

Original Article

Assessment of the Asymmetric Eccentric Flap for the Management of Chronic Pilonidal Sinus

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ABSTRACT

Background: In spite of a number of ingenious operative techniques in the management of chronic pilonidal sinus (PNS) no single technique can be relied upon to minimize morbidity and prevent recurrence of this benign yet troublesome condition. The present study was conducted to evaluate the use of the asymmetric eccentric flap for the management of patients with chronic PNS.

Subjects and Methods: This study included 31 patients with chronic PNS admitted to the Department of Surgery, Ahmadi Hospital, KOC, during the years 2001-2002. Patients' data were collected prospectively and included demographics, symptoms, duration of disease, previous management, post-operative course, morbidity and recurrence. All patients were treated by the eccentric flap as described by Karydakakis, and were discharged 2-4 days after operation. Patients were followed-up for a mean of

14.3 months (range 6-21 months).

Results: Twenty-five patients were male and six were female. Their ages ranged between 14-43 years with a mean of 27.4 years. The mean operating time was 40.2 ± 7.9 minutes. Minor complications were encountered in three patients (9.67%); two had a seroma that resolved in two weeks with conservative measures and one suffered from wound infection that resulted in partial wound dehiscence but healed with secondary intention after 20 days without prolonging hospital stay. Recurrence, at 13 months post-operatively, was observed in only one patient (3.2%).

Conclusions: By using an asymmetric eccentric flap with primary closure in chronic pilonidal sinus, the complications and recurrences are very low, the healing time is rapid and the hospital stay is short.

KEYWORDS: Karydakakis, pilonidal sinus

INTRODUCTION

Chronic pilonidal sinus (PNS) is a common disabling condition of young adults^[1]. The management remains controversial and recent reports have advocated different surgical procedures, none of which is perfect, judged by the yardsticks of primary healing and recurrence of disease^[2]. An operation that results in primary wound healing, abolition of sepsis, rapid return to normal activity and no recurrence is desirable.

The present study was conducted to evaluate prospectively the results of chronic PNS patients treated surgically by asymmetric excision and primary closure with suction drainage as described by Karydakakis^[3,4].

Operative Technique: Surgery is performed under general anesthesia, with the patient positioned prone and the buttocks strapped apart. An ellipse is based on the side of any secondary opening or indurations; if the sinus is entirely central, either side may be chosen. Each end of the ellipse is placed 2 cm to one side of the midline (Fig. 1). Probing of the sinus (Fig. 2) and insertion of

methylene blue are performed to ascertain the extent of the sinus so that the whole sinus and its ramifications can be fully excised down to the sacral fascia without inadvertent contamination of the wound by opening the track (Fig. 3). The medial side of the wound is then undercut a distance of 2 cm at a depth of one cm to produce a flap extending the full length of the wound. A layer of interrupted absorbable sutures, using vicryl or dixon, is placed before and then tied, the needle being passed into the sacral fascia in the midline and then deeply into the fat at the base of the flap (Fig. 4). The subcutaneous layer is then closed with interrupted 3/0 vicryl and the skin with interrupted mattress 3/0 prolene stitches. Suction drainage (Fig. 5) is used in all cases and is brought out through a separate stab. A firm dressing is applied to the closed wound.

PATIENTS AND METHODS

The present study included 31 patients with chronic PNS admitted to the Department of Surgery, KOC Ahmadi Hospital, during 2001-2002. Twenty-five patients were male and six were

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Fig. 1: Intra-operative design of an ellipse to one side of the midline



Fig. 2: Probing of the sinus before excision



Fig. 3: Full excision of the sinus and its ramifications down to the sacral fascia



Fig. 4: Interrupted absorbable sutures between the sacral fascia and the base of the flap (placed before and then tied)

female. Their ages ranged between 14-43 years with a mean of 27.4 years. Patient data were collected prospectively and included demographics, symptoms and signs, duration of disease, previous

management, operative time, hospital stay, return to normal activity, morbidity and recurrence.

Written consent was obtained from all patients. They were treated by asymmetric excision and

Table 1
Clinical characteristics of patients studied (n = 31)

Clinical Characteristics	Number	Percentage
Symptoms:		
Seropurulent discharge	17	54.8
Pain	10	32.3
Local Swelling	3	9.7
Bleeding	1	3.2
Duration of Symptoms:		
1-2 years	4	12.9
2-3 years	25	80.7
3 years	2	6.4
Number of Openings		
One	15	48.4
Two	6	19.4
Three	5	16.1
Four	3	9.7
Five	2	6.4
Previous Management:		
Antibiotics alone	16	51.6
Incision and drainage	7	22.6
Surgery (midline closure)	4	12.9
None	4	12.9



Fig. 5: Primary closure with suction drainage. Note the incision line to one side of the midline

primary closure as described above. Patients were nursed supine and were kept in bed for 1-2 days to help hemostasis by pressure and to prevent hematoma formation. Follow-up was done at regular monthly intervals for the first 3 months and every two months thereafter. The mean follow-up was 14.3 months (range 6-21 months).

