A Method for Primary Reconstruction Following Radical Excision of Sacrococcygeal Pilonidal Disease

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A great variety of procedures have been proposed for the cure of Sacrococcygeal pilonidal disease. Initial enthusiasm has usually given way to disappointment when it is realized that the treatment is painful, the hospitalization is prolonged, the aftercare is tedious or the original condition appears to have recurred. A technique is described which permits the total extirpation of cyst and sinus tracts while allowing for a tensionless wound closure by advancement of a buttock flap. Hospitalization is brief and the postoperative course is comfortable. Fifty such operations have been performed since November 1968. In the first group of thirty patients operated upon between three and ten years ago, a single bonafide failure occurred. An additional twenty patients have been successfully treated for an overall failure rate of 2%.

THE HISTORY OF THE TREATMENT of sacrococcygeal pilonidal disease has been noteworthy for the variety and dissimilarity of the proposed therapies. Thermal[19] or cryo[8] destruction of the sinus tracts, local irradiation,[26,28] injection of sclerosing agents or irritants such as phenol,[2,3,16,27] incision and packing,[10] excision and packing,[7] excision and partial closure,[23] unroofing and saucerization or "marsupialization",[1,5] excision with primary closure,[13,21,25] excision with closure by z-plasty,[17,18] excision with closure by rotation flap[6,11,15] have all been proposed. The results have generally been less than satisfactory and the reported recurrence rates have too often been unacceptable.

The vast majority of those individuals afflicted with pilonidal disease of the sacrococcygeal region belong to the 15–30-year-old age group, hence an enormous amount of time may be lost from school and employment as a result of the natural history of the disease and its treatment. Consequently, the economic loss is incalculable. The social restrictions, embarrassment and chronic discomfort incurred by this disorder can scarcely be appreciated.

The lack of agreement concerning the proper treatment of this affliction reflects, in part, the lack of understanding regarding its etiology. The concept of a devel-

opmental anomaly[12] has been slow to dispel.[22] Direct local trauma,[24] impalement by broken hair shafts,[4,20] stretching of the internatal skin with the production of giant pores,[14] trichofolliculitis and generally ineffective personal hygiene with skin maceration have all been implicated in the causation of pilonidal disease of the sacrococcygeal area.

Hence, we are dealing with a poorly understood disease which has a propensity for disrupting the lives of young people and for which we have an assortment of therapeutic maneuvers. Some of these operations or treatments cause considerable discomfort, some require strict curtailment of bowel function and physical activity, some necessitate inordinately prolonged periods of wound care and dressing changes, and most culminate in distressingly high failure rates.[21]

It would seem then that a procedure which is not uncomfortable, results in a closed wound which heals per primum, requires minimal restriction of activity and which carries with it a favorable cure rate would be ideal.

Two of the most promising surgical approaches to the permanent cure of this disorder have been the total excision of the cyst and sinus with closure of the resultant wound by either z-plasty[17,18] or the use of a local rotation flap.[6,11,15] Excellent initial healing as well as enviable long-term cures have been claimed.

This report describes an operation performed upon a modest number of patients either as a primary procedure or as a secondary attempt at cure after one or more prior failures. There follows an analysis of the results and a discussion of the circumstances which appear to favor rapid recovery and long term cure. This operation was always performed electively, either during a quiescent phase or when the pilonidal cyst and sinus tract was grossly septic and draining. It has
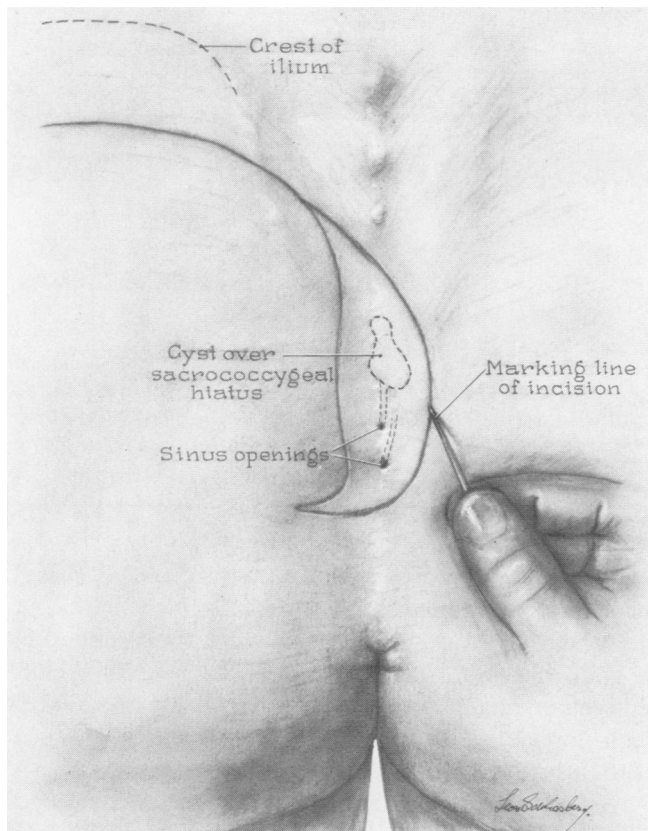
FIG. 1. The proposed line of incision includes the orifices of the sinus tracts and the cyst cavity. A curvilinear extension superiorly completes the design of a rotation flap.

