THE TREATMENT OF LARGE VESICO-VAGINAL FISTULÆ.*

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In the sixth decade of this century the treatment of vesico-vaginal fistulæ was for the first time put upon a scientific basis by the labors of A. J. Jobert, G. Simon, and J. M. Sims.

While Jobert generally succeeded in closing the smaller fistulæ by simply denuding the borders and approximating the edges with sutures, he found that this plan did not succeed with those of larger calibre, where considerable tension was created by the approximation. In order to overcome this difficulty he devised a new plan of treatment (*autoplastie par glissement*), which consisted in deep incisions through the vaginal walls so placed as to relieve the tension on the united edges of the wound.

A deep transverse incision made in the vault of the vagina in front of the cervix, extending even up to the vesico-uterine fold of peritoneum, has been known ever since as the *incision of Jobert.*†

Simon, who followed Jobert, did away with his plan of incising the vaginal walls by using two sets of sutures (*Doppelnaht*). Those introduced at a distance from the margins of the wound were used to relieve tension (*sutures of detention*), and those introduced close to the wound were approximation sutures simply (*sutures of reunion*).‡ In addition to this, Simon devised specula to expose the fistula better, which have never been materially improved upon.

J. Marion Sims, working independently in the same line, devised his speculum for the exposure of the fistula with the patient in the left lateral position; he made a funnel-shaped denudation of its edges extending down to the vesical mucosa but not including it, and then united the wound with twisted silver wire sutures.§

Dr. T. A. Emmet (*The Principles and Practice of Gynecology*, Phila., 1879) and Dr. Nathan Bozeman ("The Gradual Preparatory Treatment of the Complications of Urinary and Fæcal Fistulæ in Women," *New York Med. Jour.*, Oct. 1, 1887) both laid stress upon the urgent necessity of the careful preparatory treatment of cases of large fistulæ by dividing cicatricial bands and using pressure to promote their absorption before undertaking the operation.

In spite of the many successes attained in the treatment of vesico-vaginal fistulæ by these methods, a certain percentage of cases still remained which could not be cured by any known plan of treatment, and it was even found necessary in some cases to resort to a complete closure of the vagina (colpocleisis).

The first active step taken with a view of reaching these inoperable cases was that of A. Martin of Berlin, who covered the defect with large flaps dissected up from the contiguous vaginal walls (*Zeitschrift f. Gyn. und Geb.*, Band XIX, p. 394).

L. von Dittel (*Abdom. Blasenscheidenfistel Operation*, Wien. Med. Woch. 1893, No. 25) opened up a new avenue when he attempted to close a fistula through an abdominal incision; he cut the bladder loose from the uterus and the vagina, freed the fistula from all its attachments, sewed it up and dropped it, and then united the vesico-uterine peritoneum to the uterus and closed the abdominal incision.

A. Mackenrodt of Berlin (*Centrablatt f. Gyn.*, No. 8, 1894) has given us the following admirable plan for the successful treatment of these large fistulæ (*ut sup.* p. 183); the fistula is exposed, the cervix and urethral prominence caught with tenaculum forceps, and the tissue made tense by traction in opposite directions. An incision is made through the vaginal walls in the median line across the fistula. Then with knife and forceps the margins of the fistula are split so as completely to detach the bladder from the vaginal walls on all sides. The separation may be carried as far up as the vesico-uterine peritoneum. The movable elastic bladder is now closed by denuding its edges and drawing them together with fine silkworm-gut sutures. Beneath these a second and even

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* Proceedings of the Johns Hopkins Hospital Medical Society, January 20, 1896.

† See *Comptes-rendus de l'Acad. des Sci.*, 1850. See also *Traité des fistules*, Paris, 1852.

‡ See *Ueber die Heilung der Blasenscheidenfisteln*, Dr. G. Simon, Giessen, 1854.

§ *On the Treatment of Vesico-vaginal Fistula*, by J. Marion Sims, *Amer. Journ. Med. Sciences*, 1852, vol. 23, p. 59.

a third layer of sutures may be placed. After closing the bladder wound in this way, the vaginal wound is approximated as far as the tissues will permit, by denuding its margins, drawing the *corpus uteri* forwards, and passing sutures from side to side so as to bring the vaginal margins together and at the same time to hold the uterus lying upon them in anteflexion. If the margins will not come together they are sewed to the uterus on each side so as to form a firm base in the place of the fistulous orifice.

