ORIGINAL ARTICLE

Comparison between two methods of excision and primary closure of pilonidal sinus

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Abstract

Background: Controversy still exists about the best surgical method for the treatment of pilonidal sinus. The aim of this study was to compare two methods of excision and primary closure.

Methods: One hundred and seventy-three patients with pilonidal sinus, 119 (69%) men and 54 (31%) women, and a mean age of 23.3±7.5 yrs and divided into two Groups of A (electrocautery) and B (excision) for the removal of pilonidal sinus. Wound complications, hospital stay, times to heal, return to work, patient's comfort and recurrence rate were recorded for the two groups. The postoperative follow-up was 6 months.

Results: All patients were able to resume their normal lives and activities 7-9 days after the operation. Wound infection and recurrence rate were significantly ($P<0.05$) less prevalent in Group A (5% and 3.8%) than in Group B (1% and 0%). There was no significant difference between two groups in regard to hospital stay, time to heal, time to return to work and patients' comfort after 6 months of follow-up.

Conclusions: The use of electrocautery at the base of the wound is not recommended because it may obscure the exact extent of the pilonidal sinus and increase the rate of recurrences.

Keywords: Primary excision; Pilonidal sinus; Recurrence; Wound infection; Electrocautery

Introduction

A pilonidal sinus refers to a tract or cavity under the skin that contains loose hair. The most common areas are in the sacrococcigeal ("tailbone") area and the umbilicus. It occurs more often in overweight people, persons with abundant body hair and occurs more often in men than in women.[1] The treatment of pilonidal disease involves early medical evaluation in order to minimize pain and discomfort. Several techniques cryosurgery,[2] Z-plasty procedure,[3] lancing under local anesthesia, vacuum assisted closure,[4] excision with secondary healing, excision with primary closure,[5,6] and flap surgeries[7-10] have been suggested for the treatment of this common disease. Although it has been surgically treated for many years, its management remains controversial. Electrocautery has become a routine tool in modern surgery, but generation of high temperature by this procedure frequently results in areas of burn and tissue necrosis. According to our hypothesis, as a result of electrocautery, burn tissues may appear dark and somewhat similar to those stained with methylene blue. This may result in incomplete excision and a high rate of recurrence. The aim of present study was to evaluate and compare excision and primary closure procedures used for the treatment of patients with pilonidal sinus.

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Materials and Methods

The present prospective study was conducted from April 1998 to the end of 2003 and comprised 173 patients with pilonidal sinus and aged from 13-50 years with a mean age of 23.3±7.5 years. The patients had been referred to out- patient department (OPD) of Nemazee Hospital affiliated to Shiraz University of Medical Sciences. The patients were randomly divided into two ages and sexes matched groups of 100 each, but by excluding 27 cases, the total number of patients under study was 173 of which 119 were males and 54 females. The criteria for exclusion included patients who had previously been operated for pilonidal sinus, those with pilonidal abscess, cellulites, or with a history of coagulopathy disorders were excluded from the study. Therefore, of 78 patients aged from 13-43 years with mean age of 23.1±8.3 years who were assigned to group A, 45 were males and 33 females. This group of patients received local anesthesia induced by using 10 ml of 2% xylocaine, 3 ml of 0.5% marcaine and 2 ml of 1/100000 epinephrine. Methylene blue was then injected through the sinus into the cyst, which was thoroughly massaged to ensure the even distribution of the dye. Using a scalpel an elliptical incision was made on the skin and the cyst with overlying subcutaneous layer along with sinus tissues were excised down to the presacral fascia by means of an electrocautery cutting knife. By patching the incision with sterile gauze, thorough hemostasis was provided and the excised cyst was checked for complete borders. The tension plasters were removed and interrupted, mattress sutures (Nylon 2/0) were applied to the boarders and down to the presacral fascia. The skin was closed using nylon 4/0 and tie dressing was applied using sterile gauze. All patients were visited routinely on 2, 7, and 14 postoperative days for wound inspection and removal of sutures. The tie dressing and the nylon 2/0 sutures were removed on 7 and 14 postoperative days respectively. The patients were advised to bath daily and avoid excessive physical strain. All patients received cephalexin, 500 mg orally every 6 hours for one week after operation. No bacterial culture was made, and no antibiotic was used pre-operatively. Group B included 95 patients aged from13-50 years with 74 males and 21 females and mean age of 23.3±9.1 years. The patients in this group were prepared and positioned in the same fashion as in group A, except in three aspects. These consisted of prescribing a course of oral antibiotics (metronidazole, 500 mg, 8 hourly), 48 hours preoperatively, excision of the cysts by only a scalpel and not by electrocautery and the removal of tie dressing after 2 days, contrary to one week for group A patients. An informed written consent was taken from each of the patients and the approval of the present study was obtained from ethical committee of Shiraz University of Medical Sciences. The patients in both groups were prepared and positioned in the prone jack-knife position on the operating table, with the legs slightly abducted and the buttocks strapped apart by adhesive tapes to the table. The natal cleft was shaved the day before operation. The patients received acetaminophen codeine d to relieve pain and all cases were followed for 6 months. All data were analyzed using SPSS for Windows 10.0 computer software (SPSS, Inc., Chicago, IL). Minimum sample size was estimated using an a priori power analysis based on a confidence level of 0.95 and a power of 0.90. Statistical analysis was performed using Chi-square or Fisher's Exact test to compare discrete variable and two-paired Student *t* test to compare continuous variables between groups and $P<0.05$ was considered statistically significant.

