. On the left side is a deep laceration about an inch and a half long, extending from the orifice of the vagina, and dividing the left labium majus, and detaching the lower part of left nympha. This laceration is continuous with the posterior laceration of the vaginal orifice. On the right side is a deep laceration, passing from about the orifice of the urethra and across the right nympha.

Case XIII.—M. M., aged seventeen, delivered on September 6th, and examined on the same day. The head was born in the first position. Child male, weighing 7 lbs. Bleeding from anterior part

of vulva was observed immediately before the birth of the head. Vaginal orifice lacerated posteriorly and a little to the left of the mesial line. The vestibule is lacerated from the clitoris downwards, and to the right side of the mesial line, for one-quarter of an inch.

Case XIV.—A. W., aged thirty-four, delivered on September 9th, and examined on the following day. The head was born in the second position. Child male, weighing 6 lbs. 12 oz. Bleeding from the anterior part of the vulva was observed during the birth of the head. Perineum lacerated to within half an inch of the anus. Vaginal orifice lacerated posteriorly. A laceration of the left side of the orifice of the vagina, extending outwards through the lower end of the left nympha. A similar laceration of the right side of the vaginal orifice, but not so extensive, not affecting the right nympha.

Case XV.—C. G., aged twenty-seven, delivered on September 12th, and examined on the following day. Head born in the first position. Child male, weighing 7 lbs. 12 oz. Bleeding observed from the anterior part of the vulva during the birth of the head. Perineum torn to within half an inch of the anus. Vaginal orifice lacerated posteriorly. Vaginal laceration does not extend nearly so far as that of the perineal skin. A deep

vestibular laceration extends in the mesial line from the clitoris to the urethra.

Case XVI.—C. K., aged eighteen, delivered September 14th, and examined on the same day. The head was born in the first position. Child male, weighing 6 lbs. 12 oz. There was some bleeding from the anterior part of the vulva during the birth of the head. Perineal laceration extends to within half an inch of the anus. Vaginal orifice lacerated posteriorly.

Case XVII.—M. T., aged twenty-five, delivered September 18th, and examined the same day. The head was born in the second position. Child female, weighing 8 lbs. 8 oz. Bleeding was observed from the anterior part of the vulva during the birth of the head. Perineum lacerated to within half an inch of the verge of the anus. Vaginal orifice lacerated posteriorly. The vestibule exhibits several small cracks, none of which certainly pass through the entire thickness of the mucous membrane. The largest is almost a quarter of an inch long, and a little to the right side of a line joining the urethra and clitoris.

Case XVIII.—M. B., aged nineteen, delivered September 21st, and examined on the same day. The head was born in the first position. Child female, weighing 7 lbs. 4 oz. Bleeding from the anterior part of the vulva was observed during the

birth of the head. Perineum is lacerated to the verge of the anus, but the sphincter is entire. The laceration about its middle is very irregular, there being a tongue of skin, about half an inch long, hanging from the right side. Vaginal orifice lacerated posteriorly. On the right side of the mesial line of the vestibule is a deep laceration, still bleeding, and extending from the urethra to the clitoris.

Case XIX.—S. T., aged twenty-one, delivered September 30th, and examined the same day. The head was born in the first position. Child female, weighing 8 lbs. 6 oz. Bleeding from anterior part of the vulva as the head was being born. Fourchette and anterior part of perineum torn. Vaginal orifice lacerated posteriorly. On the left side of the mesial line the vestibule is deeply injured by a laceration which extends from the left side of the orifice of the urethra to the edge of the left nympha near the clitoris. On the right side of the mesial line the vestibule has a less deep laceration, which is about half an inch long, and begins at the right side of the urethra.

Case XX.—E. B., aged twenty-four, delivered October 6th, and examined on the same day. The head was born in the first position. Child female, weighing 8 lbs. No bleeding from anterior part of vulva observed during the birth of the head. Vaginal orifice lacerated posteriorly. Separate from the last-named laceration, and running trans-

versely across the internal surface of each labium majus from the posterior part of the orifice of the vagina, is a laceration fully half an inch long. From the left outer part of the anterior margin of the vaginal orifice extends a deep laceration across the vestibule and nympha to near its margin; its direction is midway between transverse and mesial. On the right side is a similar laceration not so deep, a little shorter, and considerably nearer the antero-posterior direction.

Case XXI.—M. S., aged twenty-one, delivered on October 6th, and examined on the same day. The head was born in the first position. Child male, weighing 7 lbs. Bleeding from the anterior part of the vulva was not observed during the birth of the head; but, after birth the child's occiput was noticed to be bloody. Perineum lacerated in the usual way to within half an inch of the anus. Vaginal orifice lacerated posteriorly. About the middle of the left side of the vaginal orifice there is a slight laceration transverse to the hymeneal insertion. Extending from the left side of the anterior margin of the vaginal orifice, towards the nympha, in a direction midway between transverse and mesial, is a laceration about half an inch long. On the right side is a laceration corresponding to the last, but a little shorter.

Case XXII.—Mrs. M., aged twenty-one, delivered on October 10th, and examined on the same

day. The head was born in the first position. Child male, weighing 8 lbs. Bleeding from the anterior part of the vulva was observed during the birth of the head. Vaginal orifice lacerated posteriorly. Continuous with this is another laceration, nearly an inch long, extending from the posterior margin of the vaginal orifice transversely across the left labium, to its outer margin. On the left side of the mesial line of the vestibule is a laceration half an inch long, running obliquely upwards and outwards. On the right side of the vestibule is a similar laceration, less deep, and somewhat shorter than the former.

Case XXIII.— — W., aged seventeen, delivered on October 12th, and examined the same day. Head born in the first position. Child male, weighing 5 lbs. 2 oz. Bleeding from the anterior part of the vulva was not observed during the birth of the head. Vaginal orifice lacerated posteriorly. On the left side of the vaginal orifice, and about a line beyond the hymeneal margin, is a laceration half an inch long, parallel to the hymen. On either side of the mesial line of the vestibule, parallel to it and about a line distant from it, is a laceration : that on the left being a little more than half an inch long, that on the right decidedly less.

Case XXIV.—M. N., aged eighteen, delivered October 23rd, and examined on the following day. The head was born in the second position. Child

female, weighing 6 lbs. 12 oz. Bleeding was not observed from the anterior part of the vulva during the birth of the head. Fourchette lacerated in the slightest degree, and behind the laceration, along the mesial line, about a line of cracked or split skin. Vaginal orifice lacerated posteriorly. At the posterior part of the right labium majus is a superficial laceration, about half an inch long and a quarter of an inch broad.

Case XXV.—T. J., aged thirty-six, delivered October 25th, and examined the same day. The head was born in the second position. Child male, weighing 7 lbs. 8 oz. Bleeding from the anterior part of the vulva was observed during the expulsion of the head. Vaginal orifice lacerated posteriorly. At the anterior part of the left side of the vaginal orifice there is a slight laceration, transverse to the insertion of the hymen. Near the same situation, on the right side, but external and parallel to the hymen, is a slight laceration about a line in length. On the left side, and extending from the outer anterior part of the vaginal orifice to the margin of the corresponding nympha, is a deep incision-like laceration. At the left side of the clitoris, and extending for about a line downwards, is a slight scratch-like injury. On the right side, extending from the upper and outer margin of the vaginal orifice, and going right through the whole right nympha, is a deep wound about an inch long.

Case XXVI.—M. M., aged twenty-three, delivered on October 28th, and examined on the same day. The head was born in the first position. Child female, weighing 5 lbs. 12 oz. Bleeding from the anterior part of the vulva was observed during the birth of the head. Fourchette torn. Considerable laceration of the posterior part of the vaginal orifice. On the left of the mesial line of the vestibule are two superficial cracks, extending from near the clitoris to near the orifice of the urethra, and parallel to one another. On the right side of the mesial line of the vestibule is a deeper incision-like laceration, extending about one-third of an inch in a vertical direction, from a little in front of the orifice of the urethra.

CHAPTER III.

On the lacerations of the external genital organs during labour in multiparæ—Contrast with primiparæ—Cause and time of occurrence of vestibular injuries.

THE following descriptions of twenty-five cases are given in order to present the contrast between these injuries and those of primiparæ.

The cases were all deliveries in the Royal Maternity Hospital of Edinburgh. I am responsible for the statements regarding the lacerations in the first ten cases, but not in the succeeding fifteen; for, after the date of the first ten, I left Edinburgh for London. These fifteen cases are reported by my quondam resident hospital assistant, Mr. MacCulloch, M.B. and C.M., who is, in addition, responsible for the histories of the whole cases, except the state of laceration in the first ten. He was trained for this special duty by assisting me in the examination of the earlier cases.

The verbal or written picture of these injuries, as seen in multiparæ and primiparæ respectively, conveys a very imperfect notion of their great contrast. The injuries of the former were, as compared with those of the latter, under actual ocular inspection, much less important than the written accounts indicate.

I have seen no primipara without any injury, and none without a laceration posteriorly of the proper orifice of the vagina as distinguished from a laceration of the fourchette—that is, of the proper vulvar orifice; but I have seen several multiparæ without any visible injury whatever. It is true that among the twenty-five cases occurring successively and reported without selection, here described, there is none without some injury; but it must be noticed that some are nearly so. The descriptions are minute, and it will be observed how many of the injuries are mere scratches, or rather scratch-like; and that, in Case XXVIII., there are only these scratch-like injuries after an 8 lbs. child had passed.

The most casual perusal of the two sets of cases shows that the number and severity of the injuries in multiparæ is much less than in primiparæ.

With one slight and therefore doubtful exception, there is among the twenty-five multiparæ not a single laceration parallel to the margins of the vaginal and vulvar orifices, or circular—that is, not one injury certainly resulting from longitudinal or axial strain. Among the twenty-five primiparæ there were three such injuries, or about 12 per cent. This may be stated generally in another way: In none of the twenty-five multiparæ did the orifices so resist the advance of the child as to present an obstacle to its exit sufficient to over-

come the tensile strength of the passage. The openings always yielded, and were more or less lacerated in giving exit to the child, and did not resist sufficiently to lead to a laceration at right angles to the length of the passage or nearly so. From this it follows, as was indeed well known, that the dilatation and laceration of the orifices of the passage in a primipara do, as a rule, leave the altered and resulting orifice or orifices permanently larger than before the first birth, and not merely larger, but more expansible, with a view to the easy passing of the larger fœtal head.

It will be observed that I continue to speak of the two orifices ; and the justness of so doing is evident from the nature of the injuries posteriorly of the fourchette and of the proper vaginal orifice. The distinction of these parts is not to be made in all cases, but it is frequently easy to do ; and the distinction is, in actual cases, facilitated by the frequent position of laceration in multiparæ in the fossa navicularis and proper vaginal orifice, while the fourchette remains entire.

While, among the primiparæ, there were three central lacerations, or 12 per cent., there was not one among the multiparæ. Central laceration is not confined to primiparæ, but it is comparatively rare in multiparæ. The lacerations in Cases LVII. and LVIII. are examples of a kind of central laceration in multiparæ.

With the doubtful exception already mentioned, all the injuries in the multiparæ were stellate—that is, nearly at right angles to the margin of the orifices dilated, and produced by dilatation of them. In every case but one (Case XXXII.) there was some injury at or near the posterior margins of the vaginal and vulvar orifices. Lateral lacerations of the same parts were also common.

Vestibular injuries were present in nineteen out of the twenty-five cases; they were therefore very common. But, proportionally to mesial posterior injuries of the vaginal and vulvar orifices, they were less frequent in multiparæ than in primiparæ. Vestibular injuries affect the vulvar orifice, not the vaginal. Their commonness was not attested in the histories given of the cases described, by the occurrence of the bleeding near the occiput before the birth of the head of the child, not because such bleeding did not occur, but because note of it was not kept. The frequency of vestibular injuries in multiparæ makes it probable that they depend, in a slight degree only, on the condition of the vaginal and vulvar orifices; because, if they were so dependent, they would probably be less frequent than they are in multiparæ, in consequence of the permanently dilated condition of these orifices. This state of matters makes their occurrence chiefly dependent on rigidity of the anterior part of the perineum proper; and this

again tallies with the time of their occurrence, as elsewhere described, before the birth of the head —that is, before the orifices are forced.

Case XXVII.—M. G., aged twenty-four, II-para, delivered August 30th, examined on September 4th. The head was born in the first position. Child male, weighs 7 lbs. 8 oz., and measures 20 inches. An ordinary triangular laceration in the situation of the fourchette; the perineum being torn to the extent of half an inch, about half an inch remaining entire between the posterior limit of the laceration and the verge of the anus. On internal surface of left labium majus and transversely to its length a scratch-like laceration two lines long.

Case XXVIII.—J. H., aged twenty-eight, II-para, delivered September 2nd, examined September 4th. Head born in first position. Child female, weighs 8 lbs., and measures 19 inches. In the bottom of the fossa navicularis (which is easily made out by remains of hymen) are a few irregular scratch-like injuries.

Case XXIX.—M. C., aged twenty-one, II-para, delivered of twins September 6th, and examined the same day. First child born in first position; second child in second position. First child male, weighs 5 lbs. 14 oz., and is 18 inches long. Second child male, weighs 4 lbs. 14 oz., and is 17 inches long. In the middle of the posterior margin of

the navicular fossa is a longitudinal laceration. The vestibule presents five fissures in radiating and somewhat antero-posterior directions. They are nearly alike, the largest being 2½ lines, and the deepest not more than penetrating the mucous membrane.

Case XXX.—M. R., aged twenty-five, II-para, Breech presentation, delivery completed by traction: September 11th, examined same day. Child female, weighs 7 lbs. and measures 20 inches. In the neighbourhood of the fourchette three lacerations, the largest one half-inch long, all irregular and not incision-like. Two are on the right side, and one on the left of the mesial line. Numerous superficial scratch-like lacerations of the vestibule, all more or less in an antero-posterior direction: the chief involves whole thickness of mucous membrane, and runs forwards and to the right as far as the margin of nympha.

Case XXXI.—C. B., aged twenty-five, II-para, delivered on September 12th, and examined the same day. Child male, weighs 6 lbs. 8 oz., and measures 20 inches. Born in first position. In the region of the fourchette three antero-posterior lacerations, slight, not penetrating the skin. On the left side of mesial line of vestibule an antero-posterior superficial laceration one and a half line long.

Case XXXII.—M. S., aged twenty-two, II-

para, delivered September 16th, examined September 17th. Child female, weighs 7 lbs. 12 oz., and measures 18 inches. Born in first position. About a line to the left of the mesial line posteriorly is an irregular antero-posterior laceration two lines in length. On the right side of the vulvar orifice, about the level of the junction of the middle with the posterior third of the vaginal orifice, is a deep laceration of the labium. On each side of the mesial line of the vestibule and extending for half a line from before backwards, and reaching to within a line of the hymen, are two incision-like lacerations through the mucous membrane.

Case XXXIII.—E. L., aged twenty-eight, III-para, delivered September 23rd, examined September 24th. Child female, weighs 6 lbs. 12 oz., measures 20 inches. Born in first position. In the situation of the floor of the fossa navicularis is a laceration through the integument, antero-posteriorly, half an inch long. Numerous short superficial scratch-like antero-posterior lacerations of the vestibule.

Case XXXIV.—A. S., aged twenty-eight, II-para, delivered September 27th, and examined September 28th. Child female, weighs 6 lbs. and measures 18 inches. Born in first position. Posteriorly, two lacerations, mesial, through the integument; one of them, a quarter of an inch long, in the situation of the posterior margin of the fossa navi-

cularis; the other, half an inch long, in the situation of the fourchette. Four vestibular lacerations radiating in direction, incision-like, not deeper than the mucous membrane (not gaping when edges are separated). The largest, on the left, half an inch long, extends from near the vaginal orifice to the margin of the nympha. On the left, close to the mesial line, and midway between clitoris and urethra, is the second one, quarter of an inch long. On the right of the mesial line, the third, which resembles the former. The fourth, farther to the right, resembles the first, but does not extend to the nympha, being shorter.

