The toilet of the peritoneum is made and the abdomen closed without drainage.

If it is thought best to remove the whole of the uterus, the operation is quite similar, until the first uterine artery is tied, but instead of cutting across the cervix uteri the incision is carried down at the side until the vault of the vagina is reached, clamping the lateral vaginal arteries as they are cut. Then with scissors the cervix is liberated, keeping close to the uterine tissue and clamping the posterior vaginal artery. The end of the vaginal portion is seized with double tenacula and lifted up and freed from the tissues on the other side, clamping the vaginal arteries and the uterine when it is reached. After applying mass ligatures of catgut to the small vaginal arteries and ligating the uterine artery carefully, the muscular walls of the vagina are united with a continuous catgut suture and above this the peritoneum is united with a seroserous continuous suture, when the operation is finished as above stated. If owing to the enucleation of subperitoneal masses, or for any other reason, drainage is desired, it is easy to pass a rope of gauze from above downward into and through the vagina, closing the sides of the opening in the vagina with sutures which close the lateral vaginal vessels and approximate the muscular and peritoneal surfaces and drawing the peritoneum which covers the bladder down to the incision in the vagina. Gauze drainage is, however, much less used than was the custom three or four years ago, the rule being to avoid drainage whenever possible.

The method of cutting across the cervix (Kelly), or removing it wholly (Pryor), before securing the second uterine artery is of advantage in rendering the operation more rapid and also because in case there are difficulties on one side, such as an adherent sacculi, or a mass of subperitoneal myoma, it is more easy to enucleate and remove such an obstacle after the uterus is liberated on one side and the cervix divided, for then the whole tumor can be more readily lifted out of the pelvis and whatever remains adherent can more easily be felt and seen. The operation is more satisfactory to perform and to witness if the surgeon is really skilful and dexterous and has an exact knowledge of his anatomy. For those in whom these qualifications are not very evident, and for all beginners in hysterectomy, it is safer to tie the arteries of the round and broad ligaments and the uterines on each side before dividing the cervix or removing it.

It remains to consider the indications for total hysterectomy in cases of myoma, as compared with leaving a portion or the whole of the cervix uteri. In general it is better to leave the cervix:

(1) Because it makes the operation shorter and easier and gives less chance of hemorrhage during the operation and does not open so much cellular tissue for oozing and decomposition of blood after the operation.

(2) Because there is somewhat less chance of infection of the wound where only the small cervical canal is cut across and instantly closed by the double tenacula than when the whole vault of the vagina is opened.

(3) Because the vaginal portion of the cervix is a seat of sexual feeling and worth preserving on that account, and if the cervix is present the women do not feel so much mutilated as when it is gone.

(4) Because the lower parts of the broad ligaments

with the cervix form a better support to the pelvic contents than does the simple union of the vault of the vagina.

Total hysterectomy should be performed: (1) When the cervix is enlarged and diseased; (2) when the cervical canal is suppurating or septic; (3) when there is any suspicion of malignant disease, and (4) when vaginal drainage appears desirable.

IMMEDIATE REPAIR OF PERINEAL TEARS.¹

BY E. S. BOLAND, M.D., BOSTON.

EVEN the frequency of these injuries and the troublesome effects associated therewith, or entailed thereon, would not justify me in presenting this matter to this section had not our honored chairman requested it.

Frequency.—While such injuries are more common in primiparae, they occur very often also in those who have already borne children. No figures are available, but probably 80% of all primiparae receive some degree of tear, and among multiparae at least 20% will have the same injury. It would not be exact to say that the injury is overlooked, for it is more often not looked for at all, for its occurrence has sometimes been regarded as a reflection on the skill of the accoucheur—a groundless belief in the main, as will be admitted by those who have observed carefully the progress and termination of many cases of labor.

