# 'D' excision for sacrococcygeal pilonidal sinus disease

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## Summary

A new procedure is described for treating pilonidal sinus by an excision and primary suture technique, and the results reported in 30 consecutive patients so treated – 28 with chronic sinuses and 2 with an acute abscess. Seventeen patients (Group 1) had had no previous surgery, while 13 (Group 2) had had multiple previous operations. A total of 24 patients (80%) healed after the operation, their mean hospital stay being 16 days. In Group 1 the success rate was 88% with a mean hospital stay of 15 days; in Group 2 the comparable figures were 69% and 17 days. After additional procedures (usually curettage) all patients healed.


## Introduction

No universal agreement has been reached on the cause of pilonidal sinus[1-6]. In the absence of an accepted aetiology and with widely varying manifestations, from a single uninfected sinus to a grossly infected network of tracts, it is not surprising that treatment methods are numerous and range from very simple measures (depilation/excision of the track[7,8]) to extensive surgical procedures (wide surgical excision and plastic surgical repairs[9-12]). All authors claim good results from their favoured treatments, but all admit to failures even after very extensive surgery. Repeated treatment failures aggravate the psychological and social consequences to an unendurable degree for an individual patient. At St Mark's Hospital, in addition to the usual primary cases, many secondary referrals are also received who have had multiple previous surgical attempts at cure at other hospitals. In this secondary referral group, the 'simpler' types of treatment are often inappropriate especially as they have usually been tried already and have failed.

As a method of treatment for all cases except the acute abscess, one author (CVM) decided to apply a surgical technique of elliptical incision and primary wound closure modified from an original description by Karydakis[13]. This paper reports the results of treating pilonidal sinus disease by this method.

## Methods

Using the technique, a series of 30 consecutive patients (27 men) were operated on by one surgeon (CVM) at St Mark's Hospital between the years 1975 and 1983 (Table 1). Patient ages ranged between 19 and 57 years (mean 30 years). The average length of history was 5.8 years; 2 acute abscess cases were included, and the longest history extended over 25 years. Seventeen patients (Group 1) had had no previous surgery, whilst 13 (Group 2) had each undergone an average of three previous operations. During the study period no patient was rejected for the procedure except those presenting with an acute abscess, who were treated by simple incision. No patient was lost to follow up. Following final discharge, patients were requested to return if any further problems ('recurrence') occurred.

*Table 1. Clinical data*

| | *All patients (n = 30)* | *'Failed' (n = 6)* |
|---|---|---|
| No. of males | 27 (M:F = 9:1) | 6 |
| Mean age (years) | 30 (range 19–57) | 25 (range 20–36) |
| Mean length of history (years) | 5.8 (range 3–300 months) | 5.8 (range 3–176 months) |
| Mean no. of previous operations | 3 (range 1–7) | 1 |
| Mean no. of sinuses | 1 | 1 |

### *Operative technique*

The operation is carried out under general anaesthesia in the prone position.

The central 'core' of the sinus system is completely excised 'en-bloc' through a 'D'-shaped incision (Figure 1A): the vertical limb of the 'D' is parallel to and close to the midline, and the elliptical limb extends out over the opposite buttock to an appropriate extent to allow primary closure to be achieved. The edges of the incision are extended vertically down to the level of the fascia on the back of the sacrum (Figure 1B). When the operation has been carried across the base of the wound to complete the circumferential dissection, the enclosed mass of tissue (which includes the sinus system) can be lifted out to leave a clean wound that has no residual pockets of infection. Occasionally the elliptical limb of the wound has to be carried out into the buttock to enclose a lateral sinus opening: this can leave the sacral origins of gluteus maximus exposed in the base of the wound. If a lateral sinus extends so far away from the midline that it is impossible to include it within the boundaries of the incisions without jeopardizing any prospect of primary apposition, the distal part of the track can be left, but is cleaned out by simple curettage to debride its septic lining.

Meticulous haemostasis is achieved by electrocoagulation, or fine ligatures (000) of plain catgut.