Case XXXV.—A. S., aged twenty-five, II-para, delivered October 1st, and examined October 3rd. Child female, weighs 9 lbs. 5 oz., and measures 20 inches. Born in first position. A laceration half an inch long, in the situation of the fourchette, a little to the right of the mesial line. In middle of right labium a laceration a line long, and transverse to length. On left side of vestibule a scratch-like laceration, a line in length.

Case XXXVI.—E. M., aged twenty-one, II-para, delivered October 11th, and examined October 12th. Child female, weighs 7 lbs., and measures 19 inches. Born in first position. A little to left of mesial line posteriorly, is a deep laceration in the situation of the vaginal orifice, that is, behind the fourchette. On left labium

majus three irregular lacerations, from two to four lines long, and through the integument. On right labium majus two lacerations, transverse: one is half an inch and the other quarter of an inch long. A line to right of mesial line is a laceration half an inch long, extending from urethra towards clitoris.

Case XXXVII.—J. W., aged twenty-two, III-para, delivered October 20th, and examined October 22nd. Child female, weighs 2 lbs. 4 oz., measures 12 inches. Born dead. Breech presentation. In region of fossa navicularis a scratch-like laceration two lines in length, one line to right of mesial line. On middle of left labium majus a scratch-like laceration, transverse, one quarter of an inch long. Two slight vestibular lacerations on right of mesial line and antero-posterior: the greater is two lines long.

Case XXXVIII.—J. B., aged twenty-one, II-para, delivered October 20th, examined October 22nd. Child male, weighs 7 lbs. 8 oz., measures 20 inches. Born in first position. At the situation of posterior margin of navicular fossa a longitudinal laceration. On left labium majus a transverse incision-like laceration, extending from the situation of the hymen. Vestibular laceration on left side, incision-like, extending upwards from orifice of urethra.

CASE XXXIX.—C. C., aged twenty-six, II-para, delivered October 26th, and examined the following day. Child male, weighs 8 lbs. 6 oz., measures 21 inches. Born in second position. About two lines to right of mesial line of fourchette an incision-like antero-posterior laceration three lines in length. On right labium majus, commencing near posterior margin of vaginal orifice, and half an inch long, at first transverse and incision-like, it becomes then irregular, and, as if a piece of integument had been removed.

CASE XL.—J. L., aged twenty-two, II-para, delivered October 27th, and examined October 29th. Child female, weighs 8 lbs. 4 oz., and measures 19 inches. Born in first position. Laceration of perineum half an inch, an inch remaining between posterior limit of laceration and verge of anus. Two scratch-like vestibular lacerations, both to left of mesial line, both about two lines in length and nearly antero-posterior.

CASE XLI.—J. D., aged thirty-one, VI-para, delivered October 30th, and examined the same day. Child, female weighs 8 lbs., and measures 20 inches. Born in first position. At posterior margin of site of fossa navicularis a laceration. Two left vestibular lacerations, each about two lines and in direction from anterior margin of vaginal orifice. Another mesial, antero-posterior,

three lines long. None of the three go beyond depth of mucous membrane.

Case XLII.—J. L., aged twenty-eight, II-para, delivered November 4th, and examined November 6th. Child male, weighs 6 lbs. 12 oz., and measures 19 inches. Born in first position. Laceration of perineum for three-quarters of an inch, a little to the left of mesial line; about one quarter of an inch intervening between the posterior limit of the laceration and the verge of the anus.

Case XLIII.—G. P., aged twenty-five, II-para, delivered November 6th, and examined November 7th. Child male, weighs 8 lbs. 4 ozs., and measures 20½ inches. A deep mesial laceration, antero-posterior, incision-like, through the floor of the fossa navicularis. A right vestibular laceration, three lines long, beginning at vaginal orifice two lines to right of mesial plane, and involving whole thickness of mucous membrane.

Case XLIV.—M. M., aged twenty-two, III-para, delivered November 18th, and examined November 20th. Child male, weighs 8 lbs. 7 oz., and measures 20½ inches. Born in third position. An antero-posterior incision-like laceration through the floor of the fossa navicularis. Two lines from left side of urethra a scratch-like, nearly antero-posterior, laceration, three lines long.

Case XLV.—M. M., aged twenty-six, II-para, delivered November 24th, and examined November 25th. Child male, weighs 8 lbs. 8 oz., and measures 19 inches. Born in first position. The region of the fossa navicularis presents several scratch-like lacerations, the longest two lines. A mesial vestibular laceration, half an inch long, extending from urethra upwards. Another, three lines long, nearly antero-posterior, and extending from left side of urethra.

Case XLVI.—M., aged twenty-eight, III-para, delivered December 3rd, and examined December 5th. Child male, weighs 5 lbs. 9 oz., and measures 17½ inches. Born in first position. Two lacerations in navicular fossa, one mesial; the other two lines to left, shorter, measuring two lines. Three superficial vestibular lacerations; all antero-posterior; one mesial, three lines long; one on right two lines long; one on left similar, but not so long.

Case XLVII.—M. W., aged twenty-three, II-para, delivered December 6th, and examined December 8th. Child male, weighs 7 lbs. 8 oz., measures 20 inches. Born in first position. A superficial mesial antero-posterior laceration of fossa navicularis. A transverse incision-like laceration of left labium, quarter of an inch long, extending from termination of nympha.

Case XLVIII.—G., aged twenty-five, III-para, delivered December 7th, and examined December

8th. Child male, weighs 7 lbs. 4 oz., and measures 18 inches. Born in second position. Laceration through fourchette, extending a quarter of an inch antero-posteriorly. On right labium majus, and extending from remains of hymen to termination of nympha, a superficial laceration quarter of an inch long.

Case XLIX.—A. C., aged twenty-one, II-para, delivered December 8th, and examined December 10th. Child male, weighs 6 lbs. 7 oz., and measures 19 inches. Born in third position. Antero-posterior incision-like laceration of fossa navicularis. At the end of nympha on left labium majus, an irregular laceration three lines in length. Three vestibular lacerations: one mesial, extends from urethra to clitoris; the second, on right, four lines long, oblique from orifice of vagina to nympha; the third, more nearly transverse, about two lines long commencing at orifice of vagina.

Case L.—A. R., aged thirty-six, III-para, delivered December 20, and examined December 21st. Child female, weighs 5 lbs. 14 oz., and measures 18 inches. Born in first position. Mesial, antero-posterior, deep laceration of fossa navicularis. Superficial left vestibular laceration from orifice of urethra to left nympha, nearly transversely.

Case LI.—C., aged thirty-four, VII-para, delivered December 18th, and examined December 20th. Child male, weighs 5 lbs. 2oz., and measures

17 inches. Born in fourth position. Several scratch-like lacerations of fossa navicularis. A transverse, scratch-like laceration of left labium majus, extending from vaginal orifice, four lines. Vestibular, scratch-like laceration, three lines long, from vaginal orifice at left side of mesial line.

CHAPTER IV.

On central rupture of the perineum.—Partial and complete central rupture.—Kinds.—Simulated central rupture.

CENTRAL rupture of the perineum is an important accident, which is generally misunderstood or imperfectly understood. This arises from two misleading circumstances; first, that it is considered only as an injury which produces a fistula-like passage from the vagina, opening externally between the anus and fourchette, all the tissues, from the skin to the mucous membrane inclusive, being perforated*; second, that it is considered only as an injury which is separate and distinct from ordinary laceration of the perineum, an isthmus of skin and other tissues remaining entire between it and the vulvar opening of the genital passage, whether entire or torn.

Now a central rupture of the perineum may take

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* Speaking of central rupture Joulin says (*Traité complet d'Accouchements*, p. 893): "Dans ces cas, le fœtus traverse la cloison périnéale, en laissant intact l'anneau vulvaire et l'anus. Parfois cependant, la rupture opérée, le fœtus a pu être expulsé par la vulve." The fœtus is described as generally permeating the rupture, but Lachapelle (*Pratique des Accouchemens*, tome iii. p. 145) believes that it generally passes in the right way through the vaginal and vulvar orifices. See also Liebmann, *Zeitschrift für Geb. und Gyn.* Band i. Heft 2, s. 397.

place without all the tissues being torn, or without a new artificial passage into the vagina being made. The central perineal rupture may affect only the skin, and that only partially—that is, as a split or crack. It may affect the skin only, the subjacent cellular tissue being exposed. It may affect the vagina only. It may affect the tissues between the vagina and the perineal skin, these two parts remaining entire.* Lastly, it may affect skin and mucous membrane and the tissues immediately adjacent, while there remains entire some tissue intervening between the skin and the vagina. These various forms of central rupture of the perineum are much more common than the rare, complete, perforating, central rupture, which alone is generally regarded when this accident is described. All these forms, besides the long-known perforating or fistula-like form, I have verified in actual

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* This rupture of intermediate tissues is illustrated in Case I., where this kind of accident occurred under peculiar and not exactly "central" circumstances. In this case there was laceration of mucous membrane, making an open communication with the ruptured intermediate tissues. Had there been no such opening, the rupture would, in my opinion, have been justly classed as "central." Had there been no such external opening, we should have had in this intermediate rupture a distinct cause of thrombus of the part. Such thrombi, and no doubt from this sort of cause, are common around the vagina at various parts, as I have repeatedly made out in dissections of women dying very soon after delivery. Kleinwächter makes some remarks on this subject (*Grundriss der Geburtshülfe*, s. 306). Spiegelberg (*Lehrbuch*, 1877, s. 632) points out the absence of any connexion of thrombus with varix.

cases. They may all be discovered on a careful study of the parts in primiparæ, for central rupture is almost, but not altogether, confined to primiparæ. In my twenty-five cases of primiparæ, central rupture occurred three times, or in 12 per cent.

In the following case is presented an example of central rupture of the perineum, consisting only of split or cracked skin.

Case LII. (V.)—M. K., aged twenty-five, primipara, delivered in the Royal Maternity Hospital on August 8th, 1876, and examined the following day. The posterior part of the vaginal orifice was lacerated in the usual way. Continuous with this was a laceration of the fourchette and perineum to the extent of a quarter of an inch. Behind this laceration, and continuous with it, was a line of split skin which extended to the verge of the anus. The epithelium over the split was entire, but its translucency showed a line of ecchymosis beneath. On the following day the epithelium was partially removed (not artificially), and on the next day it was absent along the whole line of the split, there being now a linear and just visible raw surface. That this split was a central rupture, or one quite independent of the perineal laceration anterior to it, was evident from its length. Had it been only about a line in length, instead of fully an inch, it might have been regarded as a just more than

threatened continuation of the ordinary perineal laceration that existed. Its length made this explanation of it quite untenable, and compelled us to regard it as an independent or central rupture.

The following case is an example of central rupture of the perineum where this rupture affected the whole thickness of the skin, the subjacent cellular tissue being laid bare.

Case LIII. (XII.)—M. S., aged twenty-eight, primipara, delivered in the Royal Maternity Hospital on September 5th, 1876, and examined by me on the 6th. There were extensive vulvar lacerations which do not here demand description. The posterior margin of the vaginal orifice was lacerated in the usual way. Continuous with this injury was a laceration of the fourchette of slight extent. Then there was an isthmus—or narrow bridge—of sound skin. Behind this bridge—or isthmus—the perineal skin was completely lacerated for nearly an inch, and to within half an inch of the anal opening.

In this instance the skin alone was torn through centrally. The existence of the entire bridge of skin in front of the central perineal laceration, and between it and the injury of the fourchette, demonstrates its character as a central rupture, independent of the slight anterior laceration, of which it might otherwise have been regarded as a continuation.

When the vagina alone is torn in a part corresponding to the perineum, the injury may be described and regarded as a mere vaginal split, or laceration, quite independent of the perineum ; but, laceration of the vagina is, on the other hand, quite as much a part of complete central rupture as is laceration of the skin ; and it cannot but be desirable to consider its production as a partial or incomplete central rupture. It is the combination of the vaginal rupture with the perineal rupture that forms the complete central rupture. As the skin may alone be ruptured, so the vagina and adjacent tissues may alone be ruptured, and of this accident the following case is an illustration :—

Case LIV.—F. G., about twenty years of age, primipara, was delivered on the 29th September, 1873, and immediately examined. The vaginal orifice was lacerated posteriorly in the usual way, but the fourchette and perineum were entire. Above the middle of the perineum the vagina was deeply lacerated. The finger, passed through the orifice of the vagina, could feel the rent ; and, by simultaneous external and internal examination, the thinness of the skin and other tissues remaining entire could be made out. Further particulars of this case are given at page 73 of this book.

The following case seems to me to show that a central rupture may affect the skin below and the

vagina above, and leave the intervening parts entire. The existence of the bridge of tissue, to be afterwards described, demonstrates that the whole laceration was not an extension of the ordinary perineal laceration, and that the rupture behind the bridge was of central character. Now, the central rupture was complete for a small extent behind the bridge of tissue, there being there a free passage from without into the vagina. But, the bridge of tissue remained entire over some extent of the central part of the rupture, which is regarded as beginning where the ordinary perineal rupture ended, that is, at the bridge of tissue.

Case LV. (VII.)—E. C., aged twenty-four, primipara, delivered in the Royal Maternity Hospital, on August 14th, 1876, and examined on the following day. The vaginal orifice was torn posteriorly in the usual way. This laceration was continuous with a laceration of the fourchette and perineum, which extended backwards, so far as the skin was concerned, to within less than half an inch from the anal opening. At the posterior part of this laceration the little finger could be passed into the vagina behind a persistent bridge of tissue. The perineum was completely lacerated anteriorly, only to a slight extent. There was a complete central rupture posteriorly, and this was separated from the ordinary perineal part of the general laceration by the bridge of tissue. The central

rupture was continuous with the ordinary perineal rupture so far as the vagina and the perineal skin were concerned.

This case is not one of ordinary complete central rupture, because the perineal skin was not entire in front of it. It was only the bridge of tissue between the vagina and perineal skin that remained entire, and proved its central character.

It is a great mistake to suppose that those only are central ruptures of the perineum, where the rupture is separated from the vulvar orifice by a bridge, or strap of skin, connecting the labia. There can be no doubt that cases of apparently extensive simple perineal laceration are really in many instances ordinary perineal lacerations, conjoined with the rarer central lacerations; or, are really extended central lacerations or ruptures, ordinary perineal laceration or rupture never having had a chance of occurring.

In Case LIII., already given, had there been absence of the little band of skin connecting the labia majora in front of the partial central rupture, the case would probably, and naturally, have been regarded as an extensive simple perineal laceration of ordinary kind. The bridge—or band of skin—demonstrated where the ordinary perineal laceration ended and the partial central rupture began. In Case LV. the bridge of tissue prevented a natural mistake of like kind.

But, my present remarks, while well illustrated by cases of partial central rupture, are specially directed to complete central rupture. Now, a complete perforating central perineal rupture may be conjoined with an ordinary perineal rupture, there being no connecting band or bridge to show where the one ends and the other begins. There cannot be said to be any such conjunction where a central rupture is so great that it tears forward into the vulva: for, under such circumstances, ordinary perineal rupture has had no chance of occurring: the whole rupture is central in character.* But, it happens frequently, in cases of complete central rupture, that the child is not born through the rupture or new exit from the vagina, but through the proper opening of the canal; and, in such a case, the passage of the head will produce the same vaginal and perineal lacerations as if the central rupture had not previously occurred. Now, under such circumstances it is very likely that the ordinary perineal laceration, if it occur, will be conjoined with the central one, and the relative

* Dr. Champneys informs me that when assistant physician to the Royal Saxon Lying-in Hospital at Dresden, he saw a perineum give way in the following manner: the skin over the centre, about midway between anus and fourchette, "starred," and the head was seen through this ragged hole; secondly, the rupture extended forwards into the fourchette. He is of opinion that the skin gave way before the mucous membrane, that is, that the rupture began superficially. Dr. Godson also has seen a case in which a longitudinal central rupture began in the skin, and then extended more deeply.

extents of the two will be incapable of being decided by subsequent examination.