Causes.—No theory of prophylaxis or treatment would be satisfactory without some consideration of the causes of these injuries. Excluding the cases due to precipitate labor, narrow pubic arch, disproportionate size of the fetal head or trunk, or faulty adaptation of the head diameters, to the pelvic outlet, it may be said that vaginal and perineal tears are due to imperfect distensibility of the soft parts at the pelvic outlet. The more advanced the age of primiparae after twenty-five years the greater the liability to tears. Given a labor of normal duration and normal presentation, the vulvar orifice ought to stretch enough to permit the delivery and then resume its original size and shape.

Degree.—The degree of tear will vary from a mere nick in the mucous membrane of the fourchette down into the rectum and to a greater or less distance up into the rectovaginal septum, with all intermediate degrees of extent, together with, at times, radiating tears from the more commonly longitudinal one, the frequency of tears to the extreme extent mentioned above being, of course, quite rare; while those about half through the perineal body and running from one to three inches up the posterior vaginal wall, and down or back on the cutaneous surface to within a half inch of the sphincter ani are quite common and are the ones which will need our help oftenest.

While the average direction of the tear is, roughly speaking, parallel with the long axis of the vagina, a considerable variation of the situation and direction of the tears may be evident on exposing the vagina. There may be a central perforation of the perineum if the latter is lax and the labor very forcible and quick, and the vulvar ellipse be unstretched and untorn. The injury may be in two parallel lines leaving a central ridge of the perineal body, or a divergent tear may run up the inner face of one or both labia.

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 23, 1900.

The latter tears are usually quite shallow. Sometimes a tear involving the vestibule may prove troublesome from the hemorrhage set up. Some ordinary tears bleed quite freely, also, and it is evident that more consideration ought to be given to this matter of hemorrhage for its own sake. How often must it be said that hemorrhage paves the way, while the raw surfaces of the tear opens the door, for septic invasion? The patient, while not always complaining much at first, soon feels the soreness of the tear and the suffering is intensified by the urine and lochial discharges. If cicatrization takes place without union there is apt to be some loss of functional capacity of the vagina sooner or later, and operation for late repair will involve the elaborate plastic work of flap splitting, butterfly denudation, etc., which is discouraging to the family physician as well as terrifying to the patient.

Prevention.—If what was said above as to etiology is correct, a sure rule of prevention of these injuries might be as briefly summarized as a description of the snakes of Ireland. No doubt those happy practitioners who never have these injuries occur, and who treat these tears by denying their occurrence, would be indignant at such a statement, but the fact remains that the man who attends the most cases will see the most tears—if he looks for them—no matter how skilled or experienced he may be. No doubt some tears are prevented or minimized by retardation of too precipitate labor, anesthetic relaxation of the soft parts, etc. Possibly the same end is advanced by perineal support, position of the patient and lateral incision of the vulva. What has helped me most has been manual dilatation of the soft parts during the first stage of labor, under partial anesthesia from chloroform. The forceps cannot be held accountable for tears when properly used, and some go farther and say that they are a means of prevention. This is no doubt true in so far as they prevent the devitalizing effect on the soft parts of too prolonged labor. If the practitioner has but a limited responsibility in the production of perineal tears, he cannot evade the obligation to promptly repair such injuries. No doubt union will occur if suturing is done within twelve or eighteen hours of the injury, but no one acts on this assumption in caring for scalp wounds. Better always to go prepared to do the immediate operation.

Treatment.—Theoretically a parturient tear does not offer ideal conditions for surgery. Asepsis, dryness, pressure and rest cannot be wholly attained, but we must not abandon attempts at repair because we get some failures. If carefully carried out, the immediate operation of suturing ought to give 90% of successes. The pressure that tore the parts acts to some extent as an obtunder of pain from the needle punctures, and an anesthetic is not a necessity. Anesthesia also requires additional assistance, which often means delays and added expense, a consideration among our honest working people. If promptly and carefully done, the tears heal readily, and before the usual nine or ten days' confinement to bed are past, the stitches can be removed in the same order in which they were put in. The value of the prompt restoration of the perineal body does not depend wholly on the after results, but also on the influence it exerts to minimize the risk of septic infection in the puerperium.