The wound is closed in layers by deep subcutaneous plain (0) catgut stitches to eliminate all dead space; the deepest layer of these sutures includes a bite of deep fascia. By applying inward pressure on the buttocks during closure, the edges of the wound can usually be brought together without difficulty. If there is too much tension, undermining of the vertical limb of the incision can relieve the lateral strains to allow closure. One advantage of the 'D' operation

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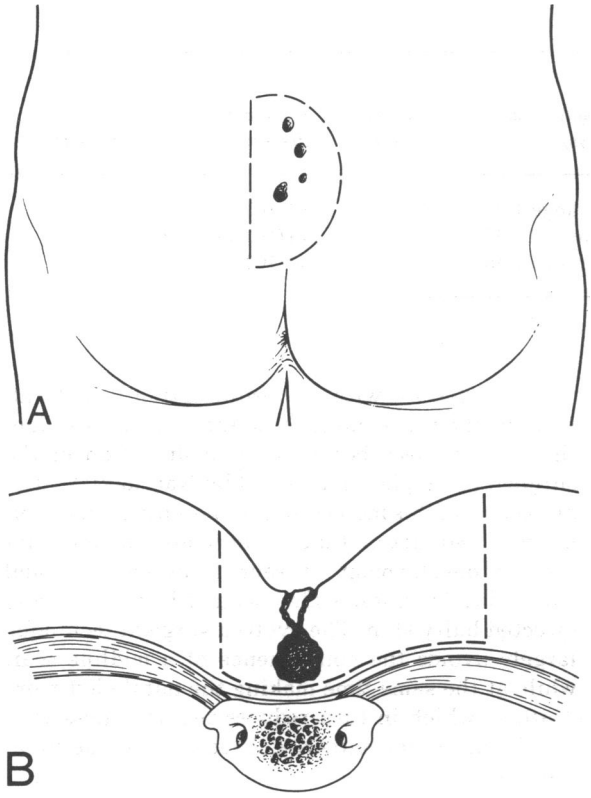


*Figure 1. The 'D' operation: surface view of incision* (A) *and coronal view* (B)

is that the more obese the patient, the less difficult it is to achieve a tension-free closure. In order to prevent a serosanguineous collection forming in the depths of the wound, a Redi-Vac suction drain is laid in the bottom of the wound before starting closure and brought out on the buttock through a separate stab incision.

The skin is closed with interrupted silk or nylon sutures placed close together. These stitches should be inserted in 'mattress' fashion so that the wound edges do not turn in: it is important that after closure no subcutaneous fat is exposed at any point. At the end, the incision should form a gentle, laterally-placed curve over one buttock with only its extreme upper and lower ends remaining in the midline (Figure 2A). The natal cleft is shallowed by the operation, which draws across the postsacral zone a thick 'tongue' of skin and subcutaneous tissue (Figure 2B).

The wound is sprayed (Op-Site or Nobecutane spray) to seal it and a light gauze dressing applied. The buttocks are carefully strapped together to prevent tension on the wound. The procedure is covered by antibiotics (amoxicillin 500 mg twice daily plus metronidazole 500 mg daily for 5 days). The patient is kept in bed for 8 days but is allowed to recline in a normal position and can stand to urinate. The bowels are confined for 5 days at least, and longer if desired.

The suction drain can be disconnected after a few days, *but is not removed.* It is undesirable to allow any interference with the dressings until the 8th postoperative day unless it is suspected that a wound infection is developing (pyrexia, pain or discharge through the dressings). On the 8th postoperative day, the dressings are taken down and the suction drain removed. The skin stitches are removed in stages between the 8th and 10th days, while the patient is being mobilized. The patient usually leaves hospital between the 10th and 12th postoperative days.

Aftercare includes weekly shaving (usually by the district nurse or the patient's spouse), and frequent visits to the outpatient department to ensure that the sacral area is kept clean and shaved. Patients are kept under observation for at least 2 months after operation, and advised to keep the area shaved for 12 months.

