INJURIES OF THE PELVIC DIAPHRAGM AS THE REAL CAUSE OF DESCENT AND PROLAPSE OF THE WOMB.

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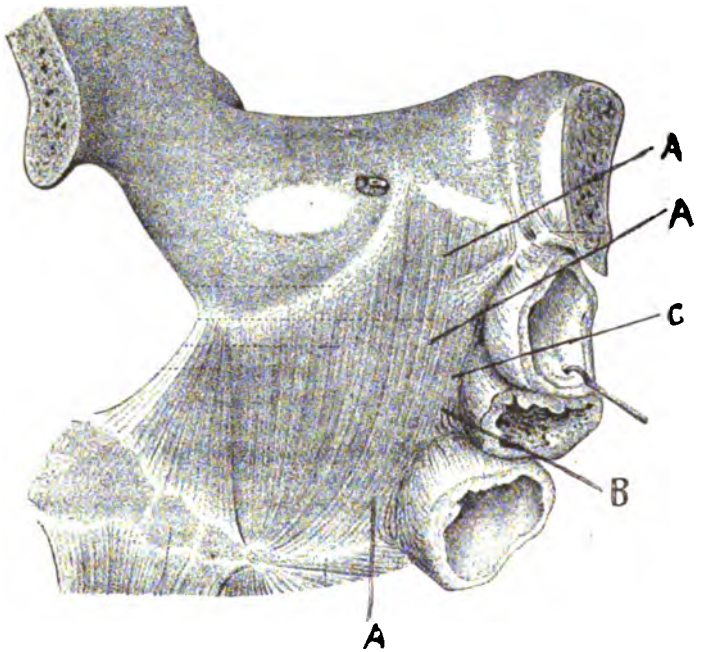
THE simple fact that descent and prolapse of the womb may happen without the presence of injuries to the perineum, and even in virgins; and the reverse, that women who present the gravest forms of perineal rents retain the so-called normal position of the pelvic organs—I say this simple fact should teach us that the perineal ruptures have not as much to do with the changes in the positions of these organs as we are every day tanght in our text-books. Only recently some of our great men have begun to doubt the correctness of the time-honored idea that the perineum is an organ of as distinct character and function as, for instance, the liver; only recently have they begun to withdraw the charge that the injured perineum was responsible for every kind of havoc to the whole

female architecture. So Emmet had the audacity to doubt; and though I do not subscribe to his views in all their special points, yet, strengthened by the weight of his authority, I feel less hesitation in making the following remarks.

I contend *that the perineum is no separate organ of itself; that it is nothing but an anatomical general name of a region which even by men like Henle and Savage cannot be distinctly described.* It consists of a number of *parts* of muscles which meet each other at this place. We say parts, because other



parts of the very same muscles lie outside of the perineum. It is merely accidental and due to the economy of the anatomical arrangement that so many muscular bodies of different functions meet there, and form a kind of muscular centre.

In the second place, what I wish to state is, that the true floor of the pelvis is what Luschka termed the pelvic diaphragm. We need only look at Savage's Plate[1] (which I take the liberty to copy), to understand at once that this sheet, arranged like the thoracic diaphragm of different strata, is the

[1] Savage's work on female pelvic organs, Plate XIV., Fig. I.

veritable floor of the bony pelvis, destined to close its inferior opening and to counteract the pressure brought on the pelvic viscera from above.

We see the three more or less tubular organs, rectum, vagina, and bladder, protrude and take their place below this diaphragm. The muscles, which partly support those organs outside of the diaphragm, and partly act as special functionaries to them—sphincters and openers—are to be considered as being glued to the diaphragm, and having an anatomical rather than a functional relation to the former. If this be correct, the levatores ani, or, as Savage calls them, the pubo-coccygei, do not belong to the perineum, but are a part of the diaphragm.

Thirdly, I contend that the womb, like the pelvic viscera in general, is not supported by the perineum directly, and will not necessarily fall when the perineum is torn, but that descent or prolapse can take place only when the pelvic diaphragm fails to act. We will see that there are circumstances under which a ruptured perineum can lead to descent of the womb, though it will be but indirectly. As a rule, the intact diaphragm, in its independency of the perineum, will prevent the pelvic organs from falling. *It requires an injury to it to allow the womb to descend.* This explains why the perineum may be rent without injury to the womb, and why we may have prolapse even in virgins. The diaphragm may become weakened aside from the effects of parturition.

As the point, whether there are such injuries and of what nature they may be, is the main object of this paper, I will go a little more into particulars, though I reserve a more exhaustive discussion for the future.