An ordinary perineal laceration is an injury quite distinct from a central rupture. It arises from insufficiency or indilatability of the orifice or orifices through which the child has to pass. A central rupture arises from an insufficiency or indilatability of the canal leading to the orifice. Yet, no doubt, its occurrence may be favoured by indilatability of the vaginal and vulvar orifices. This is illustrated by the case of a mare recorded by Harvey, which became a subject of the accident from the animal having been rung to prevent impregnation. The parts affected in central rupture may be torn by extension of a tear begun at the fourchette as the head passes through the orifice of the vulva. If the injury would have occurred, even if there had not been an ordinary perineal laceration, then it is a central rupture, accidentally conjoined and confounded with an ordinary perineal laceration.* If such a laceration would not have occurred had not the ordinary perineal laceration led to it, then it is merely an extensive ordinary perineal laceration.

It is commonly related that, in cases of central

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* Dupuytren (*Lesions of the Vascular System*, &c., Sydenham Society Edition, p. 319) expresses this in another way. "I have reason to believe" (says he) "that this accident is not so unfrequent as has been represented; but in most cases the vaginal commissure is ruptured, and thus the accident is called laceration of the fourchette."

rupture, the child passed through the new opening, but I am inclined to believe, with Lachapelle, that it rarely occurs. Such a passage is probably sometimes believed in after the event, but not carefully observed while the passage is going on. If the child passed through the rent, it would probably extend the central rupture into the vulva, and the practitioner would, after the birth, probably regard the case as one of ordinary perineal laceration of high degree.

The simultaneous, or nearly simultaneous, occurrence of central and ordinary perineal rupture, as occasionally occurs, and which Lachapelle has illustrated by cases, is probably not a rare one. In such cases, if the ruptures unite, and if there be no observed antecedence of the central rupture, it will be impossible to decide whether the great extension of the rupture is central or not.

The simultaneous, or nearly simultaneous, occurrence, with or without coalescence, of ordinary and of central perineal rupture, is not only described, but easily understood. For, while the occiput is distending and tearing the vulvar orifice, the larger and following part, embracing the forehead, may be centrally lacerating the perineum.

It is necessary, finally, to point out that a complete central rupture may be simulated by the healing together or union of only the anterior part of an ordinary perineal rupture. In this case the

diagnosis may be made by discovering cicatricial appearances on the band of union in front of the simulated central rupture. A similar occurrence is familiar to all who have seen much of the operation of restoration of the perineum,—union failing in the posterior part only of the united labia.

Case LVI.—A primipara was delivered under my care, naturally and easily. Only, there was considerable perineal laceration, which demanded my special attention. Some months afterwards she was brought under my notice, on account of something unusual at the orifice of the vagina. I easily discovered an apparent central perineal rupture, the appearance resulting from the healing together of the labia, or union of the anterior part of an ordinary perineal laceration, while the posterior part failed to unite.

CHAPTER V.

Laceration of recto-vaginal septum—Fistula resulting from central rupture—Central character of some recto-vaginal lacerations.

LACERATION of the perineum, or tearing of it, is the proper designation of the accident that so frequently befalls it during the second stage of labour. In the great majority of cases the laceration is begun by over-distension of the anterior border of this part, which consequently gives way at the fourchette, its weakest portion. The tear, once commenced, is easily made to run backwards to a variable extent through parts which would have maintained their integrity if they had not been taken at a disadvantage, produced by the aforesaid giving way of the fourchette.

Central laceration of the perineum is likewise commenced by over-distension, and subsequently increased. Of this rare accident, when complete and perforating, I have met three examples. In one the rupture was healed by the timely early stitches of the medical attendant. In the other two I operated long after the occurrence of the accident. Both were easily healed.*

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* There is a curious difference of opinion as to the probability of complete central rupture remaining fistulous. Simpson and others

Laceration of the recto-vaginal septum is, so far as I know, regarded as a result, not invariably, but nearly so, of an extension of laceration of the perineum. Of this accident I shall mention two cases where it certainly was not so, for in both a recto-vaginal laceration, or recto-vaginal fistula, was produced, while the sphincter ani and a considerable extent of perineum remained entire. It has thus, in such cases, the character of a central rupture.

Case LVII.—Mrs. ——, mother of one child, was sent to me from a distant part of Scotland, to be cured of a recto-vaginal fistula. The opening was rounded, as large as would transmit a thumb, and its lower margin was just above the sphincter ani. The only account I could get of it was that it was the result of labour, being produced during the second stage. Besides the recto-vaginal fistula, the perineum had been extensively injured in the usual way. The woman and her child were healthy. With the aid of Drs. Hardie and Underhill I pared the edges of the fistula, and united them by interrupted silver sutures. The woman soon returned home quite cured.

Case LVIII.—Mrs. —— was delivered in 1861 of her first child, and the perineum was, in the

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think it rarely does so (*Edinburgh Medical Journal*, July 1855, p. 2), while Lachapelle thinks it generally remains fistulous (*Pratique des Accouchements*, tome iii. p. 146).

usual way, lacerated very extensively; the sphincter ani and recto-vaginal septum being involved in the injury. She then had six additional confinements. Her health now became very bad. She had frequent recurrences of diarrhœa, and I operated to restore the perineum in 1872, with complete success. In 1875 I attended her in her eighth confinement. When the head had nearly completely passed the outlet of the ligamentous pelvis, and was distending the perineum as much as it appeared to admit of, I delivered in the absence of a pain, pressing out the head* over the thin and still entire perineum as restored in 1872. This pressing out was effected without passing the finger into the rectum.

To this manœuvre I attach importance, only because it was done in the absence of a pain, which might have precipitated the birth; and, on account of the direction of its force, would have produced at least a tendency to laceration in spite of careful support of the weak structures. The delivery was effected without any apparent damage to the restored perineum, except a little laceration of the

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* See *Edinburgh Medical Journal*, January, 1875, p. 644. See also some remarks on the old or rectal method, by Dr. P. Mundé, *American Journal of Obstetrics*, November 1875, p. 536. See also Olshausen, *Ueber Dammverletzung und Dammschutz*, in Volkmann's Sammlung, No. 15, s. 369. Also Fasbender, *Zeitschrift für Geb. und Gyn.*, Band ii. Heft 1, s. 57.

fourchette. But the discharge of blood and air per anum during the third stage of labour made it plain that the recto-vaginal septum had not escaped without injury. Combined rectal and vaginal examination showed that this septum had yielded, under over-distension, at the highest part of the cicatrix, and about 1½ inch above the margin of the anus. The injury thus produced was cured by spontaneous reunion. The laceration in this case, and inferentially in the same woman's first labour, was manifestly the result of want of capacity or of indilatability of the vagina, as in central rupture.

The only case at all analogous to this, of which I know, is recorded by McClintock and Hardy.* "It was the woman's first child, and when the head, which was very large, came to be engaged in the outlet, it caused great distension of the perineum, as the os externum was unusually small. The perineum was prolonged over the head, causing the anus to be very much dilated, and through it was visible the posterior surface of the recto-vaginal septum; in this latter a rent had taken place, exposing to view the forehead of the infant. Every care and attention were used to prevent the formidable laceration that was impending; but, in spite of our best endeavours, a terrible rent

* *Practical Observations on Midwifery*, p. 8.

took place, leaving only a few fibres of the sphincter ani remaining entire." Lachapelle* has a case which is more remotely analogous, there being only thinning of the recto-vaginal septum. I have recently seen a case in which there was only slight perineal rupture, but extensive vaginal longitudinal rupture posteriorly, the recto-vaginal septum being reduced to apparently only the mucous membrane of the rectum. A case somewhat similar is recorded by Budin.†

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* *Pratique des Accouchements*, tome iii. p. 203.

† *Des lesions traumatiques chez la femme dans les accouchements artificiels*, p. 24.

CHAPTER VI.

Post-partum sloughing of perineum and recto-vaginal septum simulating laceration—Other perineal sloughings.

THE class of cases to which I wish, in this chapter, to draw particular attention, differs from any of the kinds to which I have made reference. The parts in this class of cases are entire after complete delivery, it may be for days ; and then they give way, conditions being produced that are apparently identical with those that result from direct laceration during the second stage of labour.

In the first case of this kind which I shall narrate, the course of events is very evident. Over-distension of the centre of the perineum had taken place during delivery to such an extent as was inconsistent with continued life of the most stretched parts, but not with temporary entirety. The result was what has been called a perineal fistula. The necrosis of the persistent entire skin of the centre of the perineum led to the same condition as results from central rupture ; only the perineal fistula was a secondary result of the distension, not primary.

CASE LIX (LIV).—Mrs. ——, a fine healthy young woman, was delivered on 29th September,

1873, of a fine healthy male child. The child's head was long arrested in its progress by the perineum. Assisted by Dr. Underhill, I applied the forceps and easily effected delivery. The perineum was not lacerated in the usual way, the fourchette even remaining entire. After delivery, there was observed a spot of about three-quarters of an inch in diameter, and slightly livid and prominent, midway between the anus and fourchette, which called for investigation. It was found by simultaneous external and vaginal examination that the tissues of the vagina were deeply lacerated above the prominent part of the perineum, and that the persistent textures, including the skin, were very thin at this point.*

Particular attention was paid to the discharges, which always appeared to be healthy and without fœtor. The parts were not visually examined till the ninth day after delivery, when the nurse called my attention to the state of the perineum. I then found that in the middle of the previously swollen part of the perineum there was a rounded opening sufficient to transmit a small cedar pencil into the vagina, fully one-eighth of an inch in diameter. It healed up before death. On the twelfth day after delivery peculiar pyæmic symptoms mani-

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* A case of rupture by sloughing is recorded by Dupuytren (*Lesions of the Vascular System*, Sydenham Edition, p. 315).

fested themselves, and a fatal issue ensued on the twenty-seventh day after delivery.

The following case is much more remarkable, as the injury occurring after delivery was much greater, and is much more difficult to account for. For several days after parturition there were the appearances of an ordinary severe laceration, not involving the sphincter ani; and, subsequently, without any discoverable additional cause, there was complete division of the perineum, sphincter, and lower part of recto-vaginal septum. I extract the details about to be given chiefly from the report by Mr. Naylor, house-surgeon, in the hospital case-book. These details are pretty fully given, but there would, of course, have been still more of them had the accident which occurred been foreseen. Those details which have no bearing on the accident are here omitted entirely.

Case LX.—R. C., aged twenty-eight, primipara, is an ill-made woman, of about 4 feet 11 inches in height. She has a contracted, rickety pelvis, with projecting sacrum and otherwise reniform brim, whose conjugate is scarcely 2½ inches. She had been about thirty-six hours in labour when delivery was completed. The waters had been discharged about a day before labour began. After thirty-one hours of regular pains the os uteri was very high, and not larger than easily to admit the finger, though quite soft, and the head

was still high above the brim. The cervix was dilated by indiarubber bags for about four hours, and then delivery was effected by version and podalic extraction, the head being perforated when its base was brought to the brim of the pelvis. No difficulty was experienced in completing delivery after the base of the skull had passed the brim. The perineum was lacerated, but as there was nothing apparently peculiar about the accident, the part was not particularly examined at this time. The child weighed 6 lbs. 10 oz.

9*th October*.—The day following delivery. Pulse 96, temp. 99°. Complains of severe pain in the region of the external genitals. The perineum found to be ruptured. A linear fissure of the skin only extended to the verge of the anus, whose sphincter was found to be entire by passing the finger through it. This fissure through the skin (or cracked skin) was half an inch in extent. The depth of this linear fissure is very little, probably not through the corium, for it is not increased by separating the labia and adjacent parts. When the labia were separated the vaginal structures were seen to be entire for at least one quarter of an inch farther forwards than the entire part of perineum, including the split skin. The wound is healthy, but around it and in the labia there is redness, such as is seen over diffuse cellular inflamma-

tion. The urine has to be drawn off; reaction acid; is albuminous.

10*th October.*—Slight jaundice and vomiting. Pulse 96, temp. 98·8°. Bowels moved by medicine. Urine has to be drawn off. State of perineum as before.

11*th October.*—Pulse 92, temp. 98°. Urine has to be drawn off; lithates copious; no albumen. Perineum less inflamed.

12*th October.*—Jaundice diminishing. No vomiting. Pulse 92, temp. 97·8°. Urine has to be drawn off. Perineum has lost its swelling and diffused redness. Cutaneous fissure appears to be as before.

13*th October.*—Is comfortable to-day. Pulse 84, temp. 99°. Urine has to be drawn off. Perineum not examined.

14*th October.*—Pulse 92, temp. 100·6°. Urine has to be drawn off. Perineum not examined.

15*th October.*—Pulse 88, temp. 98·8°. Urine has to be drawn off. Perineal laceration as before. Wound granulating. Anus found entire.

16*th October.*—Pulse 100, temp. 102·5°. Bowels acted upon. Three motions. Urine spontaneously discharged. Perineum not examined.

17*th October.*—Pulse 100, temp. 101·8°. Urine had to be drawn off, and continued to be so till the 24th. Perineum not examined. She complains of pain in the external genitals.

18*th October*.—Pulse 96, temp. 100·5°. Perineum not examined.

19*th October*.—Pulse 96, temp. 101·4° Slight attack of phlegmasia dolens in left leg. Perineum not examined.

20*th October*.—Pulse 88, temp. 99°. Perineum examined, and found to be completely divided in its whole length, the fissure extending through the sphincter and for an inch above the verge of the anus. The newly observed wound was clean, but small portions of soft slough were observed about it. It must be remarked that the part had not been examined by me for five days, and was regularly washed by the nurse in attendance. Except this great fissure no appearances of disease were observed.

When she left the hospital the appearances were as before, closely resembling those found after an ordinary laceration of the same extent produced primarily, by over-distension during the birth of the fœtal head.

The further history of the case presents nothing of special interest. The patient was dismissed from the hospital on the 30th October in a convalescent condition, and with advice to undergo an operation for restoration of the perineum after some time had elapsed.

The only occurrence, which I know of, analogous to what took place in this last case, I shall now

adduce. I may say, first of all, that there is little, if any, analogy between it and the ordinary vesico-vaginal or other sloughings, the result of continued pressure; for on the affected parts here there was only momentary pressure. In an ordinary laceration of the perineum of the second degree, it is not rare to observe behind the gaping laceration a line of split or cracked skin, such as was seen in this case to extend to the anus. This split skin almost invariably heals up, along its whole extent. In an ordinary laceration of the perineum, with or without split skin beyond the open wound, it is often observed that, as in my case, the vagina is not torn so far backwards as the perineal skin. But, in these cases the vagina is generally found to slough away or retract as far back as the gaping skin wound. In other words, the gaping skin wound does not generally heal up forwards till it comes to the posterior margin of the vaginal wound; but the vagina retracts or is destroyed backwards till it comes to be in line with the open skin wound. Sometimes the reverse is fortunately the case, the skin wound healing up forwards till it comes to be in line with the edge of the less extensive vaginal wound. I may mention here the scarcely credible but recorded occurrence of spontaneous healing of the whole length of a laceration which extended through the entire perineum and recto-vaginal septum—a wonderful healing, like that of the

spontaneous healing of vesico-vaginal fistula produced by instrumental delivery, of which I have personally known three examples.

Besides the analogous sloughing of the vaginal wall referred to in last paragraph, there are other illustrative sloughings in these parts. Sloughing of parts of the hymen after delivery is not rare. Sloughing not rarely affects the pendulous tags already described as occasionally produced by the abrupt running out of circular lacerations parallel to the margins of the vaginal or vulvar orifices. Moreover, I have seen sloughing of an external pile in a recently delivered woman, who had a labour of no remarkable difficulty.

