The importance of fascia in the cure of hernia in other portions of the body is universally recognized. A similar fascia is present in all prolapsed conditions and, if properly utilized, is of equal importance. It is not a question as to whether or not the fascia is present; but rather a question of proper technic to secure the full benefit of the structure. Bissell has described a similar technic for the treatment of rectocele, and I believe his work will mark a distinct advance in the cure of this troublesome condition.

CONCLUSIONS

1. The pelvic viscera are normally supported by strong layers of fascia.
2. A disturbed function of the fascia supporting any of the pelvic planes may result in the prolapse of that particular portion.
3. The position of the bladder does not depend on the position of the uterus.
4. In the treatment of prolapse, the uterus becomes a liability rather than an asset, and the disposition must depend on the age of the patient, the desire to bear children, etc.
5. Ovarian function does not depend on menstruation.
6. Complete removal of the uterus in prolapse allows the best reconstruction of the vaginal vault.
7. Overlapping of the fascia offers the maximum hope in the operative treatment of cystocele.

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THE CAUSE AND CURE OF HIGH RECTOCELE *

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Blaisdell,¹ in his studies of the parametrium, has demonstrated that, in man and the higher primates, considerable muscle tissue exists under the peritoneal folds of the pouch of Douglas, which gives a strong support to the pelvic organs. These muscle bundles, with the meshwork of elastic and fibrous tissue around the blood vessels of the parametrium and the pelvic fascia, give the true support to the pelvic organs. The pelvic floor below, the weaker accessory ligaments above, and the intra-abdominal pressure act only in an accessory way to relieve the strain on the parametrium and the pelvic fascia.

The cardinal part of the pelvic fascia is a strong band of fibrous tissue called the arcus tendineus, which runs from the posterior surface of the symphysis upward and backward along the lines of the anterior fornices of the vagina, to a point in the neighborhood of the spine of the ischium.

Along this true white line, the pelvic fascia divides to form the fascia endopelvina, which gives support to the bladder in front, the cervix mesially, and the rectum posteriorly. The endopelvina lies partly between the bladder and the anterior vaginal wall, and partly between the posterior vaginal wall and the rectum, to terminate in the triangular ligament of the perineum.²

From a point on the uterus near the internal os of the cervix, certain fibrous and elastic elements surround the uterine artery. These have been described by Mackenrodt as the cardinal ligament of the uterus. From the anterior surface of the uterus, similar bundles run forward to the bladder and attach to the symphysis mesially at the origin of the arcus tendineus. These are the pillars of the bladder. Posteriorly, less well marked bands of tissue extend in a fan shape from the cervix around the rectum, to attach, usually, in the fascia of the sacrum. These are called the sacro-uterine ligaments.

Blaisdell, in his dissections, was able to demonstrate lines of fascia which curve downward from the sacro-uterine ligaments along the sides of the culdesac of Douglas, to end in the fascia of the vaginal vault. He has called them the ligamenta plicovaginalia. It is his belief that they have not been heretofore described. These ligaments are most important because they support the vaginal vault and the rectum. In patients in whom these ligaments are congenitally lacking, or have been injured in childbirth, deep culdesac formation, high rectocele, prolapse of the rectum, retroversion and retroflexion of the uterus, etc., are common. Constipation, with continued straining at stool, may account for some of the conditions of rectocele with prolapse of the uterus which are sometimes seen in the nullipara. Continued vomiting, with increased intra-abdominal pressure, particularly during early pregnancy, also predisposes to these conditions.

During the last few weeks of pregnancy, settling of the presenting part occurs. With strong sacro-uterine ligaments, the cervix remains high posteriorly, the anterior part of the uterine wall and the anterior wall of the vagina forming the sac which supports the presenting part. This predisposes to cystocele, but not to rectocele. With multiparous patients, however, early settling, especially with occiput posterior positions, and large presenting parts due to overtime pregnancies, places strain on the sacro-uterine ligaments and tends to increase the size of small rectoceles resulting from previous labors.

