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Karydakis operation for sacrococcygeal pilonidal sinus disease: experience in a district general hospital

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Asymmetrical excision of sacrococcygeal pilonidal sinus has been shown to be associated with low recurrence rates. We report our experience with an asymmetric technique—the Karydakis operation. Of 28 patients who had the operation over a 4-year period, no recurrences were observed in 27 patients available for follow-up (median follow-up 3 years). Three patients had complications requiring surgical intervention. The operation is easy to teach and learn and is worth considering by both specialist and non-specialist surgeons.

Ever since the initial description of sacrococcygeal pilonidal sinus *(1)*, there has been no consensus on its correct treatment and recurrence rates have been variable *(2–4)*. Evidence suggests that one or more of the following factors are required for pilonidal sinus formation—tough semicurved hairs, a moderately deep intergluteal fold and a portal of entry in the midline of the furrow *(5–7)*. The Karydakis operation deals with the latter two factors by flattening the gluteal fold and placing the wound away from the midline such that it is unlikely to be penetrated by hairs. The wound is also less prone to rupture by the stretching forces that occur on sitting and a dead space is avoided by the undercutting and suturing technique *(7)*.

We have used the procedure exclusively for the treatment of chronic pilonidal sinus since 1991 and report our experience.

Patients and methods

Patients who underwent surgery for pilonidal sinus disease between 1991 and 1995, under the care of a single surgeon (ACVM), were identified retrospectively using hospital computer records and theatre logs. Acute abscesses, which we treat by incision and drainage, are not included in this study. Outcome measures were complications and recurrent symptoms. Early follow-up was by the routine outpatient assessment at 6–8 weeks after surgery. Patients were contacted by telephone or via their general practitioner in 1996 to ascertain the presence of any symptomatic recurrence.

Operative technique

The patient is admitted on the day of surgery. No bowel preparation is necessary. The operation is carried out under general anaesthesia with the patient in the prone position. A single dose broad-spectrum antibiotic is given on induction of anaesthesia. After shaving and preparation, the site is infiltrated with 20 ml of 0.25% bupivacaine with adrenaline.

An eccentric vertical elliptical skin incision is made encompassing the pilonidal complex; the mid-axis of this

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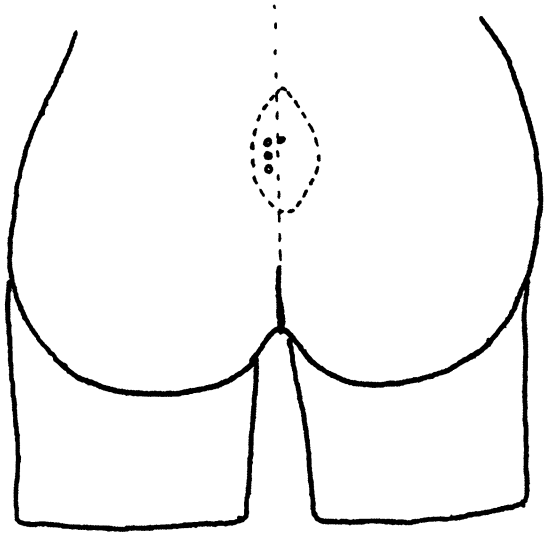

Figure 1. Elliptical incision centred approximately 2 cm from the midline.

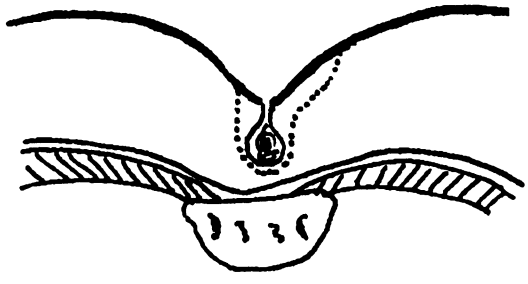

Figure 2. Incision extended down to presacral fascia excising sinus complex as a wedge.

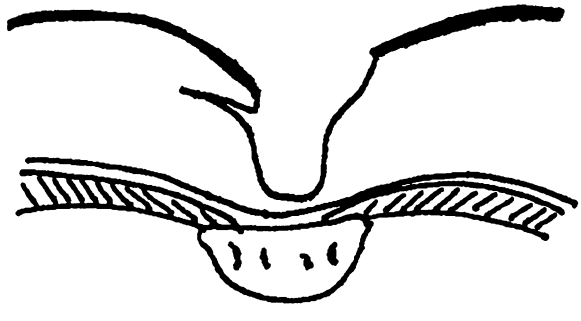

Figure 3. 2-cm flap created to allow apposition of the wound.

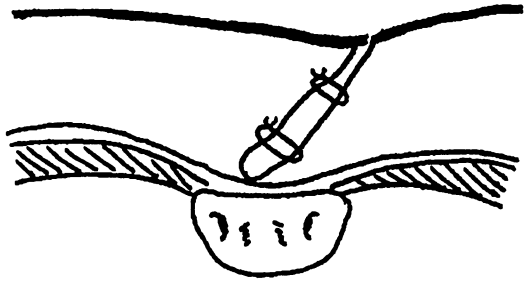

Figure 4. Wound closed in layers. Note the newly created shallow midline.