CHAPTER VII.

On some of the relations of the fœtal head to rupture of the perineum—Comparison with passage of brim—Comparison of suboccipito-vertical and other measurements—Importance of suboccipito-frontal diameter—Order of lacerations.

In a former chapter I have discussed some of these relations, but I now wish to enter upon some points more fully.

While the passage of the fœtal head through an ordinary contracted pelvic brim has been carefully studied, and many of the mutual influences well made out, the same cannot be said of the passage of the fœtal head through the vaginal and then through the vulvar orifice. In important respects the former passage is an easier and simpler subject of study than the latter, and there is in consequence a contrast between them. The passage through the brim is, generally, the forcing of the globose head through a passage contracted at one part. The passage through the vaginal and vulvar orifices is through an obstruction which is circular, or nearly so, and acts at every part. The passage through the brim is therefore a matter affecting one diameter of the fœtal head, or a single series of diameters of nearly the same name, extending in a nearly vertical line from above downwards on the

fœtal head. The passage through the vaginal and vulvar orifices affects a circumference or circumferences of the head, embraced, as it is, all around by the opposing indilatable margins of the orifices. In the passage through the brim, the head has to suffer and be moulded, while the resisting parts are practically unyielding, and may be regarded as unaffected. In the passage through the vaginal and vulvar orifices the head has to suffer to some extent, and be moulded slightly, but the resisting parts are much more moulded, and must yield or be lacerated.

The passage of the fœtal head through a generally contracted pelvic brim has more likeness to the passage through the vaginal and vulvar orifices than has the passage through an ordinary contraction affecting the conjugate diameter chiefly. In both of the former cases, the whole circle of the aperture, or nearly the whole, resists the advance of the head. In both, and for nearly the same reasons, the head advances or is forced onwards in that way in which it passes most easily; that is, with one end of the long diameter of the oval head coming first; or, with the posterior triangular fontanelle, or some part near it, forming the presenting point.

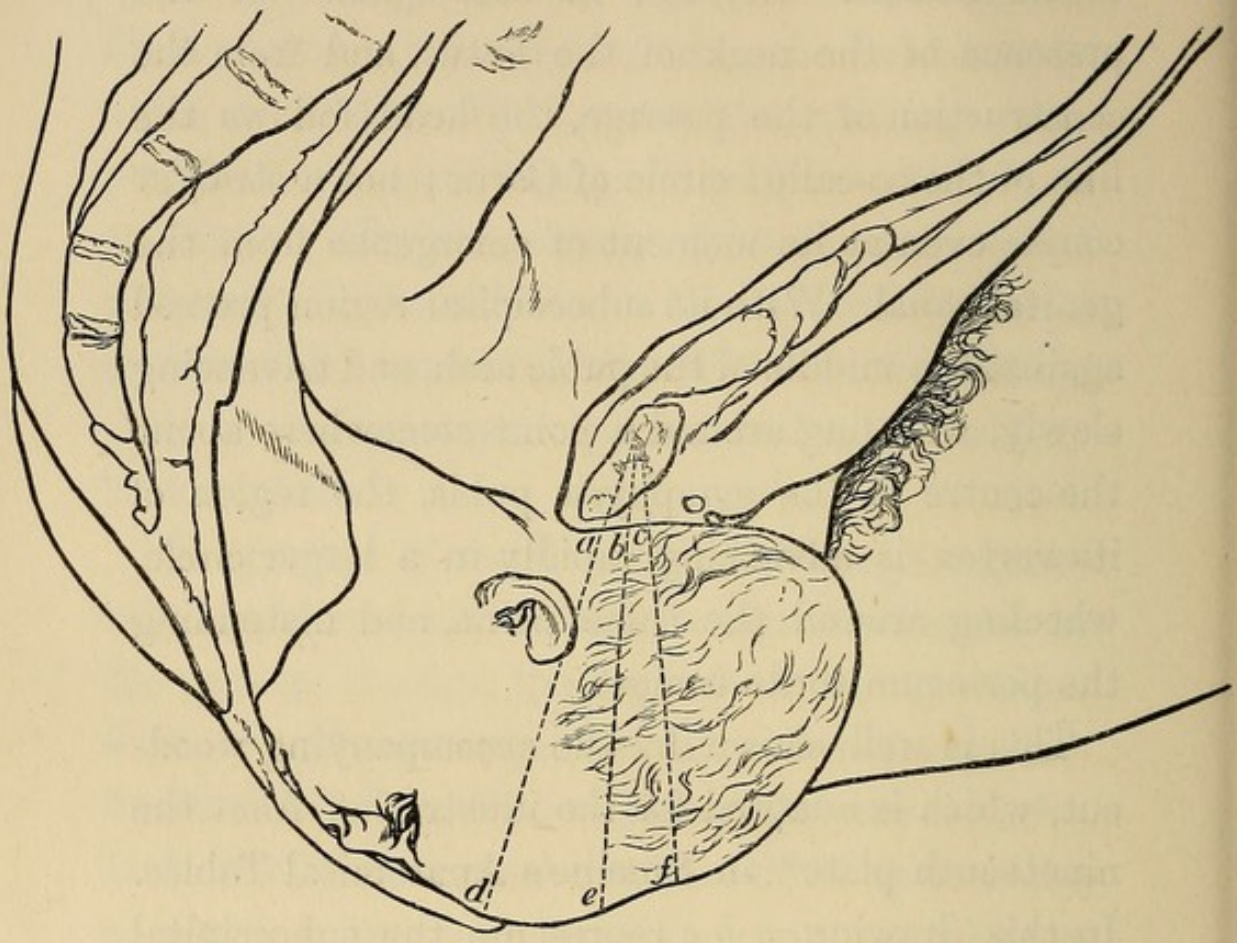
The fœtal head does not come through the vaginal and vulvar orifices simply or exactly in the line of direction of its long axis. That is pre-

vented by the connexion with it of the neck, which forbids the amount of flexion-like movement that might occur if the neck and body were imagined to be absent. Besides, in consequence of the presence of the neck of the fœtus, and from the construction of the passage, the head follows the line of the so-called circle of Carus; not a straight course even at its moment of emergence from the genital canal. With its suboccipital region pressed against the middle of the pubic arch, and advancing slowly, wheeling around a point somewhere about the centre of the symphysis pubis, the region of its vertex is advancing rapidly in a larger circle, wheeling around the same point, and distending the perineum to its utmost.

This is well shown by the accompanying wood-cut, which is adapted for the illustration from the nineteenth plate* in Smellie's Anatomical Tables. In this drawing, *a b c* represents the suboccipital region, or a line joining the occipital protuberance and the upper region of the neck or nucha. *c f* represents the suboccipito-vertical diameter: it passes through the plane of the parietal tuberosities, and reaches the sagittal suture about ¾ inch behind the centre of the anterior fontanelle: it

* The drawing of the position of the neck and shoulders is far from correct. It is only for the cranial part of the drawing that the cut is given.

measures about 3½ inches; and its corresponding circumference passing over the parietal tuberosities measures about 11¼ inches. *b e* is the suboccipito-



bregmatic diameter: it passes from the suboccipital region at a point a little nearer the nucha than the former, and reaches the middle of the anterior fontanelle in a line joining the limbs of the coronal suture: it measures about 4 inches, and its corresponding circumference measures about 12½ inches. *a d* is the suboccipito-frontal diameter: it passes from the suboccipital region at a point a little nearer the nucha than the former, and reaches the most prominent part of the forehead at the

frontal suture, about an inch in front of the centre of the anterior fontanelle or the middle point of a line joining the fronto-parietal limbs of the coronal suture; it measures $4\frac{1}{4}$ inches, and its corresponding circumference is about $12\frac{3}{4}$ inches. These various figures are not taken from a sufficiently large number of newly-born children to give them value as averages, but their value, when used in comparison one with another, is evident. They may be given in a tabular form thus*—

c f suboccipito-vertical diameter	$3\frac{1}{2}$	inches,	in circumference	$11\frac{1}{4}$	inches.
b e suboccipito-bregmatic	„	4	„	„	$12\frac{1}{2}$	„
a d suboccipito-frontal	„	$4\frac{1}{4}$	„	„	$12\frac{3}{4}$	„

Every practitioner, supporting the perineum during the birth of the head, must frequently have observed that it has retained its entirety until the projecting forehead came on, and this lacerated it. Now, this is easily explained by the above table of measurements, for it is not till the suboccipito-frontal diameter is passing that the perineum is stretched to the utmost. The suboccipito-vertical and suboccipito-bregmatic diameters may both pass over the perineum without tearing it, and then the large suboccipito-frontal may lacerate it on account of its greater dimensions. No doubt the suboccipito-bregmatic or the sub-

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* A similar demonstration is well given by Graily Hewitt in his work, *On Supporting the Perineum*, p. 33.

occipito-vertical diameter may tear the perineum, or even an earlier passing part; and, in this case, the tear may be extended and extended, as each larger part follows, till the largest suboccipito-frontal emerges, completing the injury done.

The order in which all the lacerations of the external genital organs take place I cannot decide; but, the following statements are either self-evident, or nearly certain.

Before the suboccipito-vertical diameter has passed the vaginal opening, or even when only a caput succedaneum protrudes, the vaginal orifice is lacerated posteriorly. The laceration increases as the head advances.

While the parietal protuberances pass through the vaginal and vulvar orifices, they may lacerate one or both sides of the vaginal orifice or of the vulvar orifice.

The vestibular lacerations take place before the suboccipito-frontal diameter has passed the vulvar orifice. Their occurrence helps to save the perineum from laceration.

A laceration of the fourchette may take place early in the passage of the head.

An extensive laceration of the perineum (say three-fourths of an inch or more) obviates tension of the vaginal and vulvar orifices, and therefore prevents further laceration after its occurrence.

The perineum is the part last lacerated.

Cases of ordinary or characteristic central perineal rupture, in which the head advances in its natural way, and is born through the vaginal and vulvar orifices; and, still better, cases of incomplete central rupture, such as I have recorded in a former chapter, require special consideration. They show nearly with certainty that the anterior part of the perineum is in some cases, including themselves, considerably more extensible than its middle or posterior part; for in them the anterior part or a portion of it (it may not be the most anterior part or fourchette) remains entire, while the suboccipito-frontal diameter passes over it, and after the middle of the perineum has given way under the distension by the same diameter of the fœtal head.

In the cases of complete central rupture which I have seen there were two perineal ruptures; first, of course, the central rupture; and, second, an ordinary rupture of the fourchette or anterior part of the perineum. Between them, in the most characteristic cases, but not in every instance, there is an entire strap or bridge of skin unhurt. No doubt the unhurt bridge or isthmus of skin may, in some cases, be absent, and the two distinct ruptures be confused in one. Whether this be the case or not, it is to be remarked that both tears may go on simultaneously, and so rapidly that the observer may be unable to distinguish their separate occurrence. While the suboccipito-vertical

or even a smaller circumference is distending, and, it may be, tearing the vaginal and vulvar orifices, the hitherto entire middle of the perineum may be at the same time suffering central rupture by the great advancing suboccipito-frontal circumference. The middle of the perineum may have endured dilatation by the suboccipito-vertical and suboccipito-bregmatic circumferences which have advanced to lacerate the vaginal and vulvar orifices, but cannot endure further distension by the suboccipito-frontal, which therefore tears it, and may yet pass over some of the anterior part of the perineum without destroying such anterior part.

In many cases of central perineal rupture the injury is done before the head affronts the vaginal orifice. In many cases the injury is done, as Dupuytren points out, after the head affronting the vaginal and vulvar orifices is arrested there by indilatability of the orifices or by malposition of them.

McClintock and Hardy's case, given in a former chapter,* is a fine illustration of the injurious power of the suboccipito-frontal diameter and of injury arising before the perineum was even fully dilated. In that case, as these gentlemen describe, the forehead burst the recto-vaginal septum.

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* See p. 71.

CHAPTER VIII.

On some of the relations of the perineum and vaginal and vulvar orifices to the fœtal head—Diminution and subsequent increase of suboccipito-bregmatic diameters—Comparison of fœtal heads in primiparæ and multiparæ.

HAVING, in last chapter, discussed the injuries of the perineum produced by the passing fœtal head, we have now to devote attention to the injuries of the fœtal head, caused by the resisting perineum and vaginal and vulvar orifices; for it may be held as quite certain that every obstacle or modification of resistance to the advancing head leaves its mark upon it.* In the case of difficult passage through the pelvic brim, the changes or injuries are often well marked, and have been carefully studied, with great advantage to the progress of obstetrical science. But, the vaginal and vulvar orifices, and the perineum also, do, in like manner, produce their peculiar capita succedanea, equitations of bones, and shears; and they demand more careful study than has yet been accorded to them. In the meantime I can only enter upon some general views.

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* The converse of this is also true, and to this Swayne does not appear to me to have given sufficient weight in his valuable paper (*British Medical Journal*, p. 459. September 25, 1878).

The caput succedaneum of the vulvar orifice, or of the end of the second stage of labour, I have already elsewhere described.* That the perineum and vaginal and vulvar orifices may by their indilatability lead to equitation of bones there is no doubt, but, I have not studied the subject so as to enable me to describe any peculiarity in such overlapping. In regard to the shear produced by the forcing of the head over a perineum, and through a vaginal and vulvar orifice difficult of dilatation, it may be stated that the lateral or antero-posterior part of the ordinary shear† is in great measure due to the resistance of these parts.

The mortality of male children in birth, and shortly after it, is greater than that of females. Males more frequently demand artificial assistance in delivery than females. There is no doubt that both these evil conditions are in part owing to the greater size of the male head, and the consequent need of more dilatability and more actual distension of the perineum and vaginal and vulvar orifices than is required by females, circumstances which imply greater injury of the fœtal heads of males, and consequent greater mortality of that sex.

It has been shown that the part of the fœtal

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* Matthews Duncan, *Contributions to the Mechanism of Natural and Morbid Parturition, &c.* 1875, p. 235.

† *Ibid.*, p. 216.

head which most distends the perineum and vaginal and vulvar orifices is that generally called the suboccipito-bregmatic diameter or circumference (including the suboccipito-vertical, suboccipito-bregmatic, and suboccipito-frontal diameters or circumferences of last chapter). Hence it should be expected that the suboccipito-bregmatic diameter should show evidence of special compression, and this has been admirably done by Budin.* His measurements were made to show the amount of resilition gradually effected within about two days after delivery, giving thus a satisfactory indication of the amount of compression during birth. "The augmentation (says he) of the suboccipito-bregmatic diameter has been constant (in all his fifty-two cases measured); this augmentation has been almost always very considerable, and has amounted even to twelve mms. The suboccipito-bregmatic diameter is, in fact, that which increases the most after delivery."

In accordance with what has been stated in this paper regarding the suboccipito-frontal diameter or circumference I have no special measurements to adduce in evidence, but I daresay every one will be prepared to believe in its particular diminution during labour, for the lowness of the fore-

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* *De la Tête du Fœtus au point de vue de l'Obstétrique.* Paris, 1876, p. 67.

head in a much-compressed head is well known to accoucheurs, and is often a horrid sight to the parents ignorant of its temporary character. But in regard to the suboccipito-vertical diameter or circumference, I have valuable measurements by Budin to adduce, whose evidence quite supports the line of demonstration pursued in this paper. As already stated, the parietal protuberances are embraced in the suboccipito-vertical circumference, and Budin's measurements indicate the amount of diminution of the biparietal diameter, which is one measure of the suboccipito-vertical circumference. Budin describes, and his measurements show the bitemporal diameter, which corresponds to the suboccipito-bregmatic proper, more diminished during labour than the biparietal. Or, to use his own words, "The biparietal diameter also augments after delivery, but this augmentation is not constant; it is by much the least considerable: in fifty-two cases, twice only has it amounted to five mms., once to six, and once to seven mms."