The mechanism of the first stage of labor tends to strain the sacro-uterine ligaments and injure the ligamenta plicovaginalia. This strain is more marked in patients who bear down with their first-stage pains. Also, obstetric operations undertaken before the cervix is fully dilated may completely destroy the posterior support of the vaginal vaults, resulting in marked degrees of rectocele without presenting any visible lacerations postpartum.

Primiparous patients, with strong, well-developed levator ani muscles and fascia, at times obstruct the advance of the presenting part during the second stage of labor, even against strong propulsive pains. This action, even though eventually spontaneous labor takes place, frequently results in damage to the sacro-uterine ligaments.

During the puerperal period, subinvolution of the uterus with retroversion, especially if patients remain too much in the dorsal position while in bed, prevents the proper involution of the pelvic fascia, which predisposes to the condition of rectocele. Finally, hard work, such as lifting and straining throughout the lactation period, and chronic constipation, particularly if associated with atrophy of the pelvic fascia, complete the picture presented for a better understanding as to the causes of high rectocele. The same factors, when

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Blaisdell, F. E.: *Anat. Record* 12, No. 1, Feb., 1917.

2. Spalding, A. B.: *Surg., Gynec. & Obst.* 29: 529 (Dec.) 1919.

associated with complete laceration of the perineum, may result in complete prolapse of the rectum.

The cure of high rectocele is essentially surgical. Nevertheless, it is important to correct, when possible, the common condition of constipation in young girls.

Fig. 1.—Transverse incision at fourchette: scissors passed under fascia of vaginal wall to point near cervix.

Treatment for tight sphincter, fissure in ano, intentional irregularity and undue prolonged straining at stool should be instituted in childhood. Dysmenorrhea, associated with undeveloped and retroverted uteri, should be treated with the idea of correcting, when present, an abnormally deep culdesac of Douglas. This cannot be done without combining with uterine suspension some operative procedure on the sacro-uterine ligaments or on the peritoneum forming the pouch between the vagina and the rectum.

Good obstetrics from the earliest months of pregnancy to the end of the puerperal period is necessary to limit the damage to the sacro-uterine ligaments, caused by such complications as excessive vomiting (especially when associated with retroversion), prolonged settling, overtime labor with large babies, occiput posterior positions, prolonged first and second stage labors, puerperal retroversions, and repeated pregnancies at intervals too short for involution to take place. At one time, I believed the insertion of a cervix bag in long first-stage labors would help to prevent rectocele, but more extensive experience has led me to change some of my ideas in this regard.

To induce labor at term in the multipara, particularly with occiput posterior positions, the Voorhees bag is often of distinct value. But the pull of the bag on a rigid cervix for an unduly long time will tend to injure the ligamenta plicovaginalia and produce rectocele, rather than prevent it. Early correction of posterior positions, version, the Scanzoni maneuver, resort to median episiotomy in delayed second-stage labor, as well as the complete repair of lacerations of the cervix and upper vagina after labor, are of great value in the prophylaxis of rectocele.

But the most perfect postpartum perineorrhaphy will not cure high rectocele. Moreover, the usual procedures advocated for the cure of high rectocele are totally inadequate to meet the situation, and are frequently followed by a recurrence.

Operations for cystocele have a far better prognosis as regards the frequency of recurrence than have operations for the cure of rectocele; while operations for the cure of prolapse of the uterus give the best results and, so far as the uterus is concerned, are followed by the least number of recurrences. For example, in a recent report of a series of sixty-three operations for prolapse of the uterus, associated with rectocele and cystocele, we found, in the women's clinic at Stanford University School of Medicine, nineteen recurrences of the rectocele, nine recurrences of cystocele, and three recurrences of uterine prolapse.³

Following the usual types of perineorrhaphy, rectocele will occur in more than 20 per cent. of cases. If rectocele is associated with prolapse of the uterus or develops after vaginal hysterectomy, perineorrhaphy for the cure of the rectocele, even if fairly high, will be followed by a recurrence of the rectocele in 40 per cent. of the cases.

