Original Article

Excision with or without primary closure for Pilonidal sinus disease

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Abstract

Objective: To evaluate the outcome of excision with or without primary closure in the management of chronic pilonidal sinus (PNS) disease.

Methods: Between July 2002 and November 2006, a randomized trial was conducted in the Department of General Surgery, Riyadh Medical Complex, Riyadh, Kingdom of Saudi Arabia. All the patients who presented with chronic natal cleft PNS disease were included in the study. They underwent either excision with midline closure (EMC group), or excision without closure (EWC group). Patients, who came with an acute pilonidal abscess (complicated) were excluded from the study. The principle outcome measures recorded were wound infection, healing time, time off work and the recurrence rate.

Results: A total of 380 patients of chronic PNS were divided into EMC group, (188 patients) and EWC group (192 patients). Majority of the patients were male in both the groups (93%). The hospital stay ranged from 2 to 5 days (mean=3.6±1.4 days) for EMC group, while it was 3-5 days (mean=4±1.1 days) for EWC group ($p<0.002$). Wound infection was 4.2% in EMC group, compared to 3.12% of EWC group (MS). The mean healing time and time off work in EMC group was significantly shorter than the patients in EWC group. Median follow up of EMC group was 36.3 months (range10-52 months) while it was 35.2 months (range 13-51 months) for EWC group. Statistically there was no significant difference in the recurrence rate of both the groups (3.7% vs. 3%).

Conclusions: Excision and primary closure is recommended, as a preferred procedure in the management of chronic PNS disease. It has the advantages of early wound healing, rapid return to work and comparable recurrence rate with excision and open wound (JPMA 57:388:2007).

Introduction

Pilonidal sinus (PNS) is a chronic, intermittent disorder of the saccrococcygeal region.[1] The high incidence of PNS among young males is well described.[2,3] The management of PNS is frequently unsatisfactory.[4] Many surgical and non- surgical treatment modalities have been suggested, but the ideal and widely accepted treatment has still not yet been established. In this regard, low recurrence rate, shorter hospital stay, less cost, minimal inconvenience and time off work are important considerations.[5]

Surgical techniques include laying the track open, wide excision with open wound, wide excision with marsupialization, excision with primary midline or asymmetric closure and techniques involving various flaps procedures.[6] All the surgical procedures have their pros and cons.[7] The most commonly performed surgical operations are excision with primary closure and excision with laying open the wound for healing by secondary intention.[8]

Simple excision and open wound causes more patient discomfort, longer hospitalization and more time off work. While excision and primary closure in the midline is associated with wound related complications like wound failure, wound infection and the recurrence of PNS disease.[9,10] The objective of this trial was to compare the outcome of both these procedures in terms of wound infection, healing time, time off work and the recurrence rate, in the management of chronic PNS disease.

Patients and Methods

This randomized trial was conducted in the Department of General Surgery, Riyadh Medical Complex, Kingdom of Saudi Arabia from 1st July 2002 to 15th November 2006. The research protocol was approved by local research and ethical committee and informed consent was obtained from all the patients. All the patients who presented with, chronic natal cleft PNS were included, while the patients, who came with an acute pilonidal abscess, were excluded from the study.

All the patients were admitted to the hospital, one day prior to operation. They were divided to undergo, either simple excision with midline closure (EMC group) or simple excision without closure, (EWC group) by using a closed envelope randomization. The surgeons enclosed the two operating options on separate papers in opaque envelopes. An equal number of envelopes with the these two options were available in the operating room. The nurse mixed the envelopes and opened one to reveal the randomization arm after induction of anaesthesia.

All the patients were operated under general anaesthesia. The hair around the natal cleft was shaved

before operation. The patients were positioned prone (Jack Knife) and the buttocks were strapped apart by using the adhesive tapes. Methylene blue dye was injected to outline the sinus tract. A symmetrical elliptical incision around the midline natal cleft was made to enclose all the sinuses and tracts. With continuous sharp dissection, the incision was carried down to saccro-coccygeal fascia. All the sinuses and their extensions were excised completely. Good haemostasis was secured. In EMC group, the subcutaneous fat is undermined and lifted as a flap from the gluteal fascia to close the wound in a tension free manner. Radivac suction drain was placed in the wound cavity, through a separate stab incision. Subcutaneous tissue was approximated with Polyglycolic acid No 2/0 (Vicryl®). Skin was closed with polypropylene 2/0, (Prolene®) mattress interrupted stitches.