W. A. Freund (*Eine neue Operation zur Schliessung gewisser Harnfisteln beim Weibe*, Samm. Klin. Vort. N. F. No. 118, 1895) has succeeded in closing two large fistulæ by utilizing the body of the inverted uterus brought through the posterior fornix into the vagina and sewed to the anterior vaginal wall.

E. C. Dudley of Chicago performed a remarkable operation in closing a large intractable fistula by making a semicircular denudation on the inner surface of the bladder extending from one margin of the fistula around to the other. He then attached this denuded surface to the anterior part of the fistula and so obtained a closure. A portion of the posterior half of the bladder was thrown out of use, but the patient had good control over the newly formed organ.

In addition to these five plans, all aiming to reach the same difficult class of cases, I have one of my own to propose. It was carried out in the following manner: The patient, Mrs. Y., aged 40, 5-par., was operated upon, September 25, 1895. She had had a urinary fistula ever since her third labor, eight years ago, and five different attempts had been made by various surgeons to close it, all of them unsuccessful, and with the result of increasing the disability because of the sacrifice of important tissues at the base of the bladder, in fact the base of the bladder was entirely gone. I found the bladder everted through the fistula and filling the vagina with an angry red fungous-like mass; on replacing this, the anterior vaginal wall was seen to be absent, and in its place there was an enormous fistulous opening in the base of the bladder.

The fistula measured 4x3 cm., and involved the anterior lip of the cervix, which was destroyed, as well as the entire neck of the bladder anteriorly (vesico-utero-urethro-vaginal fistula); in front the sharp contour of the cut-off urethra presented a marked contrast to the normal funnel-shaped neck of the bladder. Posteriorly to the right and left of the cervix the ureteral orifices opened on the edges of the fistula. Two or more centimeters of each ureter had evidently been sacrificed in the operations. The vaginal walls forming the margins of the fistula were immovably fixed on all sides and contained numerous radiating bands of scar tissue. There was not the slightest chance of bringing such tissues together by any known method of denudation or suture, so I employed the following method, and covered the defect successfully. The steps of the operation were:

1. A crescentic incision separating the muscular and mucous coats of the bladder from the vagina, was made around the posterior two-thirds of the fistula, and the bladder detached from the supravaginal cervix all the way up to the peritoneum, and widely on both sides, by a blunt dissection. It was easy to avoid injuring the ureters splinted by the catheters.

2. I next denuded a strip around the remaining anterior third of the fistula on its vaginal surface, carrying the denudation down to the mucosa of the bladder and the urethra.

3. Two flexible ureteral catheters 2½ mm. in diameter were passed through the urethra across the fistula, and one conducted into each ureter and pushed up above the brim of the pelvis.

4. The part of the bladder freed from its attachments behind was now easily drawn forward and accurately applied to the immovable anterior third, to which it was united by interrupted fine silkworm-gut sutures. Each suture caught the under surface of the muscular coat of the bladder so as to turn the cut edge up towards the newly formed bladder. The ureteral orifices fixed on this edge were in this way turned into the bladder, and escaped transfixion or compression by the sutures through the presence of the catheters which made their position plain.

I left these ureteral catheters *in situ* three days, draining each kidney directly through its ureter and preventing any urine from entering the bladder to put a strain on the healing tissues. In the first forty-eight hours 900 cc. of urine escaped from the right ureter and 600 cc. from the left.

The wound healed perfectly except at the upper angle on the right, where a minute fistulous sinus 1 mm. in diameter remained, through which a little urine occasionally escaped.

When the patient left the ward she was able to hold 100 cc. of urine in the bladder and did not have to void it more than once in three hours. The raw surface on the anterior vaginal wall was replaced by a firm contracting cicatrix. It is important to note the amount of control secured in spite of the destruction of the neck of the bladder.

My operation differs from that of Mackenrodt in that I do not detach the bladder on all sides and sew it together in the middle of the fistula. It differs also in that I do not in any case include any of the uterus. My plan is easier to apply where the destruction of tissue is so great as to include the upper part of the urethra. It also provides for a detachment of the bladder only in the posterior and postero-lateral portions where such detachment is most easily effected, and then brings the posterior bladder wall into accurate apposition with the anterior vaginal wall.

My plan also differs radically from Dudley's, in that I make no denudation on the bladder mucosa, throwing out of use that part of the bladder lying below the line of denudation.

On the contrary, I utilize all the bladder tissue left by the fistula in freeing the posterior part and drawing it over the defect.