To the man in family practice, this accident occur-

ing at night, the lack of skilled assistants and the need of simplifying the operation have sometimes led to poor surgery, which may not be much better than the antique method of tying the patient's knees together. Some, recognizing the fact of a tear, are content to put in one or two stitches on the cutaneous aspect of the perineum. Sometimes the results from this procedure are satisfactory, but there is a good chance of getting only what has been called a "skin perineum."

If we recall the fact that any tear is apt to go farther up the vagina than it shows on the cutaneous surface, the inadequacy of merely skin sutures is manifest; besides, these end stitches constitute a veritable dam across the gutter-shaped tear, above which blood clots and lochia distend and possibly infect, and certainly prevent union when union is most to be desired. If the tear is short at the vaginal end, the suture can be carried from the skin surface up to the end of the vaginal tear and parallel with the sides of the tear, but far enough out of sight to be in sound tissue. It gives a purse-string action that may be sufficient, but for a long vaginal tear it is not good. If these injuries were external wounds, no one would think of treating them in any way except by the ordinary interrupted suture at right angles to the wound and placed deep enough and close enough to evenly approximate the surfaces throughout. The trouble to some has been the difficulty of illuminating the vaginal part of the tear. The obstetric bag, of course, contains the needles, needle holder, suture material and scissors. If to this is added the head mirror of the laryngoscope with head band attached, you will be ready for the operation at any time and place—in the darkest room provided a kerosene lamp is at hand, and no home except the very wealthiest is without one. Aseptic catgut and kangaroo-tail tendon have the advantage of absorption, and if good are admirable, but silk is good enough, and it has this in its favor—its removal gives you a good chance to see your result. The ends of silkworm gut are too irritating. With the above outfit sterilized, the suturing is not difficult after a little experience. The patient can hold the lamp for you at her flank or on her abdomen if no kindly neighbor is at hand. After an antiseptic douche, which had better be interuterine, and the manual removal of all remaining clots, vernix caseosa, semidetached tags and marginal hair, the vaginal walls are separated and steadied by the fingers of the left hand; the head mirror will throw a cone of bright light into the vagina with midday distinctness, and beginning at the upper end of the tear the sutures are readily placed, each in turn being cut when tied before another is put in. Some patients will complain, but it is surprising how well the majority submit to it in preference to being put on a table with some outside assistant and all the detail of anesthesia. The satisfaction of delivery (which no one can imagine who has not experienced it) seems to reconcile her to the lesser suffering of the suturing. If the rectum is involved it often gives less trouble than might be supposed and only in extreme cases will the elaboration of rectally placed suture be needed. It seems best to catheterize the first twenty-four hours after suturing even if the patient can void the urine voluntarily. Unless specially needed, and, if so, carefully given, the post-partum douches may be omitted after suturing. If the parts sutured have been devitalized by

severe and prolonged pressure the chances are bad, but aside from this condition the results are surprisingly successful, even uniting in the face of what seems like septic infection sometimes. Any radiating tears of labia, vestibule or vaginal sides can be sutured with lighter material, as they are usually superficial and generally unite firmly before the main, deeper tears. Ligating of vessels first is not often needed. In the removal of the vaginal stitches the same light is needed, and ear forceps and pocket scissors all that are required. Begin above and work down and out.

It is cruel to add another instrument to the outfit which we must carry, but the head mirror is so useful for other purposes that this will offset the trouble and occasional expense of a broken one.

Medical Progress.

REPORT ON PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 7, p. 165.)

THE TREATMENT OF INJURIES OF THE SPINAL CORD.

BOLTON⁸¹ makes the following summary of his method of treatment:

(1) Extradural hemorrhage does not give rise to cord lesions or symptoms, and requires no treatment.

(2) Total lesions of the cord are irremediable, because the cells and fibres of the entire cord are destroyed, are never regenerated, and are replaced by cicatricial tissue. The lesion thus is permanent, and requires no treatment.