That there are injuries of the pelvic diaphragm from other than gynecological causes we are taught by every surgical textbook. There are obturator, perineal, pudendal, vaginal, ischiatic, even rectal hernias—all protrusions through the pelvic diaphragm, none of which can happen without separating some of its muscular strata. If such accidents may happen outside of child-bearing, then we can easily understand that in parturition they will happen much more frequently, where such an extraordinary strain is brought to bear on the pelvic diaphragm, which has to withstand the full force of the expelling powers,

and which must be stretched to its utmost during labor. But to understand the conditions in their full extent, I have to recall some anatomical points. We know that the two fellows of the levatores ani take their origin on the two pubic rami, that they run alongside the vagina, until they meet each other behind this organ, and between it and the rectum (in the diagram A being the levator, B the point of meeting, C circular fibres of the levator surrounding vagina.—Savage's Plate). There the two levatores form a sharp angle, and whilst the muscles then run towards the coccyx, leaving an opening for the rectum, they send a pretty strong bundle of circular fibres around the vagina also. We might term this bundle the internal sphincter vaginæ. This muscle forms, in connection with the angle of the levatores, the elevation in the vagina which Thomas calls very properly the "vaginal promontory." The space between the symphysis pubis and this promontory is a slit which allows the vagina and a portion of the bladder to protrude from the pelvis. It is partly narrowed by the sub pelvic ligament and by a strong aponeurosis, running from the pubic rami toward the anterior vaginal wall, inserted where bladder and uretha meet, forming an easily found transverse ridge (Fritsch).

This slit between the two levatores is to the pelvic organs what the inguinal canal is to the intestine: it is, under normal circumstances, not wide enough to allow descent or prolapse. The analogy even goes further. We might compare the two levatores to the two shanks of the inguinal canal. One of the old authors has called the descent of the womb a uterine hernia. There are normally certain organs passing through both the inguinal canal and through the pelvic diaphragm, and only under morbid conditions will more protrude. When in labor the child enters this slit, which will be stretched to the utmost, under untoward circumstances it will give way at the weakest point—the raphe—where the two levators meet. It will be immaterial whether the stretching is done by the circumference of the child's head, or by any sharp prominence of the child's body, such as the nose, elbow, shoulder, etc., which will directly cut into the angle of the slit. One thing is certain, that this slit is more exposed and has to withstand more force than the yielding perineum below. The vagina in its elasticity will remain uninjured, whilst the levatores may separate or

be ruptured. We see an analogous condition in the diastasis of the recti abdominis, which give way, whilst the peritoneum and integument remains undisturbed. Thus we might have a true diastasis or we might have a true rupture of one or both of the levatores. They might break loose from their pubic insertion, or be ruptured anywhere in their course. We might have a simple relaxation of the whole structure of the pelvic diaphragm by a morbid condition of the muscles and cellular tissue, or from over-distention by any force from above. We know how, by a forcible shock, a hearty laugh, the urine may involuntarily be expelled. Now, suppose a continued force should be exerted on the diaphragm; would not the above-mentioned slit be liable to become distended and enlarged, it having to bear the most of the pressure at its weakest point?

To sum up: There are three kinds of injuries possible to the diaphragm, viz.: general relaxation, ruptures, and diastasis. For our purpose, the levatores ani will be the only diaphragmatic muscles which we will need to study. If they give way, there will be so much power of resistance taken from the floor of the pelvic outlet as to allow the womb to protrude, and, finally, to fall through it. In order to strengthen my position by good authority, I give here the translation of part of a report made by Prof. Schatz at the last meeting of the German gynecologists.[1] He says: "The ruptures of the floor (diaphragm) are not yet sufficiently understood. In regard to dislocations of the pelvic organs, especially prolapsus, they are even more important than ruptures of the perineum. One can often see cases where the perineum is ruptured beyond the sphincter ani, and where, in spite of the rupture, the firmness of the pelvic diaphragm has not suffered, and no descent or prolapse has happened. . . . The perineum does indeed not belong to the diaphragm; it lies below it. . . . It is generally in labor that the pubo-coccygei (levatores ani) break loose from the pubic rami on either one or both sides, the rupture being caused either by forceps or by the advancing head. These ruptures may occur even whilst vagina and perineum remain intact."

In the discussion following these remarks, Hegar admitted

[1] Report of the 35th Meeting of German Physicians (Centralbl. f. Gyn.)

the occurrence of these ruptures, whilst Freund thought that they were not proven by post-mortem examinations.