If the argument of this paper is correct, then there should be a great difference between the fœtal heads of primiparæ and those of multiparæ. The greater injuries of the perineum and external genital organs in primiparæ than in multiparæ should be correspondingly reflected in the heads of the fœtuses born in primiparæ and in multiparæ. And so it is. The mortality in birth, and shortly

after it, of children born of primiparæ, is greater than of children born of multiparæ. The heads of the children of primiparæ are more deformed by labour than those of multiparæ. Budin, our best authority on this point, writes as follows:—* "That this resistance of the soft parts—and Professor Depaul, following M. Dubois, insists strongly on this point—that this resistance of the soft parts causes, during labour in primiparæ, a longer duration of the period of expulsion, is a fact about which there can be no doubt. From it there results also a more marked deformation of the head. The figures which we have given, and which show considerable modifications in the form of the cranium, are all the consequence of deliveries in primiparæ. In multiparæ, on the contrary, the deformations are much less remarkable, and often are almost absent."

Here I must draw to a close, with the remark, that the subject is well worthy of further elucidation and description. Of two sets of facts I feel special want, namely, a statement of the actually observed injuries of mothers produced by the birth of males, as compared with those produced by the birth of females;† and a statement showing, com-

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* *Ibid.*, p. 70.

† See Fasbender, *Zeitschrift für Geb. und Gyn.*, Band ii. Heft 1, s. 54.

paratively, the injuries produced in head-last cases and head-first cases. The matter is one not of so easy solution as it may at first sight seem, for mere great number of injuries may be made up for by severity in the smaller number. One serious laceration may be more important than several small ones. Besides, one deep laceration may act as a preventive of several smaller.

CHAPTER IX.

Procidentia of the pelvic viscera—Nomenclature—Frequency—Age—Multiparity—State of parts—Ulcerations, their pathology—Varying state of cervix uteri—Tensile hypertrophy of uterus—Causation—Symptoms—Diagnosis—Treatment.

UNDER this title are included various forms of one affection, various species of one genus. It is certain that, when one organ or viscus is procident—that is, is displaced beyond the natural limits of the pelvic cavity—it is not alone, but other organs accompany it. In the present state of our knowledge, it is a mere accident which organ or organs are primarily procident, or are alone procident; and it is this accident which guides practitioners in naming the species of this great disease, the procidentia of the pelvic viscera.

The procidentia of the uterus is, for evident reasons, the grand procidentia; and the reader may keep this in view when no special procidentia is named.

When the uterus is procident—that is, when it temporarily or permanently lies external to the vaginal orifice, in whole or in part—the procidence is not of the uterus alone, but of the pelvic viscera. When the uterus is procident, the bladder, rectum, vagina, tubes, and ovaries, are all carried

in a greater or less degree in the same direction along with it. It must be so. The uterus occupies a central position among the pelvic viscera; it is large, readily felt and seen, and procidence of the pelvic viscera not unnaturally gets the name of uterine procidentia. The other pelvic viscera are not descended or procident merely because the uterus is so. The organ which is most movable is most, or primarily, procident; if any organ can be said to be primarily procident when all descend more or less exactly together. The uterus is not only central, but, in the majority of cases, also most mobile, and is therefore very frequently the primarily procident organ. In many instances it is the bladder which is the primarily procident organ. In few only is it the rectum. In still fewer is it the vagina.

Procidence of the pelvic viscera includes many diseases, which get distinct names from peculiarities of the procidence. They are—procidence of the uterus through and with the vagina, commonly called procidentia uteri; of the vagina itself, commonly called prolapsus vaginæ; of the bladder through the vagina, commonly called vaginal cystocele; of the bladder through the urethra; of the posterior wall of the vagina, with or without the adjacent rectal wall, through the vaginal orifice, commonly called vaginal rectocele; of the rectum through the anus, commonly called prolapse of the

rectum ; of the uterus through the anus. All of these affections, and some others, have many points in common, probably nearly an identical etiology ; but, in speaking of procidentia of the pelvic viscera, we shall under that designation refer only to procidence of the uterus, vaginal cystocele, and vaginal rectocele, or combinations of them.

This procidence is a common affection—a stock disease with the gynæcologist. It is seen in its most aggravated forms only among the poor and hard-working. It is, however, in its minor forms, or in its threatenings, very common in all classes. It specially affects women who have borne children, and more especially women who have had large families. It is commoner among the elderly than among the young, but it may occur at any age.

Among twenty-two cases of procidentia, whose ages I have noted, two were aged respectively fifteen and seventeen ; three were aged respectively sixty, sixty-two, and sixty-five ; three were between twenty-five and thirty ; two between thirty and thirty-five ; five between thirty-five and forty ; two between forty and forty-five ; one between forty-five and fifty ; two being fifty and fifty-five ; two between fifty-five and sixty.

In twenty-one cases I have noted the number of children born to the sufferers. Four had had no children ; two had had one ; two had had two ;

two had had three; two had had four; one had had five; one had had six; three had had seven; two had had eight; one had had thirteen; and one had had fourteen children.

In the course of my remarks I shall say almost nothing of the minor degrees, or early stages, of procidentia. These have been investigated chiefly so far as they affect the uterus, and get often the names, version, flexion, descent, and prolapse.

We shall now proceed to examine the condition of the parts which are procident, and we shall suppose that we have before us the common, well-marked, cases in which there is a large projection between the thighs.

The bladder is invariably procident if the uterus is so, and this follows from the intimate connexion between the two organs. They do not slip one upon or over another; both must go together. The bladder, or rather the lower or vaginal part of it,* is frequently the only organ or part of an organ procident, vaginal cystocele; and in this case the uterus descends towards the floor of the pelvic cavity in whole, or its cervical portion chiefly, this part being elongated. The bladder is generally not even irritated; sometimes it is so, and the urine may be ammoniacal, and contain

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* In connexion with this, obstruction of the ureters sometimes occurs, and hydronephrosis as a further consequence.

excess of mucus, and pus. The walls of the bladder are slightly thickened and hardened. The fundus of the bladder is displaced downwards, but not nearly to the same extent as its vaginal portion. The displacement downwards of the fundus of the bladder varies, and in this respect it has some correspondence as well as analogy with the uterus. The lower part of the bladder lies beneath the vaginal wall, covering the whole projecting mass in a case of vaginal cystocele, or beneath the anterior vaginal wall in a case of uterine procidentia. Wherever the uterine cervix is, there is the bladder in close apposition to it, in front.

I have seen it stated that a great French pathologist believes cystocele may take place without downward uterine displacement. I have never seen such a condition; and as I have not seen a circumstantial account of the occurrence, which is admitted to be excessively rare, I am not disposed to place much confidence in the assertion. On the other hand, a rare case of procidentia uteri is related* wherein the bladder was only moderately prolapsed, not accompanying the uterus in its great descent. I have never seen such an occurrence, and it is of course at variance with my experience as stated in the word "invariably" used in the first line of the last paragraph.

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* See Kaltenbach, *Zeitschrift für Geb. und Gyn.*, 1877, Band i. Heft 2, s. 454.

The rectum is sometimes, even in cases of great uterine procidentia, almost unaffected. Its connexion with the vagina is much looser than the corresponding connexion anteriorly of the bladder and vagina, but its connexion is still sufficiently close to make it impossible to believe that its position is quite natural in a case of large uterine procidence. Yet, the fact remains that its displacement in these circumstances is sometimes so inconsiderable that the finger introduced through the anus discovers no downward pouching of the anterior wall into the procident mass. In many cases of large uterine procidentia, however, there is such pouching easily felt. But, the descent of the rectum is much less than that of the bladder. Vaginal rectocele is less common than vaginal cystocele, yet it is not rare. It differs from vaginal cystocele in being occasionally the solitary well-marked displacement. Vaginal cystocele is often, indeed generally, the first step of uterine procidentia; it is always accompanied by uterine descent. Vaginal rectocele sometimes occurs without any other extensive displacement. Piles may bc absent; they are seldom large.

The vagina is the organ most affected in the procidentia. If one organ were called to give a name to the procidentia of pelvic viscera, in its common forms, the vagina deserves such place. In all great procidences it covers or invests the

whole procident viscera. It becomes hypertrophied when it has been long procident, especially in its inferior parts—that is, those parts which are normally superior. Its rugæ get smoothed out. It is of a pale reddish colour, which may approach dark purple if the congestion is considerable. It is little sensitive. When the procidence is permanent, the vagina, or rather its mucous membrane, is often inflamed. This inflammation is said to end often in ulceration, sometimes even in sloughing and the consequent formation of vesico-vaginal or recto-vaginal fistula. These inflammations and ulcerations are often extensive, often in patches. They are said to be produced by friction and by the irritation of urinous irrigation.

The whole subject of these inflammations and ulcerations demands renewed study. I am quite sure that friction and urinous irrigation are not the causes of the inflammation and ulceration. The position of these ulcerations is sufficient of itself to show the error of this *à priori* notion. Indeed, I am satisfied that, in the majority of instances, friction and urinous irrigation have little or nothing to do with it. No doubt extensive ulcerations are often seen. But, for many cases, the whole of this pathology is a series of errors. Many of these so-called ulcerations, how many I do not know, are not what they appear to be. They are red inflamed parts, covered by a pellicle

of lymph or diphtheritic membrane, whose contraction raises around the red portion a redder and prominent margin, which increases the likeness of the whole to what is known on the skin as a callous ulcer. This diphtheritic pellicle may frequently be raised and peeled off. Sometimes it dries and forms a translucent, horny, hard, elastic plate, which becomes at last spontaneously detached and thrown off. That this is the true pathology of many so-called ulcerations of the vagina and cervix uteri in cases of chronic procidentia I am sure, for I have carefully observed and verified instances. Perhaps it is the pathology of most. I have seen a case of procidentia with a small superficial ulcer become diphtheritically inflamed on a considerable surface, including that which was ulcerated. Then gradually, within twenty-four hours, a lymphy pellicle has been formed over it, covering up the ulcer and its neighbourhood, including the os uteri, with a whitish tough layer, which soon thickened to the dimensions of a thick croupy membrane. This membrane I have observed to contract and raise the edge of healthy mucous membrane surrounding it. I have peeled it off and discovered the ulcer and the inflamed mucous surface below the membrane. The parts so denuded have been again covered with the diphtheritic membrane. As time has advanced, the membrane loses its white ap-

pearance, and becomes dirty grey, like the base of a callous ulcer. All this has gone on without the patient's having anything like the constitutional disease called diphtheria, indeed without any grave disturbance of the health; but this point I have not attended to with sufficient minuteness. The final termination of these diphtheritic inflammations may, no doubt, be ulceration.

I have already said that, when the anterior wall of the vagina descends, it always* carries the bladder with it and the uterus also, at least to some extent. When the posterior vaginal wall descends it may descend extensively—not wholly of course—alone, without any evident descent of the uterus or of the rectum.

When the vagina is chronically procident, it becomes, where not ulcerated, hard and dry, with a pale yellow-red tint. It is said to be like skin, but in truth the likeness is not very close, as any one will find who examines.

The urethra has its direction changed. It passes directly backwards from the external orifice towards the cavity of the bladder. Not infrequently it has a curvilinear shape, with the concavity looking downwards.

The os uteri is unchanged in young virgins, especially, I believe, if not yet begun to men-

* With the extremely rare exception already referred to.

struate, and in old women who have the uterus atrophied; and in these cases the atrophy has sometimes, not always, preceded the procidentia. No doubt the ordinary condition of the os in procidentia is that of wide openness, partly from hypertrophy of the lips of the os, and partly from separation of them by the vagina pulling on them. This separation leads to an extroversion of the arbor vitæ. The os is generally filled by transparent colourless cervical mucus, but the mucus may be opaque from age, or it may be muco-purulent, or it may be tinged with blood or mixed with blood. Sometimes the os is temporarily closed by lymphy or diphtheritic exudation, which covers it and adjacent parts more or less extensively.

In most cases of procidentia uteri, the os, gaping with its darkened moist surfaces, which are often ulcerated, is a prominent feature. But, in virgins and old women it has sometimes to be looked for, being small, and having nothing about it to attract the eye of the spectator. Indeed, I have known it to escape observation, and error in diagnosis to occur in consequence.

The lips of the cervix may be unchanged, or simply flattened out, in cases occurring in young virgins and in very old women. Sometimes they are nearly healthy even in menstruating women. But generally—that is, in the great majority of cases—they are greatly turgid and hypertrophied,

sometimes ulcerated and much everted. The lower or projecting part of the cervix then has a great bulk, equal in circumference to that of the largest hen's egg, and assumes a very alarming appearance. Not very rarely one or more mucous polypi are attached to it. Hypertrophic elongation of the infra-vaginal portion of the cervix sometimes takes place.

When the whole uterus is frankly procident, the mass of the cervix uteri may be unchanged. This simple simultaneous procidence of the entire uterus is not rare. But, it is more frequent for the procidence not to affect all parts of the uterus equally, and then the exaggerated procidence affects the cervix. If the cervix is to be further procident than the body of the organ, it must be elongated: it cannot separate itself from the body. The elongated body of the cervix does not hypertrophy: it is consequently thinned, and the fingers grasping the prolapsed mass feel the cervix within it like a hard cord as thick as the little finger, joining the infra-vaginal portion to the uterine body. As the bladder is generally procident before the uterus, it is the anterior uterine wall that is generally first and chiefly pulled upon, and in the early stages may be exclusively or chiefly elongated. The amount of elongation varies. An ordinary amount is to the length of nearly four inches. The elongation is, to some extent, like the stretching of an

elastic substance, and partially disappears when the organ is replaced. I have seen it described as entirely disappearing; but this is certainly a mistake,—I have found a uterus which was elongated to six inches reduced only to four inches, after a week of replacement and rest in bed.

The body of the uterus is always displaced downwards to some extent, but frequently its prolapsus is arrested while its cervix and other viscera continue to descend, the cervix becoming elongated and accompanying the latter. In four cases out of thirteen in which I noted this point, the uterus descended frankly, the length of its entire cavity from os externum to fundus being 2½ inches or less. In one woman, aged forty, its length was only 1 inch, the uterus being either congenitally very small or else extremely atrophied. The most frequent length of the entire uterine cavity I have found to be 5½ inches. But I have observed it 3½, 4, 4½, 5, 5½, 6, 6½ inches, in cases which were uncomplicated. In complicated cases it may be longer.

The uterus may be adherent to the neighbouring parts. It may contain a fibroid or fibroids. It may be adherent to an ovarian tumour. When frankly procident it may be retroverted or retroflected within the procident mass. It may be pregnant.

The ovaries must be displaced downwards. I

have generally found it impossible to make out their situation during life. But occasionally I have felt one or both descended far into the pelvis, by searching for them with the finger introduced per anum. They are generally situated near the fundus uteri, and often a little above it. The tubes are displaced, being directed more upwards than natural, and sometimes elongated.

The bowels descend with the fundus uteri in cases where that part is only inconsiderably prolapsed. But they rarely form part of a procident mass, descending only to fill up the void in the upper part of the pelvic cavity. When they come lower, they fill up Douglas's space and increase the bulk of the procidentia.

The peritoneum is of course displaced with the organs which it covers. The commonest great change is the increased depth of Douglas's space, the peritoneum occasionally reaching down behind the cervix nearly as far as the bladder does in front.

The uterine and vesical ligaments are all put upon the stretch, and altered in position and direction according to the position of the parts to which they are attached.

The mode of production of procidentia of the pelvic viscera may be compendiously observed in any case of chronic procidentia. The procident parts are replaced, and the woman is asked to bear

down and again protrude them. Thus a displacement which may have taken years for its gradual first production may be reproduced before the eyes of the observer in a minute or less; and the general course of the reproduction is the same as that of the original production, except as to speed. Mechanical forces gradually or quickly produced it at first; the mechanical force of bearing-down rapidly reproduces it after replacement, and at desire.