(3) In hematomyelia the clot is absorbed; its site persists as a cavity or is filled by newly formed tissue; irregularities of circulation in the surrounding portions of the cord adjust themselves. There may be great amelioration of the symptoms. There is, therefore, no therapeutic indication, and no remedial treatment is possible.

(4) In partial contusion of the cord the lesion results in permanent destruction of cells and fibres; disturbances of circulation adjust themselves. Repair is accomplished by cicatricial tissue. No treatment is available.

(5) In open injuries of the cord there are destruction of cells and fibres and disturbances of circulation. In addition, infection may occur or a foreign body be introduced and left in or lodged against the cord, and by its continued presence produces great disturbance of circulation and consequent extensive degeneration and necrosis of cells and fibres. Repair occurs by cicatricial tissue. Here immediate operation is indicated for antiseptics, drainage, and the removal of the foreign body.

OPERATION FOR TUMORS OF THE SPINAL CORD.

Schultze⁸² reports 2 successful cases of tumor of the spinal cord diagnosed and treated surgically, thus adding to the list of 20 similar cases published by Bruns, in which beneficial results had been obtained only in 6.

The first patient, a woman, age forty-nine years,

⁸¹ *Annals of Surgery*, August, 1899; *American Journal of the Medical Sciences*, November, 1899, p. 602.

⁸² *Zeit. f. Nervenheilk.*, December 7, 1899; *Lancet*, March 17, 1900, p. 792.

suffered from hysterical and neurasthenic symptoms which were succeeded by signs of spinal disease, symptoms of compression of the spinal cord, and paraplegia. The localizing symptoms pointed to the mid-dorsal region, and on operation a tumor was discovered compressing the cord in the region of the fourth to the seventh dorsal segments and lying between the dura mater and the vertebrae. This was removed, and for a week after the operation the symptoms grew worse, after which they steadily improved, and in a few months the patient was able to walk and to get about freely.

The second case was that of a man, age twenty-eight years, with symptoms of spastic paraplegia and with an area of anesthesia extending up to the level of the mid-dorsal segment of the cord. On opening the spinal canal a tumor was found at the level of the sixth dorsal vertebra and was removed. The sensory and motor troubles temporarily grew worse during the few days succeeding the operation. After this the patient improved steadily, and was able to walk about and to follow his occupation as a gardener.

Schultze points out that these 2 cases throw a more favorable light on the statistics of operations for spinal tumors, and that in view of the utter hopelessness and futility of expectant and palliative treatment there is every reason why surgical operation should be resorted to when once the diagnosis of intraspinal tumor is confirmed.

POST-ANESTHETIC PARALYSES.

Mally⁸³ cites a number of instances in which paralyzes, central, hysterical, peripheral, or reflex, have been detected after the administration of a general anesthetic.

Regarding the peripheral paralyzes, he says they are generally due to compression. They are more numerous than one might at first suppose, as many of them pass unnoticed, the patient recovering before being able to leave the bed after the operation, so that they are not noticed. If, however, they are carefully questioned, many will admit that they have had a numbness or tingling which has not amounted to much. The anesthetic cannot be considered as the cause of this, except that the unconscious patient has been unable to defend himself against cramped positions and overstretched limbs.

The paralyzes that are reflex and those that are hysterical in their character have nothing to do with the anesthetic. The central paralyzes due to cerebral hemorrhage are very rare where the anesthetic has provoked the arterial rupture in a purely mechanical manner.

The treatment should be preventive, sufficient care being exercised to prevent the patient from receiving injury by pressure through awkward positions during the operation. The cerebral and hysterical should be treated on principles applicable to these conditions. The use of electricity and massage is advised for the others.

THE TREATMENT OF VARICOSE ULCERATIONS BY NERVE STRETCHING.

Chipault⁸⁴ says that the results obtained in cases of malperforant of the foot by the stretching of the

⁸³ *Rev. de Chir.*, July, 1899; *American Journal of the Medical Sciences*, October, 1899, p. 476.

⁸⁴ *Rev. de Chir.*, November, 1899; *American Journal of the Medical Sciences*, March, 1900, p. 348.