never been performed in the presence of an acute pilonidal abscess.

Operative Technique

Under general or spinal anesthetic, the patient is placed in the prone position with hips slightly flexed. The buttocks are neither spread apart nor taped. After meticulous shaving and skin preparation, a patent tract may be probed and injected with methylene blue in hydrogen peroxide. Using a sterile skin-marking pen, a crescentic outline is traced. The crescent may face left or right but should include what is anticipated to be the margins of the cyst cavity and all of the ostia associated with the sinus tract (Fig. 1). When the cavity lies to one side of the midline it is best to develop the flap from the opposite buttock. The lower end of the crescent is intentionally carried across the midline and on to the opposite buttock. Until quite recently, the excision of the cyst and sinus was accomplished using a conventional vertically oriented ellipse. However carefully the wounds were coapted the most caudal

extent would tend to invert. The crescentic excision eliminates this hazard by crossing the natal crease transversely. The excision is then performed using a scalpel for the skin and an electrocutting-cautery for the remaining deeper layers of the wound (Fig. 2a). The excision may be broadened should the extent of the dye-stained cavity prove to be greater than anticipated. It is important though that the walls of the operative defect remain perpendicular. This may require the excision of additional skin beyond the outline of the original crescent. The depth of excision is limited to the level of the postsacral fascia. With the block of skin and diseased tissue removed from the field, a curvilinear incision is performed from the cranial end of the defect across the upper pole of the buttock as a continuation of the crescentic arc (Fig. 2b). This incision is deepened to traverse the thick dermal and subcutaneous layers as well as the thin but sinewy fascial envelope of the gluteus maximus muscle. With the aid of the cutting cautery, the subfascial plane is followed, gradually elevating the full thickness flap while exposing the bare fibers of the muscle (Figs. 3a and b). The flap thus is composed of skin, subcutis and gluteal fascia. The distance to which the flap is elevated, relates directly to the extent of the defect produced by the excision of the cyst. The vascular integrity of the flap has never been a matter of concern since the length to width ratio rarely approaches even 1.5. It is at this time that the previously applied saline-moistened packs protecting the wound edges are removed and meticulous hemostasis achieved.

Two multiple-hole wound catheters are introduced through separate stab incisions several centimeters above and on the same side as the flap (Fig. 4a). A portable suction apparatus will eventually be connected to the catheters.

If the flap has been developed sufficiently, little or no effort will be required to draw it medially and caudally and to bring the tip to meet the opposite wall of the defect. Rotation of the flap rarely produces a significant disparity in the thickness of the opposing walls of the wound. The elasticity and spongy compressibility of these tissues makes them forgiving when compensating for discrepancies in height and length.

Heavy-weight absorbable suture material is used to approximate the fascia as well as the fibro-fatty subcutis (Figs. 4b and c). Lighter but similar suture material brings the dermal layer together. Finally a series of monofilament nylon or polypropylene vertical mattress sutures are placed across the superficial skin edges (Figs. 5a–c). The wound catheters are kept on suction for three to four days and then removed, and the patient discharged.