Eminent gynæcologists, chiefly French, maintain that it is impossible to make a satisfactory vaginal examination, or at least a complete one, without performing it while the woman stands in the erect posture. This is rarely necessary. Of course, if it is desirable to know the exact condition, as to place, of the pelvic viscera while the woman is standing, then the examination should be made while she is in this position. But, for all practical purposes, in the great majority of cases, the usual position on the left side is the most convenient; and, generally, it is in no cases more convenient than in cases of procidentia. If the vulva is exposed and the organs are replaced, then the procidence can be conveniently reproduced by bearing-down effort; and the same is true not merely of procidence but of every degree of prolapse. I have never known a simple case of procidence which the patient could not easily reproduce while lying down, by bearing-down effort. Indeed, bearing-

down will easily reproduce a procidence which is not reproduced at once by standing or walking; the bearing-down being a more powerful force than the depressing force produced by the erect position maintained for a short time.

If, then, cases are so studied, the following observations are made :—Most frequently the bladder is first protruded, bulges largely; the uterus, following in a rough way the axis of the pelvis, clothed with soft parts, then comes to protrude, the cervix jerking over the anterior edge of the distended perineum; then the whole mass, including bladder and very little of rectum, is procident. The bladder so advancing may be accompanied by all the parts of the uterus simultaneously; but generally the uterus does not so follow frankly, but, being reluctant, has the tissues of its cervix stretched and elongated, and the uterine body then only makes a comparatively small amount of descent, remaining within the cavity of the pelvis. It not very rarely happens that, instead of the mode of production above described, another is followed. The uterus, frankly, or with all its parts simultaneously, descends; its cervix presents at the os vaginæ, and is the part first procident, the uterus being primarily procident; then the whole pelvic organs descend together as the large and complete procidentia is formed. Occasionally, instead of the modes of

production above described, a different one is followed. The posterior wall of the vagina first protrudes at the vaginal orifice ; it may be alone or to some extent, seldom largely, accompanied by the rectal wall; then the bladder may follow, or the uterus may be procident before the bladder ; and, lastly, the complete procidence is performed.

In slighter cases of procidentia, the bladder and anterior wall of vagina alone, or the posterior wall of the vagina alone, or the recto-vaginal wall alone, may be procident. In these cases there is generally some prolapse of the other pelvic viscera ; always, so far as I have observed, when the bladder descends ; not always to any marked degree when the recto-vaginal septum or the posterior vaginal wall descends.

When the body of the uterus is fixed and does not descend, as may be the case when it is pregnant, or has extensive adhesions to parietal peritoneum or to an ovarian tumour, or when it is enlarged by a fibroid, then the descent may take place as already described, with this exception, that the uterine body does not fall. In these circumstances the uterine cervix may become elongated ; but probably the most frequent procidentia is of the posterior vaginal wall, in such examples.

A great French author of last century described the function of parturition as purely mechanical.

So I regard the production of the various procidentiæ which I have been describing. Their cause is purely mechanical, as is that of the birth of a child or the production of a hernia. Indeed, this procidentia may be classified as a genus of the great family of herniæ. When I said that bearing-down efforts, reproducing the procidentia of recently replaced pelvic organs, gave the process of production in epitome, I meant the statement to include the etiology. The mode of original production is not in every respect exactly imitated, nor is the cause of the rapid reproduction identical with the original cause; it is not voluntary bearing-down alone which produces procidentia, but it is mechanically caused, the causes being in their nature truly imitated by bearing-down.

The purely mechanical nature of the cause of procidentia is well illustrated in the early history of many cases. Then, as is well known, the simple change of position from standing up to lying down is sufficient to produce replacement of the organs —to produce temporary cure. A mere mechanical change, standing up, does in these cases produce the disease: a mere mechanical change, lying down, cures it, for the time.

There is no doubt that, in the immense majority of cases—probably in all chronic cases—the causes which produce procidentia have been long acting, gradually elongating the attachments or so-called

ligaments of the displaced organs, and gradually stretching and elongating the organs themselves, or parts of them. No doubt a violent effort may produce a procidentia suddenly; but such procidentia will disappear as suddenly if the woman has no natural proclivity to the disease; and if she has such natural proclivity, the violent effort has only hastened what was otherwise likely soon to occur. If a uterus is pulled down violently by the surgeon, he must exert great force, and he brings it only as far as the vaginal orifice. The greater the speed with which he brings down the organ, the greater the force he must use. In the dead subject, a force of from 20 to 50 lbs., or even more, may be required to produce a prolapsus by pulling down the uterus. Probably quite as great force is required to produce a sudden procidentia or prolapse in the living female. The womb pulled down in the living or dead female, or suddenly pushed down, resumes its natural position when the displacing force is withdrawn. In most cases of procidentia, the displacing force is comparatively slight, but slow in its action. The uterus, like the fœtus, may be expelled quickly by strong pains or forces, or more slowly by weak ones.

I have placed side by side the etiology of hernia and procidentia, and I believe these two affections have close relations. When the retentive power of the abdomen is gradually or suddenly dimi-

nished, or when its contents are powerfully compressed, then the weakest part will, of course, yield, if any part yields. In this way, piles and perhaps polypi are often gradually formed, or a hernia is suddenly or more slowly produced, or the pelvic viscera descend, and, the cause continuing, may ultimately become prolapsed or procident. In this way, piles, prolapse of the rectum, herniæ, may be accidents which may be called alternative —the occurrence of one taking the place of the occurrence of the others. This subject may come to receive support from statistics of these various diseases. For instance, it may be shown that herniæ are more common in males than females; and this may be accounted for by the descent of pelvic viscera in women affording the alternative for many herniæ in males.

The uterus is often and justly described as to some extent a floating organ. The forces which, in their just equipoise, maintain it in its natural position, and maintain, likewise, the other pelvic viscera, may be deranged in two ways. The elevating or retaining forces may be in excess; and then the uterus and other organs are drawn high up, unnaturally elevated. This is often seen, so far as the uterus is concerned, in old age. The retaining forces may be diminished, or the expelling forces may be predominant: then the uterus and the other organs will descend. That which is

most easily displaced will descend first, and the rest will follow in the exact order, and in the exact direction, of the facility with which they may be depressed. The so-called ligaments of the organs may be sufficient permanently to resist the depressing forces: generally they only offer a temporary resistance. They are all composed of structures which yield under continued tension, and yield to a great extent. Relaxation of so-called ligaments is, and must generally be, an effect, not a cause, of procidentia.

The causes to which prolapse and procidentia are usually ascribed are either powerful expelling forces, such as bearing-down, lifting heavy bodies, hard work, whose action is easily comprehended, or are conditions which weaken resistance to the downward course of the viscera. Among the latter are child-bearing, diminution of fatness, menstruation, leucorrhœa. Fat in great quantity in the anterior abdominal wall generally prevents prolapse, increasing the retentive power of the abdomen. Laceration of the perineum is often adduced as a cause of procidentia; but it acts exclusively by facilitating the occurrence, shortening the route which the descending organs have to describe, and removing the last barriers to their morbid progress.

The symptoms of procidentia of the pelvic viscera are well worthy of study, and the most remarkable

fact, not rarely verified, is that there are no great or serious symptoms. Of course, women suffering in this way are distressingly aware of the procidence, and must be great sufferers from the physical annoyance of the morbidly situated parts; but, it is not rare to find they have no other complaint. The presence of other symptoms may be elicited from them; but, it not rarely happens that the physical annoyance and the symptoms combined press so little upon the poor woman that she either cannot be, or is with difficulty, induced to have anything done for her relief; and this is not the ordinary behaviour of sufferers from female complaints.

The most common complaint is of the discharges from the procident viscera. Then, a considerable proportion complain of difficulty and sometimes of pain in making water. Irritation of the bladder is not often observed. A frequent complaint is of pain in the back, and pain or feeling of dragging in the loins, extending often downwards into the thighs. Difficulty in defecation is not frequently complained of, but it is often present, and specially liable to be great in cases where there is anterior pouching of the rectum and constipation of the bowels.

Women suffering from any degree of procidentia are often in the habit of supporting the parts while urinating or defecating. They find assistance from

so doing, as is easily understood. In cases of relaxed rectum with procidence of its anterior wall through the vagina defecation may be almost impossible, unless the procidence is repelled during straining at stool. Of course, the difficulty occurs only when the stool is not soft, and the difficulty increases with the hardness of the elongated cylindrical fæcal mass. So great does this difficulty become at times, that the fæces have to be scooped out of the rectum by the finger or other appropriate tool, such as the handle of a tablespoon. The cause the difficulty of passing hard fæces is easily understood by reference to the physiology of this part of the function of defecation. The course of the fæces, which, above the sphincter ani, had been forwards and downwards, becomes at that point somewhat abruptly changed to nearly directly downwards, and the well-constituted healthy rectal tube directs the fæcal mass as it ought to proceed. But if, just above the sphincter, the rectum is relaxed, especially if, either during defecation or at all times, there is pouching of the anterior wall of the rectum in that situation, then the fæcal mass, instead of being guided downwards to the anal orifice, passes onwards into the vaginal rectocele, and is pushed, as if it were to be evacuated through it. I have been told by intelligent women suffering from vaginal rectocele, of this tendency of the stool to force out the rectocele, and of the

comparative facility of defecation when the rectocele was repressed.

On the diagnosis of procidentia I shall say almost nothing. Mistakes are impossible, if due care is taken, even by the most inexperienced practitioner. Yet, I have known errors to occur, polypi and vaginal cysts being mistaken for procidentia. The facility with which the positions, absolutely and relatively, of the bladder, uterus, vagina, and rectum, can be ascertained, renders any grave mistake inexcusable, at least under any circumstances that I can at present imagine. To describe diagnosis would be merely a dry recapitulation of physical changes, and is unnecessary.

If the preceding account of the etiology of procidentia is true, then the theory of the treatment is simple. It is a mechanical treatment, or a treatment with mechanical objects in view. But, although the treatment is in theory simple, it is beset with practical difficulties. There is ample room and verge enough for skill and ingenuity; scope also for the exercise of highest wisdom. Is engineering to be the method resorted to? Is anything or nothing to be done? If engineering is required, what should be done, and how should it be done? Engineering in a living female is more difficult than in dead matter.

For practical purposes, cases may be divided into the slight and the aggravated. Slight cases are

those wherein the disease is only temporary or occasional, and those where the procidentia is only to a small degree at the worst. Aggravated cases are those where the procidentia is great, and is, if not the permanent, at least a frequent condition.

Slight cases must always be regarded as likely to become aggravated if not appropriately treated. Slight cases may be treated without any extraneous mechanical appliances. Aggravated cases demand one or more extraneous mechanical appliances. These are the T bandage, a pessary, and a perineal operation. At one time an ingenious operation was proposed (and I have tried it), which might have been serviceable in both slight and aggravated cases, but the advantages expected from it have not been realised. It consisted in separating the connexions of the coccyx on the one side, and the sphincter muscle and perineal central fibrous raphé on the other. Its object was simple and intelligible. It was hoped that the lowest or anterior part of the floor of the pelvis, over which the descending viscera have to pass, would be elevated. The uterus, for example, instead of sliding down a smooth inclined plane to the vaginal orifice, a plane leading forwards and downwards from the apex of the sacrum, would then, near the apex of the sacrum, meet with a plane inclined somewhat upwards, and so inclined as to assist in barring further morbid progress.

It is easy to understand how, in slight cases, slight remedies may act beneficently, satisfactorily, and efficiently. Among these slight remedies are maintenance of the horizontal position for weeks, especially avoidance of long standing; regulation of the bowels, especially securing their easy evacuation; avoidance of hard work, such as lifting heavy weights; the arrestment of leucorrhœa or menorrhagia, or any other means of strengthening the vaginal canal, doing away with relaxation; the diminution of the weight of the uterus or of its cervix; any means of increasing the retentive power of the abdomen.

The maintenance of the horizontal position for some time may act advantageously in a variety of ways. Ligaments which are elongated when the uterus descends, or tissues which are relaxed or stretched, may get time to acquire shortness or density, while the viscera are, by the recumbent posture of the woman, prevented from assuming a morbid position. The uterus, especially after recent delivery or miscarriage, may get time to lose weight, and therefore tendency to descend. Congestion of vessels, which may tend to injurious relaxation, may be cured.

Straining at stool or in urination always aggravates a procidentia. Many women think it is the cause of the procidentia, and to a great extent they think justly. Many women never have pro-

cidentia except when straining at stool. The avoidance of this then is an evident gain; and for its avoidance the knowledge and skill of the physician are taxed. He should produce soft, easily discharged, regular stools, by medicines or dietetic regulation, avoiding the general evils entailed by the habitual use of powerful laxatives.

Hard work, such as lifting heavy weights, is a cause of the most aggravated procidentia. There is no doubt that in the early history of many such cases, the evil might have been averted by the avoidance of this cause of it. The continuance of hard work renders the cure in all cases extremely difficult and insecure, in some cases impossible. Poor women, finding themselves unable to procure a livelihood except by hard work, are sometimes unfortunately constrained to give up hope of cure. Such is the imperfect state of our methods of relieving this class.

The relaxing influence of menstruation, leucorrhœa, and menorrhagia is well known. In connexion with procidentia their influence is, no doubt, chiefly exerted on the vaginal walls. The increased firmness of this and of other neighbouring parts may impede or prevent descent. It is therefore desirable to remove leucorrhœa or menorrhagia, and to restore the tone of the vaginal walls by medicines, baths, or by mild local astringent applications.

The weight of the uterus as a whole, or of its different parts, may be increased by various diseases, and the injurious influence of such increase must be apparent to all. The cause of the increase should be carefully investigated, and the appropriate treatment applied.

It is well known that increase of weight of the uterus, whether healthy or morbid, is often accompanied by little, if any, descent. The influences which may counteract the inevitable tendency to descent are little understood, and present great difficulties in their investigation. It is probable that what has been called the retentive power of the abdomen is the chief agent; and it would be a great discovery to be able to increase this power at will. There can be little doubt that, in many women, this power is diminished by stays or other means of compressing the abdomen, chiefly at its upper part; and it is easy to have all such injurious compressions removed. The expansion of the base of the thorax may increase the retentive power of the abdomen and act beneficially against a procidentia.

For severer cases of procidentia, remedies must be used which are stronger in their effects than those enumerated above. The bull must be taken by the horns. One of the most valuable of these stronger remedies I shall, in a subsequent chapter, describe.

I have seen a cure effected by disease without surgical aid. Peritonitis affecting replaced parts has been followed by strong parietal adhesions, powerful enough to maintain the viscera in a high position within the pelvis without extraneous aid.

The T bandage, properly made and applied, pushes on the perineum, pushes it towards or against the symphysis pubis, and tends thus to close up the outlet of the vagina against the descending organs. It is easy to conceive that the efficiency of this pressure will be great in proportion to the length and completeness of the perineum. The T bandage is therefore very valuable when worn after the operation of restoration of the perineum. If the vaginal orifice is large, it is not likely to be of much use, for then the organs slip past it or by the sides of it : it does not check their progress when pressing on the vaginal orifice, as it does when pressing on a restored perineum.

There are considerable difficulties in the way of securing the advantages of the apparatus. It is irksome, or even painful, to wear at first, and until the wearer gets accustomed to it. If it be badly made, or ill fitted, it is simply impossible to wear it, if it is made tight enough to be efficient, on account of the pain it causes. Yet, there is no doubt many women wear it, and find comfort from it, when it is a perfect sham, being utterly

inefficient except as a source of mental comfort and feeling of security.