Because of these facts, I have gradually modified and perfected a technic for the cure of rectocele that might be called proctopexy, although, to differentiate it from the older abdominal proctopexy, it would probably better be called colpoproctopexy.

This operation is somewhat similar to that described by Bissell,⁴ who overlaps the fascia between the rectum and the vagina, as well as those described by Gold-

Fig. 2.—Posterior vaginal wall incised from fourchette to cervix, exposing rectum.

spohn⁵ and by Frank,⁶ who close the levators high between the rectum and the vagina, but it differs in that the rectum is raised on its transverse axis and sutured

3. Spalding, A. B.: *California State J. Med.* 20: 2-3 (Jan.) 1922.

4. Bissell, D.: *Am. J. Obst.* 78: 1 (July) 1918.

5. Goldspohn, A.: *Surg., Gynec. & Obst.* 32: 443 (May) 1921.

6. Frank, R. T.: *Surg., Gynec. & Obst.* 24: 42 (Jan.) 1917.

to the pelvic fascia in the neighborhood of the exposed sacro-uterine ligaments; the sacro-uterine ligaments as well as the levator ani muscles then being interposed between the rectum and the vagina. The technic of the operation in brief is as follows:

A cross incision through the vaginal fascia is made at the mucocutaneous junction of the vagina and perineum as in a Tait flap splitting perineorrhaphy. As this flap is held taut by two assistants, blunt pointed scissors are passed between the vaginal fascia and the rectum for a distance of about 6 cm., to a point near the cervix (Fig. 1). By opening the scissors, the vaginal fascia is separated from the rectum and the vaginal wall is then incised in the midline from the fourchette to the pouch of Douglas (Fig. 2). By lifting the upper angle of the incision, the sacro-uterine ligaments are put on tension and, unless the uterus has been removed, can be easily made out. A chromic gut suture is passed through the vaginal wall a short distance from the upper end of the incision, carried free, and passed through the fascial covering of the left side of the rectum at a point that will just take up the slack in the prolapsed bowel. This suture is now passed through the fascia near the left sacro-uterine ligament, crossed over and passed through the fascia near the right sacro-uterine ligament, then carried free to a point on the right side of the rectum opposite the first rectal stitch and up through the vaginal wall opposite the starting point (Fig. 3). If this stitch is carefully drawn taut and tied, the rectum will be raised to the sacro-uterine ligaments, and these ligaments will be sutured together and the upper angle of the vaginal incision closed (Fig. 4). A second similar stitch will cause the herniated rectum to disappear entirely. Sutures now passed through the levator ani muscles and fascia high in the vaginal incision will close the wound to

Fig. 4.—Result after tying stitch shown in Figure 3: rectum raised on transverse axis.

Fig. 3.—First stitch to raise rectum and close sacro-uterine ligaments.

a point usually seen in the ordinary perineorrhaphy. By the excision of the excess vaginal flaps the suturing of the deep layer of the triangular ligament and approximation of the superficial muscles, fascia and skin of the pelvic floor, the operation is completed. The vagina is packed with sterile gauze to prevent deep oozing.

For a study of late results following operations for the cure of rectocele, the histories of 175 patients have

been reviewed. One hundred and thirty-one of these patients have been seen and examined in the clinic for periods varying from three months to six and one-half years after operation. The remaining forty-four patients have made at least one visit to the clinic after

leaving the hospital, at periods varying from six weeks to three months after operation. With 145 patients in this series, an attempt was made to cure the rectocele by various types of low and high perineorrhaphy. In this group of patients, 131 had cystocele in addition to the rectocele, and fifty-five suffered with complete prolapse of the uterus with rectocele. In the 131 patients having rectocele and cystocele, there were thirty-one recurrences of the rectocele, or 24 per cent. In the fifty-five patients having complete prolapse of the uterus with rectocele, there were twenty-two recurrences of the rectocele, with three recurrences of the prolapse, which gives a 40 per cent. recurrence of the rectocele after perineorrhaphy.