FIG. 2. The specimen is removed, exposing the musculo-fascial origins of the paired gluteus maximus muscles and the sacro-coccygeal ligament.
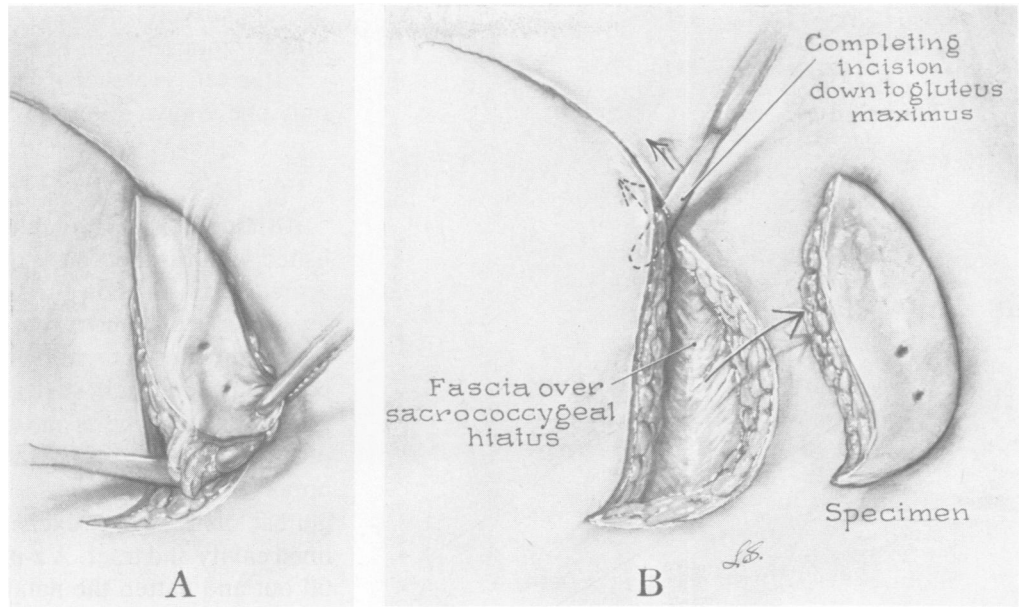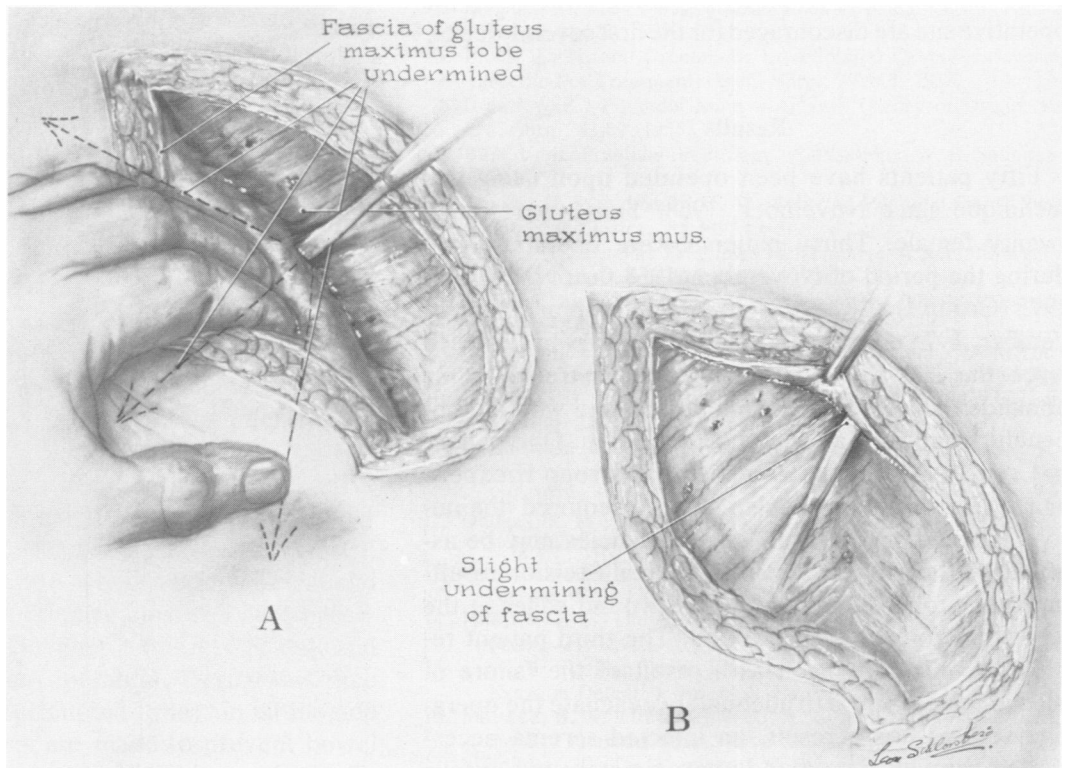
Postoperative Care

From the first moment that it is considered prudent to do so, following the general or spinal anesthetic, the patient is encouraged to stand, sit or walk. A normal diet is provided and no attempt is made to restrict bowel evacuation. Though analgesics are available, rarely, if ever, has any been requested beyond the first 24 hours.