The object of this T bandage is to support the perineum. The stress of this support is borne by the horizontal limb of the bandage, which surrounds the pelvis over and above the haunch bones. This horizontal limb must be made to fit the parts like a kid glove on the hand. If it does so, a considerable strain can be put on it without pain resulting from the continuance of it. From the horizontal limb the vertical limb passes from behind, through the fork, to the front. It is tightened by a strap and buckle, and made thus to press on the perineum. At the part which touches the perineum is placed a pad, about an inch thick and about three inches long. This pad is covered with glazed leather, or other non-absorbent material, to prevent soiling. This is the pad which conveys the pressure from the vertical limb or under strap to the perineum.

Nothing has more exercised the ingenuity of surgeons than the making of pessaries for procidentia. That which I have found most useful is that which alone I shall describe. It is of the simplest possible construction, and its mode of action is easily intelligible. The best name describes it at once—a disc and stem pessary. The disc is passed through the vaginal orifice as a

button is passed through a button-hole, and, after having passed into the vagina, it is pushed up into the pelvis. Its flat or convex upper surface supports the viscera which have a tendency to descend. Its upper surface is kept in this proper attitude to the superincumbent organs by the stem. Were there no stem the disc might turn so as to present its edge to the descending organs, and be itself pushed out through the os vaginæ in much the same manner as it was introduced. Fortunately it often happens that the disc, kept in proper position by the stem, gets somehow so indented into the vaginal wall, and the two get so consolidated, as to prevent descent, without any further aid. Many women are what is called cured by a properly adjusted pessary alone. This pessary does not, like a globular pessary, dilate the vagina and keep it permanently dilated, and therefore injured. On the other hand, the vagina has a tendency to contract around it. It must therefore be frequently removed, so that it may not at length become incarcerated. This removal and replacement may be effected occasionally by the surgeon. Many women learn to do it for themselves, and remove the instrument every night on going to bed, and replace it in the morning.

This instrument may be made of boxwood with advantage. The material is light and enduring;

but other materials may be used at will. The disc is like a concavo-convex lens with blunted edges. Its diameter varies from 1½ to 3 inches. Various sizes are required in varying cases. To the lower surface of the disc is attached the stem, whose lower end is enlarged into a small globe of the size of a boy's marble. This part is so globularly constructed to obviate the evil effects of pressure of a small or sharp end. The length of the stem is about 2½ inches.

I have never seen a replaccable procidentia which could not be cured by one or more of the three means here described.

It appears to me, and it is contrary to opinions which are extensively acted upon, that a pessary should always be avoided if possible. The best pessary is a source of some irritation, often also of discomfort.

Before a pessary is introduced, the procident viscera have to be replaced; and it is advantageous to maintain the replacement by keeping the woman in bed for some time before the pessary is introduced. This allows of diminution of hypertrophy and healing of inflamed or ulcerated parts. Cleansing and soothing vaginal washes are useful during this time.

Replacement is generally easily accomplished, the parts being repelled in the direction opposite to that which they followed in their descent.

Sometimes a little temporary difficulty is felt, from the fundus being turned backwards, hitching or catching on the fourchette. When perimetric adhesions or parametric indurations are extensive, replacement may be for a time impossible, and its ultimate attainment may be reached with difficulty and by slow degrees.

CHAPTER X.

Case of Procidentia Uteri.

In a former chapter on this subject I have insisted on the purely mechanical nature of this disease; that it is like a dislocation or a hernia; that, if hypertrophy favours its production, it is by the increase of weight it implies; that, if relaxation or laceration of tissues favour its production, it is by removal or diminution of resistance. I have also insisted on the misleading character of the nomenclature generally used, pointing out that the womb is most unfortunately chosen to give a name to the disease, for the bladder or the vagina more frequently occupies the place of ringleader in the mischief than the womb; that the womb indeed, in the great majority of cases, is a chief agent in restraining or diminishing the mischief, trying to keep back the descending parts, and while refusing to descend frankly, suffering tensile elongation, not hypertrophic elongation. These and many other important points in the pathology of this important disease I need not here further enumerate.

Procidentia of the pelvic viscera is far from being an unobjectionable designation, for, in an

ordinary case of procidentia uteri, it is not the pelvic viscera only that are displaced. The disease is one affecting fundamentally the retentive power of the abdomen. The negative condition of this power leads to flexion, version, descent, and procidentia of the uterus, to hernia, to piles, and probably to some mucous polypi of the uterus, and to many other diseases.

In a case of procidentia uteri, it is not only the pelvic viscera that are displaced downwards, but the whole or a part of the abdominal viscera, and parts external to the abdomen, as the pudenda and the hips. The descent of these last can be easily seen by any one observing a case in which the procidentia is quickly reproduced after reposition. This quick reproduction of the disease is nearly an exact copy of its original production; only, that what may have originally taken a year or years to effect, is now, after replacement or being undone, reproduced in a minute by the voluntary bearing-down effort.

These views have an inalienable right to guide practice. Without true views we can only expect to arrive at right practice by haphazard. The maintaining of the replacement of the procident organs is generally done by a small amount of force. Very often restoration of the perineum is sufficient. Sometimes it is not.

The following case I give from the notes of my

clinical clerk, Mr. Stuart Palm. It is valuable because of its long history. It was carefully described in my case-book in 1866, and was again under observation in 1877. During the interval of eleven years it had undergone many remarkable changes, which are also instructive.

Case LXI.—A. P., aged forty-one, unmarried, was confined of twins fourteen years ago. She made a good recovery. Three months afterwards, having taken a walk, she observed that her womb came down. Since then the protruding mass has increased.

In March, 1866, about three years after the first descent, the procident mass was examined by me. It was the size of a large turkey's egg. The entire infra-vaginal portion of the cervix was ulcerated, the ulcer having raised red edges. The os tincæ gaped so as to admit a finger easily. The supra-vaginal portion of the cervix was elongated, and the neck of the womb could be felt ascending into the pelvis. The uterine sound passed inwards five and a half inches from the os tincæ. The fundus uteri was in the hollow of the sacrum. The perineum was entire, but virtually destroyed by being pressed back by the protruding mass. At the left side of the orifice of the urethra was a deep ulcer, large enough to hold a split pea. There were two ulcerations of a like size on the side of the vagina, the posterior being at the site of the

opening of the duct of the vulvo-vaginal gland: they bled when touched, and had the appearance of recent wounds.

All the details of the further history of the case may be passed over, except that the usual operation for restoration of the perineum, with a view to maintain reposition of the displaced organs, was successfully performed. The patient on 10th April was dismissed from hospital, cured.

But the cure was not lasting. Three months after the operation the womb again became procident, and it has remained so ever since—that is, for eleven years.

She now complains that her menses come on every fortnight, last for a week, and are occasionally profuse. She has bearing-down pains, difficulty and pain in micturition and defecation, and irritation of bladder.

In April, 1877, fourteen years after the first descent, and eleven years since the date of the first examination of her case, the following conditions are observed :—

The procident mass is four inches in the antero-posterior, its greatest diameter, and about half as much in the transverse diameter. There is no infra-vaginal portion of the cervix uteri. The os tincæ is a minute opening without any neighbouring discoloration or prominence to attract attention to it. An ordinary uterine probe does not

easily pass through it, but may be forced. It enters 2¼ inches. The fundus uteri can be felt in the prolapsed mass in front of and below the anterior edge of the perineum. An ovary can be felt behind the ascending ramus of the left ischium. The uterus is slightly retroflected. The urethral orifice is surrounded by an irritable sore, which is deep posteriorly. The bladder is in its ordinary displaced situation and healthy, as far as can be made out. The rectum is not pouched anteriorly. Upon the middle of the posterior wall of the vagina is a rounded ulceration with elevated red edges, of about an inch and a half in its largest diameter.

These conditions, and the contrast of them with those observed eleven years previously, deserve to fix the attention of obstetricians; but it is only to some of them that I at present refer.

The infra-vaginal portion of the cervix has become atrophied and disappeared while the uterus was procident and before the menopause.

The whole uterus has become atrophied before the menopause, and not in connexion with abortion or delivery at full time.

The ulceration of the cervix has during the same time disappeared.

The os uteri, from being large and patulous, has become minute, while the uterus was procident and before the menopause.

Menstruation with copious discharge takes place through the unnaturally small os without any dysmenorrhœal pain.

Menstruation is too frequent and too abundant from an atrophied uterus of 2¼ inches in length.

While the size of the procident mass has increased, the length of the uterus or of its cervix has diminished. The whole uterine cavity was 5½ inches long; it is now only 2¼. This distinctly confirms an observation by J. Veit,* that complete uterine procidentia is (generally) a consequence of incomplete procidentia with cervical hypertrophy, through secondary or subsequent atrophy.

Cases like that just related form for the gynæcologist a comparatively easy problem. Among the more difficult are the cases of procidentia of the elongated cervix in pregnancy, or when the uterus is fixed above the pelvic brim, being enlarged by a fibroid. At present there is under my care a large procidentia in which the uterine body is fixed high in the pelvis by a large cystic tumour with which it has connexion. In this case the procidentia is a true vaginal rectocele, the rectum being deeply pouched anteriorly. The cervix uteri is not procident, nor yet hypertrophied as a whole, but there is tensile elongation or hypertrophy of the posterior lip to the extent of

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* *Zeitschrift für Geb. und Gyn.*, 1877.

an inch beyond the limit of the anterior. In this case the tensile elongation of the posterior lip is the exact analogue of the more frequent tensile elongation of the anterior lip, a greater frequency which is the consequence of the frequency of vaginal cystocele being much greater than that of vaginal rectocele.

Progress in our intelligence of exceptional or uncommon cases like that last alluded to is to be made by further researches into the retentive power of the abdomen, such as that of Odebrecht.*

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* *Berlin klin. Wochenschrift*, 1875, No. 14.

CHAPTER XI.

The Function of the Perineum in Procidentia Uteri.

The causes of procidentia of the uterus are imperfectly known. Various circumstances which predispose to it, or more directly produce it, are generally described. Among these are childbirth, diminution of the retentive power of the abdomen, hard work or violent exertion, or any other cause of ordinary hernia.

But of late years, especially since the extensive recommendation of operations upon the perineum as a means of cure of the morbid condition, procidentia has been ascribed to laceration of the perineum. Most modern authors on the diseases of women do more or less prominently adduce this laceration as an important cause.

My object in this chapter is, *first*, to show that laceration of the perineum is not, in any strict sense, a cause of prolapsus or procidentia; *second*, to point out what influence laceration of the perineum exerts in this disease; *third*, to show what is the value of restoration of the perineum.

I. *Laceration of the Perineum is not a cause of Prolapsus or Procidentia Uteri.*

No one, so far as I know, has explicitly ascribed to the perineum any part in the maintenance of the uterus in its natural position. This is very remarkable, considering the great combination of authorities that can be adduced, who, by ascribing procidentia to laceration of the perineum, thus evidently imply that it has some power to maintain the uterus in its natural site. To prove that it has no such power, I rely upon the following arguments :—*

In many cases of complete destruction of the perineum, the laceration extending backwards through the whole of the sphincter ani, which have come under my notice, there has been no example of prolapsus of the uterus complicating the laceration ; and the great majority of them has been observed in poor, hard-working women. The perfection of laceration has been present, and its influence has been supplemented by those of childbirth and hard work ; and, notwithstanding, prolapsus has in these cases not taken place.

I have seen a large procidentia in a young girl, who had never menstruated, whose perineum was

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* On this subject, and on the influence of presence or absence of fat in the pelvis, see J. Veit. *Zeitschrift für Geb. und Gyn.*, Stuttgart, 1877, Band i. s. 14f.

entire, and whose hymen was not ruptured at its posterior part. Cases of this kind are not extremely rare. The perineum is perfect, and yet the accident occurs.

Numerous cases have come under my notice, in virgins and in sterile women, where the integrity of the perineum did not prevent procidentia.

In the majority of the numerous cases of procidentia which come under my notice, the perineum is either entire, or not more injured than it is in the great mass of women who have borne a child.

I have no doubt that if, by way of experiment, the perineum was cut through in a healthy woman, no tendency to prolapsus would be thereby produced.

In judging of the state of the perineum in cases of procidentia, it is necessary to guard against a great source of delusion. In all there is, at first sight, an appearance of destruction of the perineum. Its antero-posterior dimension is always greatly curtailed, and this even in cases where it is perfectly entire, and where the hymen can be seen to be only injured and changed, not divided. The large bulky procidentia pressing on the anterior margin of the perineum distends it, softens it, and pushes it back towards the anus, destroying its antero-posterior dimension, much as the body of the child does after the birth of the shoulders.

II. *The Influence of Laceration of the Perineum in Procidentia Uteri.*

While I have already given good reasons for believing that the perineum has nothing to do with the maintenance of the uterus in its natural position, and that laceration of it has no causative influence in the production of procidentia, there can yet be no doubt that laceration of the perineum favours or accelerates the occurrence of procidentia in cases where the causes of this accident are in operation. The study of this point brings out the function of the perineum in this disease.

The uterus, morbidly propelled through the pelvis by the causes of prolapsus, comes at length to press upon the perineum, slightly distends it, advances along it, reaches the orifice of the vagina, protrudes through it, and is at last procident. It is evident, at a glance, that if this long course through the pelvis and over the perineum to the vaginal orifice is in any way shortened in its latter part, the sooner will the procidentia occur. To arrive at this stage of procidentia, the uterus has to go through a shorter course, and is therefore earlier procident. Now, laceration of the perineum abbreviates the latter part of the path of the uterus just described. It does not produce prolapsus—that is owing to quite other causes ; but it abets such causes by removing difficulties which

otherwise would have to be overcome. These difficulties lie not only in the length and resistance of the perineum, but also in the smallness and tightness of the vaginal orifice.

A comparison with some of the phenomena of natural labour appears to me to be both fair and illustrative. Just as the perineum is not a source of any of the forces which concur to produce the birth of the child, so it is in procidentia of the uterus. But though this is the case, its laceration makes the birth of the child more rapid and more easy; it secures a shortening of its course and an easy exit through the enlarged vulvar orifice. Just as a woman with laceration of the perineum will have the progress of a prolapsus to complete procidentia accelerated and facilitated in its latter part, so a woman in labour, who has previously had an extensively lacerated perineum, is liable to a precipitate birth.

III. *The Utility of Restoration of the Perineum.*

I do not purpose here to describe the operation of renewing the perineum. I shall merely say that it is an operation I have frequently performed with much advantage. My object is to give what I believe is the correct theoretical statement of its use and value. There are other surgical appliances, especially the padded T bandage and the vaginal pessary, which are also of great use and

value in the treatment of cases of procidentia. To these I shall have to refer.

It is a great mistake to suppose that a perineum, however renewed, removes any cause of prolapsus or procidentia. The causes of that displacement are all still present. The perineum is restored in order to resist the progress of the descending uterus. It may or may not succeed in doing so. This will depend on the force with which the uterus is propelled, and the force which the renewed perineum is capable of offering in resistance to it. In many cases the resistance offered by the new perineum is insufficient; it yields, and the uterus becomes again procident. The birth of a child may relax the renewed perineum without lacerating it; and thus, destroying its resisting power, may lead to a return of the procidentia; or, repeated childbearings may take place before the return of the procidentia.

Restoration of the perineum is not a cure of procidentia. It deserves in some sense this name only when its rigidity is such as to be sufficient effectually to oppose the progress of the uterus trying to force its way over it. This opposing power may be increased by the pressure exerted on it by the pad of a T bandage; or even a pessary may be further called in to assist in keeping back the propelled uterus. If one resistance to the advance of the uterus is not sufficient, another

may be tried, or a third, or their forces may be variously combined to produce the desired result.

Here, again, the analogy of childbirth is very exact and illustrative. The child, like the prolapsing uterus, is propelled against the perineum. If the perineum is rigid, or if the propelling force is not great, the progress of the child may be arrested by the strength of the perineum. But, just as in most cases of prolapsus, continued propelling impulses at last cause the child's head to distend the perineum, and burst through the vaginal orifice. On the other hand, the powerful palm of the accoucheur pressing on the perineum may be sufficient to arrest the progress of the child. In the same way, the pad of the T bandage supporting the restored yet too weak perineum, in a case of prolapsus, may be a sufficient addition to the resisting power of the perineum, and co-operate in effectually arresting the descending progress of the uterus.