## Results (Table 2)

*Group 1 (no previous surgery):* Fifteen (88%) of the 17 patients healed and left hospital without requiring further surgical attention. Of the 2 patients who failed to heal, one left hospital with a healed wound but needed subsequent curetting in the outpatient department for two small, shallow sinuses of the wound; the other patient's wound became infected and was laid open and curetted while in hospital, after which healing was uninterrupted. This group included 2 patients with an acute abscess, both of whom healed per primam. The mean hospital stay for all patients was 15 days (range 9–45), and mean time to discharge from follow up was 13 weeks. The time to healing for the two failures was 16 weeks and 11 weeks respectively. All patients were healed at discharge from the clinic.

*Group 2 (previous surgery)*: These 13 patients were all transfers from other surgical centres, and had had an average of 3 previous procedures each (range 1–7). Nine patients (69%) healed and left hospital without requiring further surgical attention. The 4 patients (31%) who required further surgical procedures had had an average of 2.5 previous operations each. One patient was discharged with a healed wound, but at the third follow-up visit was discovered to have a sinus in the lowest part of the wound: he was readmitted and the lowest part of the wound was cleaned and re-sutured, after which healing was complete 13 weeks later. Two patients required readmission for persisting unhealed wounds – one after 3 months and the other after 9 months: both were treated by laying-open and curettage, and healing was complete at 42

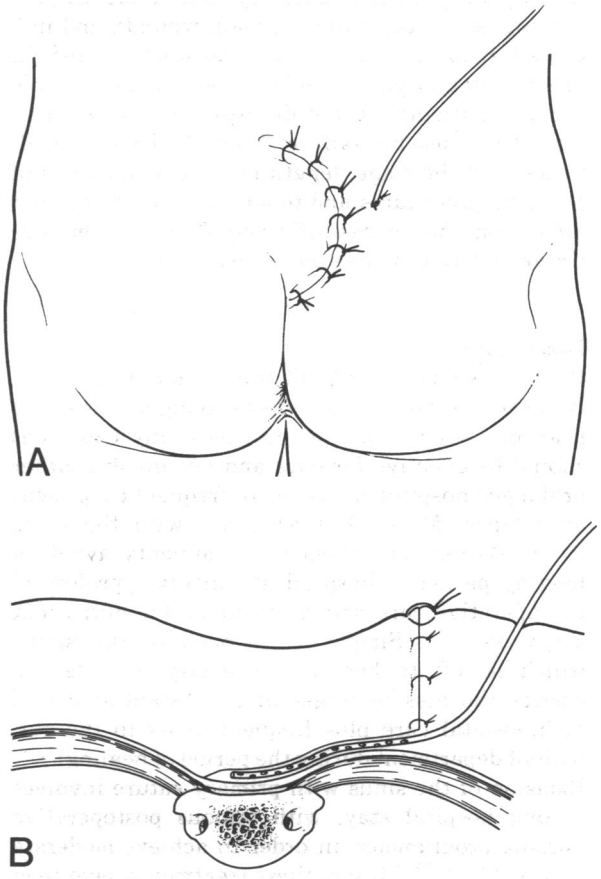


*Figure 2. Final position at completion of 'D' operation: surface view* (A) *and coronal view* (B)

*Table 2. Results of operation*

| | Total | Healed (no further procedure) | Unhealed (further procedure) | Hospital stay (days) | Follow-up (weeks) | Healed on discharge | Recurrences |
|---|---|---|---|---|---|---|---|
| Group 1 | 17 | 15 (88%) | 2 (12%) | 15 (range 9–45) | 13 | 17 (100%) | 0 |
| Group 2 | 13 | 9 (69%) | 4 (31%) | 7 (range 11–42) | 13 | 13 (100%) | 0 |
| All patients | 30 | 24 (80%) | 6 (20%) | 16 (range 9–45) | 13 | 30 (100%) | 0 |

and 50 weeks respectively after the original operation. The final patient left hospital with the main wound healed but continued to discharge from a sinus lateral to the wound: he was treated initially by curetting 5 weeks after hospital discharge, but formal excision and primary suture of this persistent lateral track was required 5 months after the first operation, this second wound healing soundly after another 4 weeks. The mean hospital stay for all patients was 17 days (range 11–42), and the mean time to discharge from the clinic was 13 weeks. All patients were healed when discharged from the clinic.