As this subject was new, and as attention had not then been called to these injuries, Freund's objections do not amount to much; but I conclude from the facts further to be given that the ruptures of the levatores occur mostly not where Schatz locates them, but at the above-named angle, at their raphé, and that they are rather diastases than true ruptures. I, of course, admit that under certain circumstances perineal ruptures facilitate descent and prolapsus uteri, that is, when the vagina is short and gaping; when the cervix has no resting point on the posterior vaginal wall; when it is directed straight down towards the vaginal aperture; and when, finally, the diaphragm is relaxed. But, under all circumstances, this latter condition will play the more important part. It is a fact, which no honest gynecologist will deny, that even the best result of an artificially-formed or of a well-restored perineum will not restore the uterus to its normal position. Such an operation would enable the perineum to act as a barrier; it might narrow the vaginal outlet; it might do away with cicatricial ulcers, with protrusion of the vaginal wall; it might enable a pessary to stay in place, but it never would correct retroflexion or overcome the descent absolutely. The woman will feel no better after the most successful and handsome operation for a lacerated perineum, provided the suffering is due to retroflexion. The above facts, I claim, are direct proofs of my position.

I will now proceed to give clinical facts in support of this position. I call attention to a condition which will be found in a great number of such cases. *It is a painful, sometimes excruciating sensation, produced when we hook our finger behind the angle of the levatores, or where it ought to be, and when we pull the diaphragm toward the vaginal outlet.* It is best done by pressing the finger in the median line of the sacral excavation, and then carrying it close to the sacrum toward the vulva. The evident suffering from pulling the levatores, or even from the contact, is such a simple, plain symptom of an injury to this muscle that by itself it would be sufficient to form a correct diagnosis. There may be no perineal rupture, no malposition of the womb, still the woman complains of pelvic pain, of not being able to stand on her feet, of a constant dragging

sensation, whilst she feels well in the recumbent position. You are very apt then to find such a sensitiveness of the pelvic diaphragm, with or without retroflexion, or descent of the womb, according to the progress of the sequelæ of a ruptured or relaxed diaphragm.

A further guide to a correct diagnosis is offered by the vaginal promontory. We have seen that it is formed by the junction of the two levatores, and that it belongs to the diaphragm and not to the perineum. It can become injured, and even disappear, whilst the perineum remains intact. *This promontory will in some cases be found nearer the vaginal outlet; it will have fallen, and it will not offer to the touch the normal resistance. We will be justified in taking this for a symptom of relaxation of the diaphragm, either from a morbid condition of the tissues, from overdistention, or from rupture.*

But, in many cases, we will feel the promontory at its proper place; yet, in addition to the afore-mentioned sensitiveness, we will find that when we put our finger in its median line, and make a boring movement towards the sacrum, that the two muscles will separate, and that we will have a true diastasis of the levatores, the continuation of the floor being preserved only by the pelvic fascia. We will, in many cases, feel distinctly the ends of the two levator muscles, and if we, at the same time, put a finger in the rectum, we will feel them separate still more, so that an open space of one to two inches may be produced. In other cases, we will not be able to detect the termination of the muscles. We might then be warranted in presuming a disconnection to such a degree that the muscular strata have retired toward their pubic insertion. I am of the opinion that such a condition is the main cause of a rectocele.

Under all circumstances, we have clinical symptoms by which to make out diaphragmatic injuries. And if they, and not the ruptures of the perineum, are the causes of the changes in the uterine positions in view, we are certainly bound to seek for other means to restore the "normal" position than by operations for perineal ruptures. I do not wish it understood that I oppose the closure of a ruptured perineum, as, on the contrary, under certain circumstances, I deem it absolutely necessary. Yet I contend that these operations have nothing to do with the restoration of the uterine position, and that in descent

and prolapse they constitute only a very weak and indirect remedy, and one not more efficient than is a truss applied to a hernia.

If the position taken be correct, then the remedy has to be applied where it meets the cause. We will have to seek for a procedure by which we can contract the diaphragmatic outlet. Where this is a weakened condition of the tissues only, we know that judicious constitutional and local treatment, which tones up the patient, and the involved parts particularly, might do what we hope for. But in cases which we might term surgical, new operations will have to be found. It will be hazardous to cut through the posterior vaginal wall in order to seek the levator muscles and to sew them together—still, something of this kind must be done. I have in view an operation which was devised by my deceased friend, Dr. Dowell, of Galveston, for hernia. I believe that it will prove to be the correct procedure, as it promises reunion of the separated muscles and narrowing of the slit without any injury to the surrounding organs and tissues.

I will at the proper time report more fully on this point, but for the present would ask the profession to take the whole subject under consideration, and seek some method to remedy evils which, as yet, are beyond our control.