The T bandage may not be efficient without restoration of the perineum, because without this there may be no part appropriate to receive the pressure of the pad of the bandage. The pad may be inefficient when pressing against the vulvar orifice, from the want of the aid of the restored perineum, and from the inappropriateness or inefficiency of the pressure. The advantage of having a perineum to receive the pressure of the pad of

the T bandage I have illustrated repeatedly to my pupils by the following rude analogy, in which the door stands for the renewed perineum, the intruder for the uterus, and the pad of the bandage for the owner of the house. It will be easier for the owner to keep the intruder out of his house, if his efforts are merely required to keep a door shut, than if there were no door, but an open passage; and this is true, even though no aid is got from the fastenings of the door, such as is got from the power of a renewed perineum.

Lastly, it is easy to understand that that method of restoring the perineum is to be preferred which insures to it the greatest degree of strength or rigidity.

CHAPTER XII.

The Restoration of the Perineum.

THE operation which I now propose briefly to describe has received various names. That which I use, and which forms the title to this chapter, is open to some objections—and yet I prefer it, because it indicates the chief object of the proceeding. The perineum may be restored in order that it may aid in closing the vagina, and prevent, or assist in preventing, the procidence of the womb, or of other pelvic organs. The perineum may be restored because its restoration implies the reconstruction of the anus, and restoration of the function of the sphincter ani. But the name is not in every sense apt, for in many cases the operation is performed on an anatomically entire perineum. When procidentia occurs in a virgin, for example, and demands this operation, as it occasionally does, then the surgical interference has not for its object the anatomical restoration of the perineum, but the formation of a new, adventitious, or supplementary perineum, in addition to, or continuation of, the old or present one, whose mechanical function of closing the lower part of the vagina has been impaired or lost, or at any

rate requires to be improved or added to. The restoration of the perineum may imply, then, not merely what the name sufficiently indicates, but the formation of new perineum in addition to what may be present, whether that is partly damaged anatomically or entirely uninjured anatomically.

When the perineum is ruptured in the course of the second stage of labour, or otherwise, as in the analogous extraction of a large fibrous tumour of the womb, almost no evil is thereby entailed on the woman if she is in other respects healthy, unless the injury reaches the sphincter ani.

If the laceration goes no farther than to reach the anal opening, the woman may suffer little inconvenience from it. But she is always liable to inconvenience, and also to disease. The lower or external part of the sphincter is divided, and the function of the whole muscle is imperfectly performed. This imperfection may not be felt if the alvine dejections are of considerable or ordinary consistence, and if there is no flatus in the rectum. But if there be flatulence, it may be discharged on untimely occasions; and noise, or fetor, or both, may accompany the discharge, and be extremely offensive. If there is diarrhœa, or if there is merely a loose condition of the bowels, then the stool may pass without the patient's knowledge; or, if not without her knowledge, without her being able even for a minute to impede its expulsion. This condition of incomplete destruction of the

sphincter is not uncommon, and many women, even women of refinement, endure its evils rather than submit to the operation for its cure. The same condition is occasionally observed in cases of lupus of the vulva, the destruction of the sphincter being the result of intractable ulceration. I have seen, in a case of lupus, this condition simulated functionally, while anatomically the whole sphincter, and almost the whole posterior wall of the vagina and adjacent rectum, were destroyed and removed. In this case, the new anus, lying behind the cervix uteri, and opening into a great recto-vaginal cloaca, had, instead of a sphincter, a hard cicatricial stricture, which allowed only a finger to permeate it, and which acted nearly as well as the sphincter ani when incompletely destroyed by laceration in the second stage of parturition

The imperfect action of the sphincter ani, entailing the evils we have just been describing, is sometimes observed even when the muscle is entire, as in men. It may be a temporary weakness, or an early stage of the more complete paralysis of the sphincter.

Women suffering from injury of the sphincter ani are specially liable to a peculiar form of diarrhœa.* At least, I have observed the occur-

* See Olshausen. *Volkmann's Sammlung klin. Vorträge*, No. 44, s. 360. Reamy, *Transactions of the American Gynæcological Society for* 1877, vol. ii., p. 591, believes in a much wider range of injurious influence, and this even from slight perineal laceration.

rence of a peculiar, chronic, slight, looseness of the bowels in such women, so often as to lead me to believe in some obscure connexion between the two conditions. At the same time, I cannot but remark an evident source of danger of error so long as there are no statistical data to confirm or overthrow the opinion: this source of danger, or the false appearance of extraordinary frequency of this diarrhœa, may arise from the extraordinary annoyance which it produces in women with imperfect sphincters, and the consequent extraordinary impulse to call for medical or surgical relief. The disease to which I have been alluding causes much dull griping pain, coming on generally after taking food, and most frequently after breakfast, and followed by frequent evacuations, the dejecta being nearly watery in consistence. It is not amenable to any treatment by drugs, except for a time. Brandy, strychnine, iron, and bael, are the remedies which I have found to be of at least temporary utility. I have not observed disorder of the stomach, or derangement of nutrition, to result, even from a long continuance of the malady.

When the whole sphincter is destroyed, and there is no compensating stricture of the rectum at its opening into or union with the vagina, the woman's condition is always truly pitiful. The patient has not only no power of retaining the

fæces, whether solid or fluid—she is not even aware of their coming to pass till her person and clothing are disgustingly soiled. She has no chance of ease or comfort, even temporarily, except from a successful operation for the restoration of the perineum.

In cases of procidentia of the bladder, of the uterus, of the posterior wall of the vagina, of the rectum, of several, or of all of these parts, the perineum may be anatomically entire, the hymen may be easily traced without a laceration; or there may be more or less complete anatomical destruction of it, laceration having proceeded to various degrees, backwards from the fourchette towards the anus, or even into the recto-vaginal septum. This line of parts is most, though not exclusively, liable to laceration during parturition, for two reasons: first, because it is the line of greatest thinness of structure, and of greatest weakness; second, because, holding the position of the concavity of the curved tube through which the head is pushed, it is, in accordance with physical law, the part most subjected to dangerous pressure by the efficient powers of parturition. In cases where I have observed the hymen unruptured it has been pale and thick, and has probably owed its entire condition to the gradualness of the distension to which it has been subjected.

In cases of procidentia, whether the perineum

be anatomically entire or not, it is always functionally imperfect. It does not prevent the passage of the procident organ or organs over it and through the vaginal orifice, as it might do. It is gradually distended, the vaginal orifice is dilated, the perineum or its remnant is pushed backwards, and its antero-posterior length is more or less completely annihilated. In this way, cases which begin with an entire perineum are at length brought, not anatomically, but functionally, into the same condition as those in which the perineum was previously extensively ruptured. When the procident parts are pushed back, and the perineal region is exposed, there is found a very unnatural condition of parts. Instead of the labia majora being in contact, or nearly so, there is seen a large rounded gaping vaginal orifice, generally closed by the rugous anterior vaginal wall, and extending from near the clitoris in front to the narrow transverse strip of perineum behind. This condition cannot but cause symptoms, and accordingly the woman describes a feeling of disagreeable openness. This gaping orifice the surgeon closes by restoring the perineum, making a new and long perineum anatomically, with the hope that it will efficiently assume the function of closing this orifice, so as to prevent the return of the procidentia. After the operation is finished, and again after the cure is complete, the surgeon finds, when

he exposes the perineal region, a quite different appearance. There is now no gaping orifice; no mucous membrane is visible; the labia majora are in contact—indeed, they are extensively united.

The operation which I now propose to describe is very generally successful. Success, indeed, may be counted upon. It is rarely that a second operation is required. I have operated on cases for the second time, but not in any case which was from the first under my own care. Previous failure does not prevent future success.

When the operation is performed for injury of the sphincter, the woman feels her renewed power to restrain flatus and fæces, however liquid. This renewed power is not in every case complete; for it occasionally happens, that although there is great improvement, and consciousness of regained sphincteric power, yet the recovery is not quite perfect; the control over feculent and flatulent evacuation is not in its pristine perfection.

When the operation is performed for the cure of procidentia, the cure is complete or the failure is complete. This does not imply that a bandage is not a judicious and advantageous application to aid the restored perineum to do its work of restraining the advance of the organ which tends to fall out. The cure is complete, I have said, and it is a cure of which the surgeon may be proud. The cure is not only often complete, but also per-

manent. In illustration I may cite a case, and it is not of a rare kind. A multiparous woman, whose employment keeps her almost constantly standing, walking about, stooping, and lifting weights, had a large procidentia. She was operated on and cured by a colleague. The cure lasted a long time. She had again a child. The cure still lasted. Again she had a child, and soon after this the womb came down as badly as ever. The restored perineum was still anatomically entire; the cicatrix of the first operation could be traced; but its restraining function was lost: it was thin and relaxed. The operation was repeated. About three weeks afterwards she returned to her arduous employment, and was and now is quite cured. As her husband is dead, it may be hoped that the cure is for life.

What is the proportional number of failures and of successes after this operation I cannot tell. It is a proceeding to which I frequently resort, but I have found it impossible to trace the subsequent histories of the great majority of my patients. The sufferers from aggravated procidentia are for the most part very poor women, whose hard lives and frequent changes of residence form some excuse for their failing to fulfil promises to keep the surgeon informed as to how they are "getting on."

I have just mentioned a case in which the

restored perineum continued entire after two births at the full time. The retaining function of the perineum was, in that instance, destroyed, not by laceration, but by distension. I have repeatedly seen cases in which the birth of a mature child did not extensively or injuriously lacerate a restored perineum. Among these is Case LVIII.

The operation runs great risk of failing from disorder of the healing process, the opposed raw surfaces secreting pus instead of uniting, if the subject of it is very old, if she is of syphilitic constitution, or if the parts are the subject of recent or of chronic inflammation. Of course, under these conditions it should not be attempted.

In cases of laceration of the perineum the operation may be undertaken at the time of the accident or after the injured parts are quite healed. I have done it successfully at both times; and if circumstances are all favourable I would recommend its performance at the time of the accident. Yet I think a successful result can be more securely predicated of a delayed operation than of an operation done at the time of the injury. It is to be remembered that the perineum often appears to the inexperienced to be extensively injured during labour, and so as to demand operative interference, when truly very little harm has been done; as is made apparent by examination after the parts are healed.

The instruments required for the operation are the following:—a sharp bistoury, a dissecting forceps, a catch forceps, ligatures for arteries, needles armed with silver-wire for stitching, and a scissors. Besides these, the ordinary appliances for all operations must be at hand, as sponges, &c.

The operation should be done soon after a monthly period has passed; and, in preparation for it, the bowels should be freely evacuated. On the morning of the operation the patient should have only soup or some light nourishment, in order that the vomiting so frequently accompanying and following the induction of anæsthesia, which is maintained during the operation, may be kept within the narrowest bounds.

In describing the operation, I shall suppose the case to be one of laceration of the perineum, the fissure extending through the sphincter ani. It will be unnecessary to go over the steps of the operation for procidentia, because, *mutatis mutandis*, they are quite the same as in a case of laceration.

The patient is placed and held in the position for lithotomy, and the surgeon is placed as he is during that operation. With his fingers or with forceps he seizes the fourchette, or that part which corresponds to it, transfixes it with the bistoury, and then continues to cut, first on the one side and then on the other, upwards from the fourchette or its representative as far as he deems necessary.

In cases of procidentia it is usual to make the raw advance as far forward as to be nearly on a level with the orifice of the urethra. The operator thus removes a long tape-like piece of integument, which is about half an inch broad, rather less than more; and he leaves a horseshoe-shaped wound in which the point of the shoe is at the fourchette. It is important that the proper piece of integument should be removed, and it is at some parts a matter of care to secure this. At the fourchette there is little difficulty. It is quite easily made out, or may be made to project by separating the labia. Farther forwards on the sides of the vaginal orifice, the junction of skin and mucous membrane is sought for as the line of the wound, and it is not always quite easily found. The anterior margin of the wound is at or involves the posterior extremity of each nympha, and the line of the wound runs between this and the fourchette, its course being sometimes marked by the opening of the duct of the vulvo-vaginal gland on either side.

Generally two, sometimes four, arteries require ligature. Two of these are in front of the sphincter, one on either side: the other two are generally farther forwards near the nymphæ. A few minutes' delay is now caused by waiting for the complete or nearly complete stoppage of oozing from the raw surface. Then the wound is closed.

A series of silver-wire sutures is passed about one-third of an inch apart. The wire sutures, after being placed, are observed to pass through the wound near its deeper margin, and emerge on the skin or rectal mucous membrane about a third of an inch distant from the outer margin of the wound. Beginning posteriorly, each suture is tied with some firmness, the edges of mucous membrane and of skin being carefully adjusted to one another. Now the bladder is evacuated, the vulva is washed and dressed with some carbolic oil lint, and the operation is finished.

The alvine evacuations are stopped for about eight days by daily use of opium in some form. I use solid opium in one-grain pill at bedtime, or oftener if there appears need for it. The patient is fed on light food and sparingly. The urine may be drawn off twice or thrice daily, or the patient may herself pass it while lying. The wound requires to be kept clean by daily dressing. Care should be taken that discharge does not accumulate in the vagina.

On the seventh or eighth day after the operation the stitches are removed. Twenty-four or forty-eight hours afterwards the bowels, if they do not spontaneously move, are acted on by castor oil.

The removal of the stitches is done as in the operation for vesico-vaginal fistula. A dissecting

forceps is made to seize the projecting end of the ligature, and to tighten the loop by traction; then one blade of a sharp-pointed scissors is insinuated within the loop, and the scissors is made to cut it; after which it comes away by the traction of the forceps. But in a case of extensive perineal laceration it is sometimes difficult to get at the deepest or farthest back sutures. They may be half an inch or more within the margin of the new anus, and require considerable care in dealing with them.

Very many different plans for performing this operation have been proposed and practised; and of these many involve proceedings of which I disapprove, such as removing large portions of vaginal mucous membrane, and incising the sphincter ani. The plan I have rapidly sketched has the recommendation of being as simple as possible, and I have had such considerable experience of it as to justify my preferring it on the best grounds as being at the same time very successful and satisfactory.

I may conclude with a few words on the testimony which this second-rate operation affords to the advance and improvement of surgery. Like many others, I have repeatedly performed it in the most extensive lacerations, sometimes aggravated by one or more previous operation attempts at reunion by others. These operations were

mostly performed in Edinburgh, and mostly in the Royal Infirmary there. I am sorry I cannot give precision to my statement by naming the number, but it must be considerable, say above thirty. They were all successful. In all, the healing was chiefly by first intention. Frequently, a small part anteriorly, that is, near the vaginal orifice, healed by second intention. In three cases the same was true of the deepest part of the rent of the recto-vaginal septum; and the failure to heal in that part caused much temporary anxiety as to the ultimate result, which, however, as already said, was always good. In contrast with this, let us cite Lachapelle, who flourished in great days of French surgery, and who regarded* the wound as generally quite incurable. And, if we read Dupuytren's paper already referred to, we shall see how little he expected success in his surgical attempts; and how imperfect and unsatisfactory was his method of managing operations for the cure of this accident.

Since these remarks on the restoration of the perineum were first written, there has appeared a great mass of literature of much interest on this subject. I have resolved not to attempt a résume of it, feeling that it is not demanded by the scope

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* *Pratique des Accouchements*, tome iii. p. 142.

of the present publication; but I may refer the reader to the papers of Bantock (*Obstetrical Journal*, January, 1876), and to a review with copious literary references by Cazin (*Archives de Tocologie*, Mars, 1877).

THE END.

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