*Combined results*: Of 30 consecutive patients submitted to the 'D' procedure (including 2 with an acute abscess), 24 (80%) left hospital with a healed wound and required no further surgical attention apart from regular shaving for 3 months after leaving hospital. Six patients (20%) required interventions to obtain permanent healing.

In the 6 patients classed as 'failures', a total of 7 further procedures were necessary to achieve sound healing: in 5 instances curettage was employed (in 3 patients after reopening the main wound), and in 2 cases formal re-excision of sinuses was required (in one patient for a persistent lateral sinus). The records of these patients did not disclose any obvious predisposing cause for 'failure' (Table 1). They were all males, and their age, length of history, numbers of previous procedures and of sinuses present did not differ from the 'successful' group. Two of them were Greek and noted to be excessively hairy.

## Discussion

Pilonidal sinus is a difficult condition to treat[3,14,15]. Because it is benign, and affects young people at the peak of their socioeconomic needs, any treatment should be effective for cure and not involve either prolonged hospital admission or frequent outpatient attendance. Minimal interference with the sinus by depilation and chemical treatments avoids a lengthy period in hospital but involves prolonged postoperative care and many visits for outpatient attention[16–18]. Simple laying-open of the sinus, which is left to heal by secondary granulation, carries the disadvantages of a substantial period of inhospital care plus frequent visits to the outpatient department during the period of healing[18,19]. Excision of the sinus with primary suture involves a long hospital stay, with tedious postoperative nursing programmes, in order to achieve moderate success[3,17,18,20]. Most of these treatments have been reported to have a dubious success rate between 40% and 80%[10,16–18,20].

Dissatisfaction with the results of treatment by all these methods led one of the authors (CVM) to adopt the method described here – a modification of the surgical principles enunciated by Karydakis[13]. The attraction of this method lies in the surgical amelioration of two factors that are accepted as important for the development of sacrococcygeal pilonidal sinus, viz., (1) a midline cleft occupied by (2) inwardly directed hairy skin. The evolved surgical technique largely avoids the consequence of a midline scar, while at the same time making the natal cleft more shallow, which in turn reduces the acuteness with which the sacral hairs are directed into the natal crevasse.

In order to avoid criticism that a policy of selection was biasing the data, all patients were treated by the same operation between 1975 and 1983, except those presenting with an acute abscess – although 2 patients admitted as emergencies with small abscesses were judged suitable for this treatment and were included in the series. Many patients had suffered disappointment by multiple previous operative treatments – an average of three apiece in Group 2.

For those patients who had never been operated on previously ($n=17$), the results of the 'D' operation were highly satisfactory (88% healed). The hospital stay was short (15 days) and did not involve intensive nursing. Two patients were 'failures', but both were cured by subsequent additional simple surgical procedures. For a 'first-time' procedure for pilonidal sinus these figures are better than the reported results of either simple laying-open and secondary granulation[16] or primary excision and suture[18].

For those patients who had previously undergone multiple procedures, the results were less good (69% cure). It is not clear from the data why this should be so, since neither the mean number of previous operations in the 'failed' cases (2.5) nor the extent of the sinus systems differed from the 'successful' patients. However, it was gratifying to find that additional subsequent surgical procedures could achieve cure in all cases.

The overall success rate for the 'D' operation was 80%, and subsequently all patients were cured by additional procedures. It is possible that even when the primary procedure is unsuccessful it can 'set the stage' for a favourable outcome if further interventions become necessary: none of the additional procedures was complex, and all had been tried previously without success in the patients in Group 2.

Once the wounds had healed and patients had attended the outpatient follow-up department for at least two postoperative visits with no sign of complications, they were discharged (mean follow up 13 weeks). All were asked to return if the sinus 'recurred', but none has done so. Since most knew

that they had been referred to St Mark's because of its special interest in the pilonidal condition, it is unlikely that they would have gone elsewhere if a recurrence had developed.

It is not our intention to convince every surgeon to adopt the 'D' operation for every case. We believe, however, that where a primary excision and suture technique is indicated, the 'D' operation approaches the ideal of rapid and efficient treatment.

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