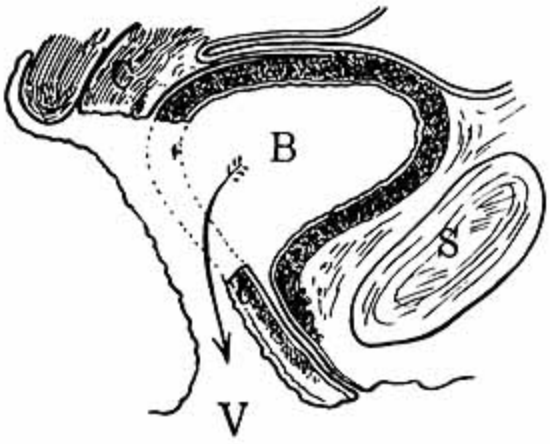

FIG. 1.

The fistula shown in sagittal section, the bladder cut free from the uterus from *a* to *x*.

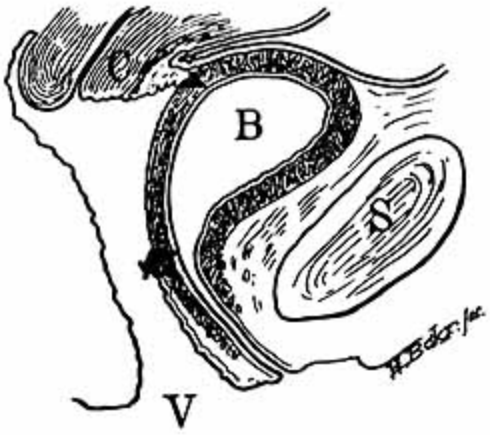

FIG. 2.

The fistula closed by drawing the bladder (*a*) forwards to *b*.

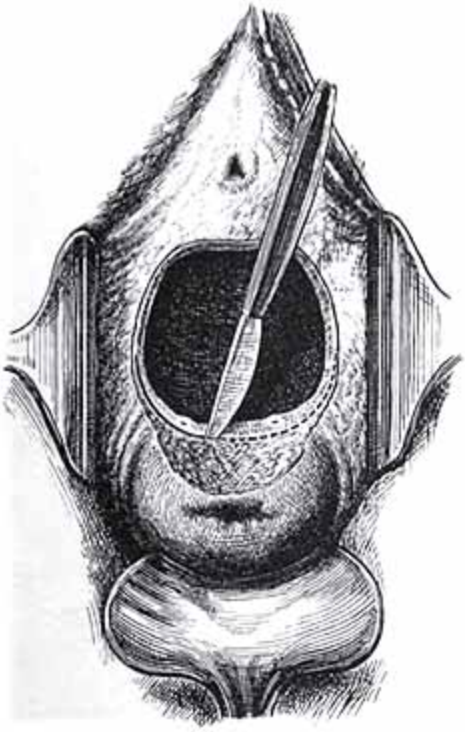

FIG. 3.

The fistula seen from below, the ureteral orifices appear on the posterior margin. The knife is in the act of separating the bladder from the vagina in its posterior two-thirds.

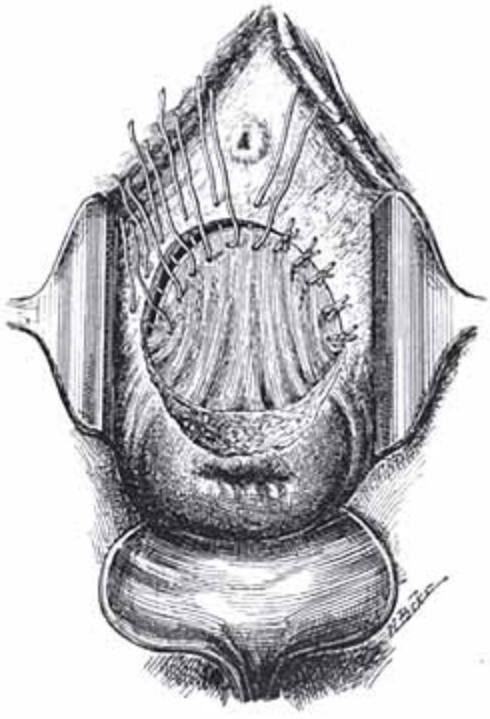

FIG. 4.

The bladder loosened as shown in Fig. 3, drawn forwards and attached to the vaginal surface by interrupted sutures.