Table 2
Operative time and post-operative course of patients (n = 31)

Operative Time (minutes):	
Mean \pm SD	40.2 \pm 7.9
Range	35-50
Hospital Stay (days)	
Mean \pm SD	3.1 \pm 0.4
Range	2-4
Wound Healing	
Primary (9-11 days)	30 (96.8%)
Secondary (20 days)	1 (3.2%)
Complications	
Seroma	2 (6.4%)
Wound infection + partial dehiscence	1 (3.2%)
Recurrence	1 (3.2%)

Clinical features of the patients are presented in Table 1. The most presenting symptom was seropurulent discharge, being present in 17 patients (54.84%). Other symptoms included pain, local swelling or induration, and bleeding. The mean duration of the present disease was 32.4 months (range 13-46). A single sinus was identified upon admission in 15 patients (48.39%) and two or more in 16 (51.61%). The treatment received by patients before admission included antibiotics for minor discharge or inflammation in 16 (51.61%), surgical drainage of pus for acute abscess in seven (22.58), and surgery performed at other hospitals in four (12.9%).

RESULTS

As shown in Table 2, the mean operating time was 40.2 \pm 7.9 minutes. The mean hospital stay was 3.1 days. Minor postoperative complications were encountered in three patients (9.67%); two had a seroma that resolved in two weeks with conservative measures and one suffered from wound infection that resulted in partial dehiscence that required daily dressings but eventually healed with secondary intention after 20 days without prolonging hospital stay. All other wounds (96.78%) healed primarily, and stitches were removed by the 9th-11th day after operation. Recurrence, at 13 months postoperatively, was observed in only one patient (3.22%). Patients returned to work within 3-4 weeks of the operation and housewives (n = 4) resumed their unrestricted daily physical activities within a similar period of time.

DISCUSSION

Once thought to be a congenital condition it is now appreciated that pilonidal sinus is most often an acquired condition due to accumulation of tough, bristly hair penetrating the skin, or local hair growing into a skin crevice, pit or abnormal follicle^[2]. Most surgical procedures have been

designed to eradicate the existing sinus and the crevice in which hair tends to accumulate. However, surgery should not only eradicate the presenting sinus but also aim to eliminate factors that predispose to formation of another sinus^[5]. This is achieved by the asymmetric eccentric flap described herein, which reduces the depth of the natal cleft and ensures that all parts of the wound and all suture holes are away from the midline.

Although the Z-plasty procedure^[6] reduces the natal cleft, recurrence has been reported when new sinuses occur at the lower end where the wound meets the midline and the cleft is not flattened. Excision with an open wound involves prolonged hospitalization or clinic attendance for many painful dressings and takes months to heal. Both this method and excision with marsupialization leave a portal in the midline for further hair entry and have a significant recurrence rate^[7-10]. Several series have shown that excision with primary closure is preferable to excision with an open wound in many respects: less bleeding, lower infection, reduced wound pain, fewer postoperative visits, shorter time off work, and faster healing time^[8,10,11]. However, both techniques have recurrence rates reaching up to 17.5% with the closed method^[1] and 13% with the open technique^[12]. Day surgery with simple lay-open, curettage, brushing, or phenol injection may eliminate the hairs and cure the sinus but the midline wound may take several weeks to heal, and there is a significant recurrence rate because of the open portal for hair insertion^[13]. Thus, the advantage of simple day surgery may be outweighed by the longer time to return to work and the greater likelihood of a further operation with longer hospitalization for recurrence.

Asymmetric excision with a Karydakias flap is the only operation that takes the whole wound away from the midline. Karydakias^[3,4] reported that wounds heal well, with a recurrence rate of less than 1%. In the present study, recurrence was observed in only one patient (3.2%) and 96.78% of patients had primary wound healing within 9-11 days and a hospital stay for about three days. Likewise, Akinci *et al*^[14] reported a low recurrence rate (0.9%) in a large series of 112 patients after a follow-up of 2.4 years. Patel and colleagues^[15] using Karydakias' method, avoided recurrence and the situation of unhealed midline wound, albeit with an inpatient stay of five days. Anyanwu *et al*^[16] treated 28 patients by this technique and reported no recurrences after a median follow-up of three years. Primary wound healing occurred in 88% of cases, and all wounds eventually healed. Patients stayed in hospital for an average of four days. Applying the same technique, a recurrence rate of

4% was reported by both Kitchen^[17] and Al-Jaberi^[18], though the latter used no drains, and patients stayed in hospital for only two days. Moreover, Sakr *et al*^[15] reported a recurrence rate of 3.13% with the Karydakias flap used exclusively for obese patients and a hospital stay for a mean of 3.2 days.