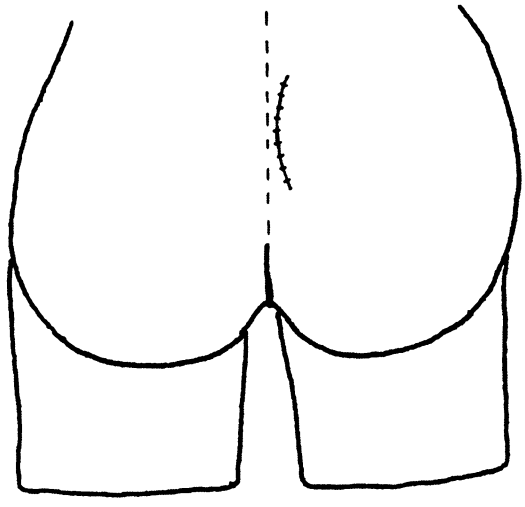

Figure 5. Final wound away from the midline.

incision should lie about 2 cm lateral to the midline (Fig. 1). The incision incorporates any secondary sinuses and crosses the midline to include the primary pit(s). The incision is deepened down to the sacral periosteum and the sinus complex excised (Fig. 2). Haemostasis is obtained using electrocautery. To permit wound closure, a skin flap is mobilised medially by undermining 2–3 cm into the subcutaneous tissue (Fig. 3).

A suction drain is placed, and the wound closed using two layers of interrupted 2/0 and 3/0 Vicryl® sutures, the first joining the deep fat only and the second apposing the subcutaneous fat (Fig. 4). The drain exit site should be lateral to the midline. Subcuticular 3/0 prolene is used for skin closure. After closure, the gluteal fold should be shallow with the final wound, all suture holes and the drain away from the midline (Fig. 4 and Fig. 5). A bio-occlusive dressing is applied and excised tissue sent for histology.

The patient is confined to bed rest until the drain is removed. The skin suture is removed after 10 days.

Results

In all, 28 patients (22 male, 6 female) with a mean age of 27.6 years (range 16–57 years) were identified. Twelve patients had undergone at least one previous operation for pilonidal sinus. Four patients had early complications; three wound infections, one of which required surgical drainage, and one reactionary haemorrhage requiring exploration. The median time for removal of drains was 3 days (range 1–9 days) and the median length of admission was 4 days (range 0–11 days).

Four patients defaulted from outpatient follow-up. In the remaining 24, the wounds healed without further intervention except in one patient—a 32-year-old male having his fifth operation. He had a persisting wound sinus at 1 month after surgery, the wound healing satisfactorily after curettage. Long-term follow-up did not reveal any recurrences in 27 patients (median time from surgery, 3 years). One patient could not be traced.

Discussion

To our knowledge, there are no previously published reports on the use of this operation in the United Kingdom. Reports from Karydakis *(3)* and Kitchen in Australia *(7,8)* have quoted recurrence rates of 1% and 4%, respectively. So far we have not had any recurrence and most wounds healed satisfactorily without further intervention. A high rate of successful primary healing is important as wound care requirements are less and patients can return to work earlier *(2)*.

A comprehensive review of the literature by Allen-Mersh *(2)* found that closed techniques, laying opening, and simple primary closure were associated with variable recurrence rates. However, the Karydakis operation and other asymmetric techniques were found to have a uniformly low recurrence rate. Most asymmetrical flap techniques are technically demanding, making them less practical for use in the district general hospitals that manage the majority of cases. It has also been suggested that good results in primary closure techniques may be surgeon dependent *(2)*. The Karydakis operation is not technically demanding and is within the realms of the non-specialist. Surgical trainees performed seven of our operations (under supervision) with no wound breakdowns or early recurrences. Our experience supports the assertion by Kitchen *(8)* that this operation is easy to teach and learn.

Although randomised clinical trials are lacking, available evidence from observational studies suggests asymmetric excision is superior to other techniques *(2)*. However, it must be borne in mind that complex techniques may not be suitable in district general hospitals—practicality and cost-effectiveness are also important in deciding on choice of treatment. The Karydakis operation directly addresses the causative mechanisms *(5–7)* of pilonidal sinus and therefore has a strong theoretical basis for its low recurrence rate. Data from this small sample support the results reported by Karydakis *(3)* and Kitchen *(8)*, and demonstrate that similar results are achievable in a district general hospital. The Karydakis operation is a simple asymmetric technique with a reproducible low recurrence rate and is worth considering by both specialist and non-specialist surgeons alike.

References

1 Mayo H. *Observations on Injuries and Disease of the Rectum.* London: Burgess and Hill, 1883.

2 Allen-Mersh TG. Pilonidal sinus: finding the right track for treatment. *Br J Surg* 1990; **77**: 123–32.

3 Karydakis GE. Easy and successful treatment of pilonidal sinus after explanation of its causative process. *Aust N Z J Surg* 1992; **62**: 387–9.

4 Mann CV, Springall R. 'D' excision for sacrococcygeal pilonidal sinus disease. *J R Soc Med* 1987; **80**: 292–5.

5 Karydakis GE. New approach to the problem of pilonidal sinus. *Lancet* 1973; **2**: 1414–15.

6 Hueston JT. The aetiology of pilonidal sinus. *Br J Surg* 1953; **41**: 307–11.

7 Kitchen PR. Pilonidal sinus: excision and primary closure with a lateralised wound—the Karydakis operation. *Aust N Z J Surg* 1982; **52**: 302–5.

8 Kitchen PR. Pilonidal sinus: experience with the Karydakis flap. *Br J Surg* 1996; **83**: 1452–5.

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