CONSTRUCTION OF ARTIFICIAL VAGINA
BY A METHOD OF CUTTING COMMA-SHAPED FLAPS OF THE MUCOSA OF
THE VESTIBULE OF THE VAGINA

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Various methods of operation for construction of artificial vagina have already been reported, and of these the method of transplantation of the intestinal canal is generally most widely used as it is accompanied by a high degree of success. The writer's experiences also endorsed the good operational results of this method, but viewed merely from the aspect of construction this operation appears to be too great a burden for the patient, and in recent times there is a tendency for simplification of operative procedure. Such a trend is especially conspicuous in the United States of America.

The writer has been interested deeply in this problem, and has also recognized the need for a simple method of operation, accompanied by a high degree of success and which can be accomplished within as short a time as is possible. Based on the method of Wharton (1932) and Falls (1940), the writer therefore devised a new method of construction, which fortunately proved to be satisfactory, and an outline of the method is therefore herein, presented.

Operational Method. Before operation the rectum and bladder are completely evacuated by enema and catheterization. Lumbar anaesthesia with Percamin was employed. The vulva and rectal regions were sterilized by Grossich's method. The labia minor are pulled laterally and fixed to the internal aspects of the thighs with silk threads. The frontal chamber of the vagina is then exposed. Next, as is shown in Fig. 1, a circle of diameter about 1.5-2.0 cm is drawn with methylene blue solution, on the mucosa, with the center of the circle corresponding to the entrance of the vagina. A second circle of diameter about 3.0-4.0 cm is then drawn outside this inner circle, with the centers of the two in common. Then, from positions corresponding to hours 12, 9, 6 and 3 of the outer circle, incisions are made to the left for a distance of a quarter

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circle and the incisions are extended in a screw like fashion to points corresponding to hours 6, 3, 12 and 9 of the inner circle (Fig. 2). The direction of the lines of incision may be made to the right, in which case the above relationships will be opposite. By the above means large comma-shaped flaps are prepared. Next, except for small portions of the flaps corresponding to the center of the inner circle, the flaps are cut away from their beds in comparatively thick layers. The portions of the flaps that were left attached to the inner circle help not only to fix but to nourish the latter. Separation of the flaps was extended, piercing bluntly the coarse connective tissues lying between the urethra and the rectum, and of a size that will form a vagina of depth 4-5 cm and diameter that will allow the insertion of two fingers. It is usual for bleeding not to occur, but when it does it is natural that it be completely stopped.

Next the comma-shaped flaps are rotated for about 90° in an anticlockwise direction and pressed inwards, the inner circular plate being fixed to the floor of the blind end of the vaginal canal with fine silk threads, while the four flaps are sewed to the side walls of the canal at 2 or 3 places. Regeneration from the cut ends of the flaps resulted in epitheliazation of the wound surfaces. Into the tubular vagina so constructed was plugged rather tightly gauze steeped in sterile olive oil, or a tampon smeared with monoflaccin ointment. An urinary catheter was left in position in the bladder, and the operation brought to an end.

After operation penicillin injections and sulfa drug administration were made to prevent infection of the wounds, and for 7-10 days exchange of gauze packings or tampons was only made. After adhesion of the flaps to their beds had taken place, dilatation of the constructed canal was begun. For this a Hegar cervical dilator (±25-30) or a Kusco vaginal speculum was employed. Within about three weeks after operation epitheliazation of the mucosa is completed, and after about one month an artificial canal of depth about 7.0 cm
and width allowing the insertion of two fingers is formed. After this, up to the time of marriage a prothese (Fig. 4) is inserted at night at home.

By the above method the writer operated successfully on virgins of ages 21, 23, 19, and 20 years between March, 1955 and April, 1956. Figure 5 shows the state of the vaginal canal constructed in April of this year. With light pressure the depth of the canal exceeds 8.0 cm. and allows the insertion of two fingers, thus making coitus possible. Fig. 6 shows the state with the prothese in position.

The above operative procedure calls for a fairly delicate technique at first, and may be criticized as being somewhat complex, and actually in cases 3 and 4 there was injury of a part of the flaps. In such cases more time is needed

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**Fig. 3.** Inner circular plate is turned 90° clockwise × indicate wound surface of separated flaps.

**Fig. 4.** Prothese corresponds in size to 1/30 of Hegar's dilator and length 8.5 cm. Is supported to the loins by threads attached to the 4 rings.

**Fig. 5.** State of the vaginal canal.
for epitheliazation of the mucosa, but there is no hindrance to the construction of the vagina. It is believed that such failure can be avoided by experience with the technique. At any rate this method does not require opening of the abdomen, and hence the patient is subjected to minimal interference and the operation absolutely safe. Experience with this method cannot be said to be rich and far reaching results still unavailable, but the results so far indicate that the method can in general be advocated as a satisfactory, and simple one for construction of artificial vagina.

REFERENCES