The initial adhesive tape dressing placed across the buttocks is either removed and replaced with a similar dressing at the time of discharge or, where preferred by the patient, no dressing is used and support is achieved with an elastic abdominal binder worn low across the hips. This latter method allows the patient to bathe or shower during the interval between discharge and when the skin sutures are removed on the tenth to

FIG. 3. Stages in the sub-fascial development of the buttock flap exposing bare fibers of the gluteus maximus muscle.
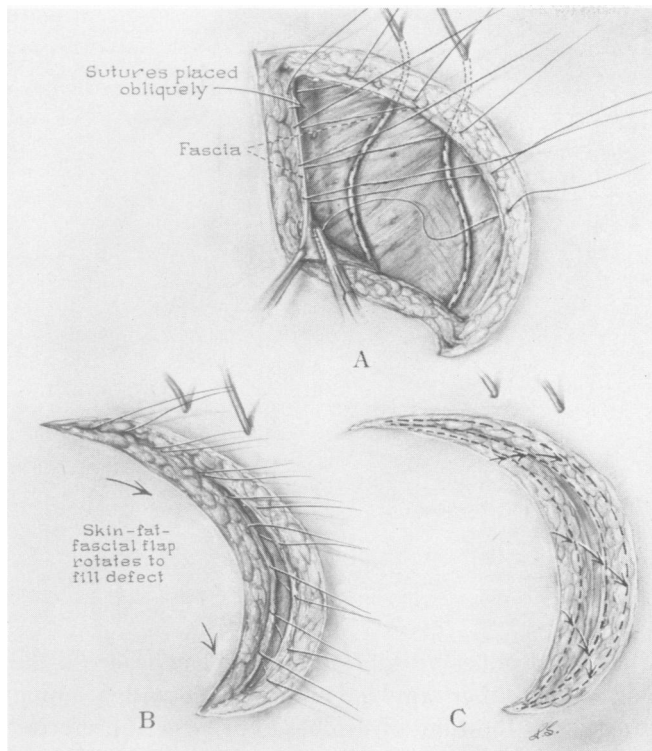
FIG. 4. Stages in the advancement and rotation of the buttock flap to fill the defect left by the primary excision.

twelfth postoperative day. Only those activities which place the patient in jeopardy of falling directly on the operative site are discouraged for the first several weeks.

Results

Fifty patients have been operated upon using this technique since November, 1968. Thirty were male, twenty female. Thirty patients were operated upon during the period of November, 1968 thru November, 1975 (Group I). Twenty were operated upon after November, 1975 (Group II). Over three years has elapsed since the last patient in Group I was treated. One bonafide failure occurred in a young man who did not benefit from even a second rotation flap. One patient in Group I as well as two patients in Group II experienced minor healing problems which required diminutive corrections. Two healing deficiencies may be ascribed to the use of a vertical elliptical excision resulting in improper coaptation of the wound edges at the lower most point of the wound. The third patient required a minor revision as a result of the failure of the wound catheters to adequately evacuate the operative seroma. As a result, an infected seroma necessitated through the wound approximately two weeks

postoperatively. A very superficial tract with skin bridge required local excision.

After ten years of experience with this operation only one known failure in 50 cases has occurred (2%).

