been surprised at the slight amount of inconvenience they suffer; in fact, in many cases it does not appear to be greater than when the muscles have been left intact. The explanation of this, I believe, is that in the majority of the cases in which the pectoral muscles are preserved, the nerve supply of these muscles is cut off. If it is so important to preserve these muscles, on account of the impairment in the movements which results from their removal, it must be equally important to preserve the anterior thoracic nerves which supply them, yet this point is not emphasized in any of the recent articles or standard works on the subject.

It would be interesting to know in what proportion of the cases operated upon without removal of the pectorals these nerves escape injury when no precautions are taken to ensure their safety, and when the procedure of clearing the axilla is thoroughly performed. From my own experience—and I have paid particular attention to this point—I have found it anything but easy to avoid dividing these small nerves more or less completely when working in the hollow of the axilla. Now, if this frequently occurs, as I believe, it is an additional argument, if such is needed, in favour of the more thorough procedure of removing both the muscles as a routine measure.

CASE OF VESICO-VAGINAL FISTULA, CURED BY A METHOD BELIEVED TO BE NEW,

WITH REMARKS ON THE SURGICAL TREATMENT OF VESICO-VAGINAL FISTULAE.

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THE successful result of the method adopted in the case to be narrated has prompted me to put on record the full details of the operation. Reference to the literature of the subject will show how much ingenuity has been displayed in devising different methods of closing vesico-vaginal fistulae. Many, however, are modelled on what may be termed the "old operation" of Marion Sims and Simon, which was devised and practised at a time when operative gynaecology was in its infancy. The operations of vaginal hysterectomy and colpotomy have demonstrated the ease with which the bladder may be separated, both from the uterus and the vaginal wall, without any interference with its functions. This important fact gives the key to the treatment of vesico-vaginal fistulae.

In closing an opening in any hollow viscus two important surgical principles must be borne in mind: (1) To avoid all tension on the stitches; (2) to avoid passing the suture material through the inner lining of the viscus.

It is the absence of tension on the sutures, and the employment of Lembert's method of applying them, which has made the operation of closing the bladder in suprapubic cystotomy so successful in aseptic hands.

In operating in cases of vesico-vaginal fistulae the principle to be adopted should be a free separation of the bladder from the uterus and vaginal wall in order to remove all tension, and separate suture of the opening in the bladder with Lembert's sutures. The bladder sutures should be inserted transversely, whilst the vaginal walls should be stitched in a longitudinal direction. Transverse suturing has probably another advantage, for the majority of the muscular fibres at the base of the bladder run in a transverse direction; hence sutures so inserted will tend to produce more accurate apposition. This prevents the two lines of stitches being opposite, and is therefore less likely to favour leakage, should one or more of the stitches become loose.

The operation of paring the edges of the fistula (which frequently fails), should be given up even in fistulae of small size, and in those of large size the paring means the sacrifice of valuable tissue, and the increase of the size of the opening.

Where the fistula has existed for some time, the vesical and vaginal mucous membranes become continuous around the orifice and the bladder adherent in this situation. This adhesion of the bladder prevents the orifice of the fistula from closing, and therefore calls for free separation to promote union. In recent cases the absence of such adhesion in all probability

Fig. 1.

Fig. 1.—A, Urethra; B, C, line of incision; D, E, U-shaped flap; F, cervix drawn down by vulsellum; G, fistulous opening.

Fig. 2.

Fig. 2.—H, H, Flaps of vaginal wall, separated from the bladder; L, bladder; J, J, U-shaped flap stitched to orifice of fistula. The dotted line shows the position of the incision before the flap was turned up to close the fistula. Its mucous surface now becomes part of the lining of the bladder.

Fig. 3.—K, K, Line of stitches fixing the vaginal flaps to one another and to the cervix.

explains the occurrence of spontaneous closure where the out-flow of urine through the urethra is maintained.

In 1850, A. J. Jobert de Lamballe¹ advocated broad denudation of the edges of the fistula, and their exact approximation by interrupted sutures. When the fistula was large, and the approximation difficult on account of the tension, he made incisions in the lateral vaginal walls parallel to the edges of the fistula so as to permit the tissues to be drawn together (*par glissement*).

Later, the methods of Marion², Sims² and Simon³ were employed.

Sims denuded the margins of the fistula in a funnel-shaped form down to but not including the vesical mucosa, and then sutured the edges with silver wire.

Simon, in addition to suturing the opening, used tension sutures at a distance from the wound, instead of the incisions employed by Jobert.

Since these methods were described, many modifications have been suggested by different operators. I find, however, that my advocacy of a free separation of the bladder has been anticipated by some of the German gynaecologists. Although its importance has not yet been urged in English books or papers, I was unaware of the existence of their work when I practised this operation for the first time in 1895, and only discovered it on searching through the literature of the subject, previous to writing an account of the operation performed in the following case.

S. R., aged 44, was sent to the Samaritan Hospital for Women on October 26th, 1901, suffering from a vesico-vaginal fistula.

Previous History.—She had had one child twenty years previously; labour natural. Six years later she began to suffer from "falling of the womb." This condition existed for four years before treatment by pessaries was commenced. An operation (perineorrhaphy) which was performed later only gave relief for a month and recourse was had to further treatment by pessaries. For two years she wore a Zwanck pessary which was removed every three months and replaced after being cleaned. She consulted Dr. Cassin, of Southsea, five months before admission into the Samaritan Hospital, and on removing the Zwanck pessary he discovered a vesico-vaginal fistula, the orifice of which was partially blocked by one segment of the pessary. The fistula had thus existed for five months before her admission.