Results

All of the patients were able to return to their normal life and activities 7-9 days after the operation. Mean time to complete healing, to return to normal activity and to return to work were more in Group A but the difference was not statistically significant (Table 1). Wound infection and breakdown and recurrence rate were significantly more in Group A (Table 1). Wound infections and recurrences were significantly less prevalent in Group B (1% and 0%) than group A (5% and 3.8%) respectively. The clinical outcomes of the two methods of treatment are shown in Table 1. There was no significant difference between the groups in regard to hospital stay, times to heal, return to work and patient's comfort after 6 months of follow-up. One patient developed hematoma 7 days after the operation, which resolved satisfactorily after drainage.

Table 1: Clinical outcomes of different treatment modalities

Clinical outcomes	Method A (with electrocautery)	Method B (without electrocautery)	p value
Mean time to complete healing (d)	14.2 (7-21)	13.5 (6-17)	NS
Mean time to return to normal activity (d)	8 (3-13)	7 (4-11)	NS
Mean time to return to work (d)	27 (17-70)	25 (15-22)	NS
Wound infection (%)	4 (5%)	1 (1%)	<0.05
Wound breakdown (%)	5 (6.4%)	1 (1%)	<0.05
Recurrence (%)	3 (3.8%)	0 (0%)	<0.05

Discussion

Pilonidal sinus disease is an acquired condition usually seen in young adults and carries high post-operative morbidity and patients' discomfort. The most important factor in causing post-operative discomfort is wound infection and recurrence. The most important factor in causing recurrence is in-complete excision. Although many surgical method of treatment have been described, an ideal treat-ment has yet to be introduced. Complete excision of the sinus is a most common practice, but contro-versy on how to manage the wound after excision still remains.[11] In this study, the patients were op-erated using wide excision and primary closure technique. In Group A method, preoperative antibi-otic was not administered and the operation was performed by electrocautery cutting probe. In Group B method, however, electrocautery was not used and preoperative antibiotic was prescribed. It was hypothesized that complete excision was most probably achieved in Group B. The results obtained in our study revealed that these two changes could significantly decrease recurrence rate. The overall recurrence rate in group A was 2.5% which was much lower than that of previous studies using ex-cision and primary closure.[4-6,12] This rate was simi-lar to the studies using rhomboid flap and Limberg technique.[7,8,10,12] The present study was the first to evaluate the effects of electrocautery on recurrent rate. The results are satisfactory and lower that previous method of operation. Our patients were operated in an OPD ward and were not admitted to the hospital, which in view of its lower expenses was more beneficial to the patients. The usual mean for hospital stay in excision and primary closure techniques reported in previous studies was 4-5 days.[11,12] In the Limberg method hospital stay in different studies ranged from 3.1 to 3.4 days.[7,11,12] Our patients were visited routinely on 2, 7 and 14 postoperative days for wound inspection and re-moval of sutures. Excision and primary closure was known to provide a quicker healing and returning to work, compared with open packing and marsupiali-zation. Most patients returned to work in 3 to 4 weeks.[11] Regarding our patients returned to normal activity and resumed working in 14 days for exci-sion and primary closure and 8 days for electroca-utery. This lower rate is due to faster healing and lower discomfort observed in excision and primary closure. However, there was no significant differ-ence between the two methods in regard to above-mentioned conditions. One of the most important disadvantages of primary repair is the higher rate of complications reported because of tissue tension leading to wound break down, pain, etc.[7,8,12] In this study, the postoperative complications were similar to flap reconstruction methods.[7,8,12]

We concluded that lower infection rates and recur-rence rate were the main advantages of this modified method of excision and primary closure.

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