Discussion

Although no unassailable hypothesis has been established with respect to the etiology of pilonidal disease, a theory based upon the notion that it is an acquired condition seems most reasonable. Whether large skin pores, infected hair follicles, local trauma or self-impalement upon hair shafts in some combination with poor local hygiene is most often responsible, can be debated. Monro and McDermott[18] emphasized the importance of altering the local anatomy of the intergluteal cleft, while excising the granulation tissue-lined cavity and tract. A z-plasty, they reasoned, would fill out and flatten the natal crease and direct growing hair away from the midline. In addition, the obliteration of the crease should minimize friction and reduce the accumulation of detritus. To a certain extent this objective is achieved. The z-plasty effectively flattens the upper portion of the crease at the expense of the immediate postanal region, which is left unchanged.
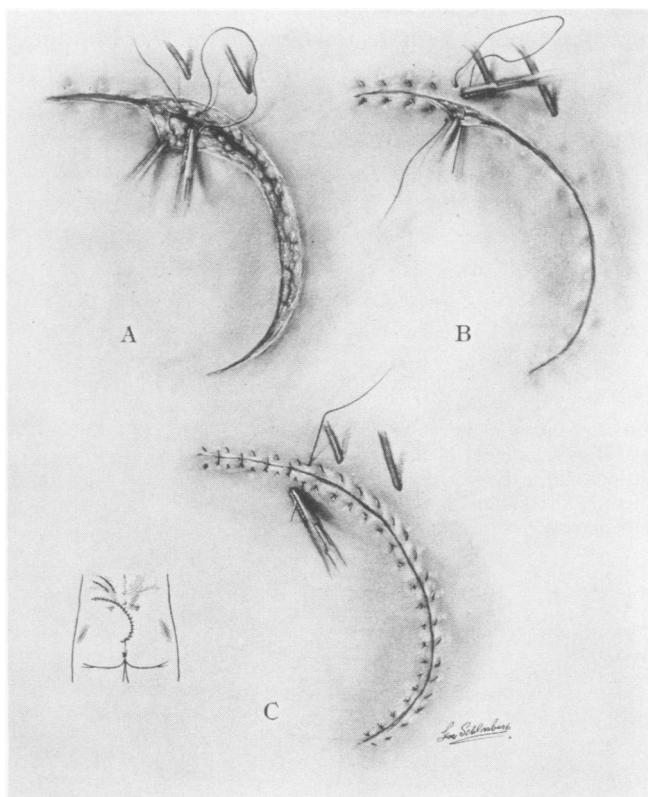

FIG. 5. The completion of the tension-less closure of the wound.

Hair shafts are directed away from the midline. Hirshowitz, et al.[11] described the fashioning of a rectangular buttock flap based inferiorly. They attached no importance to the obliteration of the natal crease and viewed the rectangular flap simply as a means of closing a large defect under minimal tension. Because they chose to raise the flap on the same side as the major portion of the excision, closure of the wound resulted in retention of the entire cleft.

The objectives of the presently described operative as well as postoperative management are derived in part from the experiences with the z-plasty and the rectangular flap. By elevating the flap on the side opposite to where the preponderance of the cyst and sinus tract is located, the rotation of the flap across the midline produces a gentle flattening of the intergluteal cleft. This is particularly important in those individuals with extremely deep clefts. It reduces friction and moisture accumulation and makes care and cleaning of the area simpler. In addition, bringing the flap across the midline eliminates the creation of a fixed scar along the midline which the rectangular flap intentionally produces.

It also seems logical to conclude that postoperative pain and the need for restriction of physical activity are related to the tension under which a wound is closed. Typical of the postoperative restriction necessitated by simple excision and primary closure is the procedure as described by Goligher.[9] Bedrest is required for nine to ten days after operation. During this time the patient is generally prompted to lay on either side for comfort while efforts are made to prevent bowel evacuation for 6 to 7 days. Hospitalization is usually necessary for 14 days. A great deal of analgesia is required when excision with primary closure is supported by the use of retention sutures. Either a z-plasty or rotation flap will allow for closure under negligible tension. Analgesics are almost entirely unnecessary following a tension-less closure.

It is also proposed that late "recurrences" after what has appeared to be an initially successful healing of the wound edges in primary excisions with simple closure are due to early, unrecognized dehiscence of the deep subcutaneous layer. This phenomenon leads to the development of a chronic subcutaneous cavity which eventually erupts through the skin, appearing not unlike the original pilonidal cyst and sinus.

An operative procedure has been proposed which allows for the radical excision of a chronic pilonidal cyst and sinus. The operation may be performed simply and rapidly. The wound is closed by a time-honored technique which eliminates tension in the tissues. As a result, the patient is provided with a brief and comfortable postoperative course. Restriction of activities is negligible. The wounds generally heal uneventfully and thus far late recurrences do not exceed 2%.

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