In the present study, minor complications were encountered in only 3 patients (9.6%) in the form of seroma in two and wound infection with partial wound dehiscence in one. Similar results, with a shorter period off work (two weeks) than that observed herein (3-4 weeks), were reported by other authors^[15, 16, 18,19].

CONCLUSIONS

Based on the data presented it may be concluded that owing to flattening of the natal cleft and shifting of the incision line to the lateral side of the midline by performing the asymmetric excision and primary closure the complications and recurrences are very low, the healing time is rapid and the hospital stay is short. The Karydakias flap is thus seen to be an excellent procedure in the surgical management of chronic pilonidal sinus. Patients are still being followed-up at regular intervals to determine the long-term results of this study, and its application for obese, recurrent, or acute cases merits further investigation.

REFERENCES

1. Khaira HS, Brown JH. Excision and primary suture of pilonidal sinus. *Ann R Coll Surg Engl* 1995; 77:242-244.
2. Stephens FO, Stephens RB. Pilonidal sinus: management objectives. *Aust N Z J Surg* 1995; 65:558-560.
3. Karydakias GE. New approach to the problem of pilonidal sinus. *Lancet II* 1973; 2:1414-1415.
4. Karydakias GE. Easy and successful treatment of pilonidal sinus after explantation of its causative process. *Aust N Z J Surg* 1992; 62:385-389.
5. Sakr M, El-Hammadi H, Moussa M, Arafa S, Rasheed M. The effect of obesity on the results of Karydakias technique for the management of chronic pilonidal sinus. *Int J Colorectal Dis* 2003; 18:36-39.
6. Bose B, Candy J. Radical cure of pilonidal sinus by Z-plasty. *Am J Surg* 1970; 120:783-786.
7. Fuzun M, Bakir H, Soylu M, Tansug T, Kaymak E, Harmancioglu O. Which technique for pilonidal sinus - open or closed? *Dis Colon Rectum* 1994; 37: 1148-1150.
8. Sondenaa K, Andersen E, Soreide JA. Morbidity and short term results in a randomized trial of open compared to closed treatment of chronic pilonidal sinus. *Eur J Surg* 1992; 158:351-355.
9. Solla JA, Rothenberger DA. Chronic pilonidal disease. An assessment of 150 cases. *Dis Colon Rectum* 1990; 33: 753-761.
10. Bissett IP, Isbister WH. The management of patients with pilonidal disease - a comparative study. *Aust NZ J Surg* 1987; 57:939-942.
11. Notaras MJ. A review of three popular methods of treatment of postanal (pilonidal) sinus disease. *Br J Surg* 1970; 57:886-890.
12. Spivak H, Brooks VL, Nussbaum M, Friedman I. Treatment

- of chronic pilonidal disease. *Dis Colon Rectum* 1996; 39:1136-1139.
13. Allen-Mersh TG. Pilonidal sinus: finding the right track for treatment. *Br J Surg* 1990; 77:123-132.
 14. Akinci OF, Coskun A, Uzunkoy A. Simple and effective treatment of pilonidal sinus: asymmetric excision and primary closure using suction drain and subcuticular skin closure. *Dis Colon Rectum* 2000; 43:701-707.
 15. Patel H, Lee M, Bloom I, Allen-Mersh TG. Prolonged delay in healing after surgical treatment of pilonidal sinus is avoidable. *Colorectal Dis* 1999; 1:107-110.
 16. Anyanwu AC, Hossain S, Williams A, Montgomery AC. Karydakis operation for Sacrococcygeal pilonidal sinus disease: experience in a district general hospital. *Ann R Coll Surg Engl* 1998; 80:197-199.
 17. Kitchen PR. Pilonidal sinus: experience with the Karydakis flap. *Br J Surg* 1996; 83:1452-1455.
 18. Al-Jaberi TM. Excision and simple closure of chronic pilonidal sinus. *Eur J Surg* 2001; 167:133-135.
 19. Senapati A, Cripps NP, Thompson MR. Bascom's operation in the day-surgical management of symptomatic pilonidal sinus. *Br J Surg* 2000; 87:1067-1070.

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