State on Examination.—She was a spare woman, somewhat anaemic in appearance. All the urine was passed per vaginam mixed with a considerable quantity of purulent discharge. Blood was occasionally mixed with the urine. The urine collected by catheter from the bladder showed a copious deposit of pus. Before operating I decided to attempt to improve the condition of the bladder and vagina. For this purpose frequent douches of warm boracic lotion were employed and urotropine 5 gr. three times daily given by the mouth. The result of this treatment was a marked improvement in the local condition, and on November 6th, 1901, the operation for closing the fistula was undertaken.

Description of the Operation.—The patient being placed in the lithotomy position with the pelvis raised, the cervix was drawn down with a vulsellum. This exposed the opening of the fistula, which was situated high in the anterior fornix at the point of junction of the anterior aspect of the cervix and the vaginal wall. The orifice admitted the thumb with ease, and the bladder mucous membrane was extroverted through it. I intended to do the operation I had done in former cases, namely, free separation of the bladder and suture of the opening; but as the cervix was broad, I thought it would be best to take a U-shaped flap from the front of the cervix, turn it over the opening, and stitch it in position. The operation was carried out in the following manner:—The anterior vaginal wall being put on the stretch, an incision was made in the middle line from close to the urethral orifice to the margin of the fistulous opening. This incision was prolonged around the fistula (see Fig. 1, p. 1204). The vaginal wall was then carefully separated from the bladder, and the two flaps thus formed held aside (as in Fig. 2). A small U-shaped flap was taken from the anterior surface of the cervix. This was separated up as in doing the operation of vaginal hysterectomy, in order to allow it to be stitched to the opening without any tension on the stitches. Whilst the flaps were being made a piece of absorbent wool was inserted into the bladder through the fistula to stop the flow of urine. The flap was stitched accurately to the margins of the fistula with chromic catgut sutures inserted after Lembert's method. A curved needle was used to insert the sutures. The opening having been closed, the vaginal flaps were stitched together in the middle line whilst their lower margins were stitched to the margins of the raw surface on the cervix (see Fig. 3). Chromic catgut was also used for these sutures. A gauze pack was inserted into the vagina, and the patient returned to bed.

After-History.—The catheter was passed every four hours for forty-eight hours. After this period the patient passed urine naturally, and has done so ever since. Urotropine was given three times daily for three weeks after the operation in order to get rid of all traces of cystitis. When the urine became free from pus the urotropine was discontinued. There was no leakage from the vagina at any time after the operation. The vaginal wound healed well.

Although I have used fine silk with which to stitch the bladder in my former cases I find chromic catgut properly sterilized so much better that I have now abandoned the former. It is important that one or two additional stitches should be inserted at each end of the line of sutures in order to minimize the risk of leakage.

Another objection to paring the edges of the fistula is the occurrence of intravesical haemorrhage. Two examples of this accident are recorded, one by Kelly⁴ and another by Becker.⁵ In cases associated with the formation of much scar tissue it is better to dissect it away as it heals badly, and marginal flaps made to close the opening on the principle adopted in cleft palate operations.

I may add that I have adopted this method of free separation of the bladder in the treatment of uretero-vaginal fistula, thus bringing the separated bladder towards the fixed end of the ureter, and implanting the latter into a new opening made in the bladder.

A word, in conclusion, may be said regarding the advisability of using a self-retaining catheter after operation. When such a catheter is used there is always an additional risk of cystitis; and, moreover, a certain amount of paralysis of the bladder results. It is best to use a catheter at regular intervals until the patient can pass urine naturally.

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A CASE OF PREMATURE SENILITY OF THE UTERUS.

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A. B., aged 26, consulted me in 1894 for sterility.

Her history was that she had been married a year, and from the date of marriage had never menstruated. She was a well-developed woman; the breasts were fully formed and nipples prominent. The vulva and external genitals were normal; pubic hair abundant. She commenced to menstruate at 12½ years, was always regular every 28 days, had never missed a period up to marriage; it lasted 4 to 5 days, was occasionally somewhat copious, but never painful.

Vaginal examination revealed a perfectly normal state as far as one could determine; the ovaries were both easily felt; the uterus was freely movable. The cervix appeared healthy, and of normal length and size. The sound passed 2½ in. There was no discharge, either vaginal or uterine. It transpired that the honeymoon had been spent in Switzerland, and that within a fortnight of marriage she had sustained a great shock from what she feared might be a fatal accident to her husband. This occurred about the time that the period was expected. Since then she had never menstruated. I told her I had nothing to suggest beyond a visit to Schwalbach, which was undertaken for two consecutive years. In 1896 there was a slight show for one day only, but with that exception she has not had a period from the day she married, now nearly seven years ago.

I saw her again in July, 1901, after six years of amenorrhoea. She looked in good health; was strong and active, walked and played golf; she complained of heats and flushes at intervals, very irregular, but about every two months or ten weeks. Both ovaries were still apparently healthy, but no cervix could be felt, merely a dimple in the vaginal roof. Bimanually no uterus could be made out, but the sound passed just under 1 in. Sexual feeling was retained, and occasionally the breasts became tense and tender.

This case is unique in my experience. It cannot be described as superinvolution, for the uterus was never enlarged beyond the normal, and so had no chance of involuting. As far as one can see, it is directly due to nervous shock at the time menstruation was due. I have seen many cases where menstruation has apparently been suddenly arrested, sometimes with unpleasant sequelae, which have persisted for a long time.

There is now under my care at the hospital a woman, aged only 22, who, whilst menstruating, witnessed a tragedy of a woman's throat being cut and the victim falling dead at her feet; menstruation was arrested, and the next morning the whole of the hair of the pubes on the right side was pure white, while that of the left remained dark. All the pigment of the right labium majus has disappeared, and the inner side of the right thigh is bleached. In this case menstruation did not take place for nine months, but it is now quite normal; the absence of pigment, however, persists.

Other curious phenomena, the result of shock during