During the last three years, thirty-two patients have returned to the clinic a sufficiently long time after proctopexy to give a fair estimate of the relative value of the operation. In this group, twenty-six also had cystocele and ten had complete prolapse of the uterus. In the patients having rectocele and cystocele, there were three recurrences of the rectocele, or 11.5 per cent. In the cases of prolapse of the uterus, there was one recurrence of the rectocele, or 10 per cent., with no recurrence of the prolapse of the uterus.

The 175 patients having perineorrhaphy were operated on by various operators, including the intern staff. A great variety of technics was employed. In the clinic, after operation, the patients were examined by a different group of the staff, and all recurrences of rectocele with the patient straining down were carefully recorded. This method gives an impression as to the value of a particular operation far different

from that usually received when the operator is anxious to overvalue the technic of any particular operation. This method may possibly even exaggerate somewhat the number of recurrences by including some cases of only minimum failure. However, from a comparison of the percentage values obtained in the two series of patients examined by the same methods, it is seen that, in cases of rectocele associated with cystocele, 52 per cent. better results have been obtained with proctopexy than with perineorrhaphy; while, with rectocele associated with prolapse of the uterus, 75 per cent. improvement has been obtained with proctopexy over that obtained with the usual perineorrhaphy.

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TECHNIC OF REPAIR OF ENTEROCELE (POSTERIOR VAGINAL HERNIA) AND RECTOCELE

AS AN ENTITY, AND WHEN ASSOCIATED WITH
PROLAPSE OF THE UTERUS*

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The subject of this paper is limited to hernias involving the posterior vaginal wall, which we frequently encounter and recognize under the designation of rectocele, and to the much rarer hernia which is made up of the culdesac of Douglas, with its intestinal contents

Fig. 1.—Technic of rectopexy for rectocele: The vagina is separated from the rectum with scissors; the dissection extends well above the line marked for the excision of the vaginal wall.

dissecting its way downward between the posterior vaginal wall and the rectum, known as vaginal enterocele or posterior vaginal hernia.

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The common condition of rectocele is the result of impairment of the function of the pelvic floor (the inability to properly close the vaginal mouth), due to injury in childbirth, thus allowing the vaginal wall to roll downward and outward with the attached rectum.

Fig. 2.—Technic of rectopexy for rectocele: The rectopexy suture that is to draw up the rectal pouch to the upper undamaged part of the vagina is in place.

This anatomic change in the relation of the parts alters the normal mechanism of defecation, the direction of the fecal current being changed so that the anterior rectal wall and the posterior vaginal wall receive the brunt of the strain and, consequently, protrude more and more until a distinct rectal pouch is formed, which renders complete emptying of the rectum difficult. In cases in which the fascial support of the vaginal wall has been torn or is attenuated, the rectocele may develop to a large size, with resulting aggravation of symptoms.

The usual methods in vogue for curing this hernia are based on the principle of either denudation of the posterior vaginal tissue and approximation of the cut edges or resection of the excess vaginal wall with plication of the bowel. The result, so far as the bowel is concerned, is to throw it into folds, which must tend to be smoothed out by the daily passage of fecal masses, especially if constipation exists. In all these operations, a perineorrhaphy is relied on to close the vaginal orifice and thus prevent further descensus of the vaginal walls. In the majority of cases with a small or moderate sized rectocele, these methods are satisfactory in their results, the so-called "interposition" or levator muscle operation being superior to the typical Emmet, in my opinion, so far as the rectocele is concerned.

In large rectoceles, however, the usual operative procedures do not give as perfect a permanent result as is desired. For the last twelve years, I have been employing the principle in curing rectocele that is so successful in cystocele when the bladder is separated