Gracilis Muscle Transplant in Anal Incontinence*

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The author introduces his subject by making several profound observations.

Anal incontinence more correctly should be termed fecal incontinence. With the exception of malignant disease, fecal incontinence is, physically and psychologically, the most disabling and incapacitating disorder encountered by proctologists. Regardless of its cause or the period of life when the patient is afflicted, it may lead to serious and even tragic consequences. "The ridicule and embarrassment suffered by incontinent children," he says, "seriously endangers their emotional maturation. And, the frequent loss of "time on the job" by adults may have a detrimental effect on their economic status.

Treatment of fecal incontinence has been the subject of voluminous reports in medical literature but most procedures, advocated and attempted, have not proved to be uniformly successful.

In this presentation it is the purpose of the author to discuss a procedure based on transplanting the gracilis muscle, which is intended to serve as a substitute for the anal sphincter mechanism. Most operations aimed at correcting fecal incontinence caused by trauma are based on plastic repair of the injured muscles, and the Hirschman procedure is cited as an example of an operation of this type.2

When the anal sphincter muscles are damaged beyond repair, or when they are congenitally absent, procedures have been devised in which an attempt is made to close the rectal outlet by utilizing "flaps" obtained from adjacent muscles. These procedures have been reported by Chi-
McGREGOR

FIG. 2. Gracilis muscle is mobilized its entire length distal to point of entrance of neurovascular bundle through incisions in upper (A) and lower (B) aspects of medial surface of thigh.

tenden, Knapp and Stone and McLanahan. However, good functional results accomplished by these procedures depend upon intact sensory and motor innervation of the glutei, perineum and anal canal. Therefore, they cannot be applied in cases of neurogenic incontinence in which the sensory and motor innervation is lacking.

FIG. 3. Completely mobilized gracilis muscle.

In 1951, Pickrell and associates advocated restoration of continence by utilizing the gracilis muscle as a substitute anal sphincter. The procedure was recommended primarily for patients who suffered with denervation of the perineum. At the same time, its applicability to other types of incontinence was recognized. In 1955, Pickrell and co-workers reported on over 30 patients in whom the procedure had been used and results were uniformly good.

The author employed the gracilis transplant procedure for the first time on a child, seven years of age, with spina bifida and neurogenic incontinence. His second patient was a "teenager," suffering with incontinence which was owing to incomplete

FIG. 4. Gracilis muscle has been threaded through tunnel surrounding anus.

FIG. 5. Completed operation, showing tightly-closed anus.