In EWC group, the sinuses were excised, by employing the similar procedure, but the wound was left opened and packed with povidone soaked gauzes. All the patients from the two groups received one dose of prophylactic antibiotics (Cefuroxime sodium and metronidazole), at the time of induction of anaesthesia until and unless indicated for a prolonged period of time. The patients of EWC group were discharged once they were mobile, pain free and comfortable to go home, with the advice of good wound cleansing and daily dressing in the primary clinic. In patients of EMC group, sutures were removed on 10th post operative day. These patients were advised to return to normal activities after removal of stitches, but to avoid excessive physical strain and strenuous sports for following 3 to 4 weeks.

Follow up of all patients was performed on an outpatient basis, every month for 3 months, after every 3 months for one year and on annual basis for a mean period of 36.3 and 35.2 months for EMC and EWC group respectively. It included the detailed history and clinical examination by trained personnel. The outcome measures recorded were wound infection, healing time, time off work and recurrence rate. Wound infection was defined as the systemic signs associated with purulent discharge from the wound, necessitating open drainage or debridement. Recurrence was defined as, the reappearance of symptoms and sinus after complete healing of the wound. Data was analyzed by using SPSS software (version 11). Categorical data comparison was made by Chi-Square test. Numerical variables were compared by student's t-test. P value less than 0.05 was considered significant.

Results

A total of 427 patients of natal cleft PNS were admitted from 1st, July 2002 to 15th November 2006 in the Department of General Surgery, Riyadh Medical Complex Riyadh. Forty three out of 427, underwent incision drainage for acute pilonidal abscess, and were excluded from the study before randomization. Rest of 384 patients were divided into 192 patients both in EMC group and EWC group. Four patients of EMC group were excluded from the study, after randomization, because of overt signs of deep sepsis found during surgery. They were managed by leaving the wound open for secondary healing.

Table. Characteristics and Results of patients.

Variables	EMC Group* (n=188)	EWC Group (n=192)	P value
Age	16-38 years	15-42 years	
	M 22.4±6.1 years	M 22.8±6.4years	NS
Gender (Female:Male)	13:175	12:180	
	(1:13.4)	(1:15)	NS
Primary	177 (94.2%)	183 (95.4 %)	NS
Recurrent	11 (5.8%)	09 (4.6%)	NS
Operating time	45-73 minutes	35-52 minutes	P<0.0001
	M 58±4.5minutes	M 43±5.1minutes	
Hospital stay	2-5days	3-5days	
	M 3.6±1.4 days	M 4±1.1 days	P=0.0021
Healing time	10-35 days	39-87days	
	M 14.5±4.1days	M 60.4±6.2days	P<0.00001
Time off work	12-30 days	36-70days	
	15.6±3.4 days	42.2±5.3days	P<0.0001
Wound infection	08 (4.2%)	06 (3.12%)	NS
Recurrence	07 (3.7%)	06 (3.12%)	NS

EMC = Excision with midline closure
EWC = Excision without closure
NS = Not significant
M = Mean standard deviation

Regarding the base line characteristics, the patients of EMC group were statistically similar to those of EWC group (Table). Mean operative time of EMC and EWC group was 58 ± 4.5 and 43 ± 5.1 minutes respectively ($p<0.0001$). The hospital stay ranged from 2 to 5 days (mean =3.6±1.4 days) for EMC group, while it was 3-5 days (mean = 4±1.1 days) for EWC group B ($p<0.0021$). Wound infection was 4.2% in EMC group, compared to 3.12% of EWC group. The healing time and time off work was significantly shorter in EMC group than EWC group. Median follow up of EMC group was 36.3 months (range10-52 months) while it was 35.2 months (range 13-51 months) for EWC group. Statistically there was no significant difference in the recurrence rate of both the groups (Table).

Discussion

Pilonidal sinus is a blind track lined by granulation tissue that leads to a cystic cavity, which usually contains loose hair.[11] The incidence is highest among Caucasians and

less among Africans and Asians.[9] The etiology and pathogenesis of PNS, has been a matter of controversy over the decades. At present accumulated evidence support that PNS is an acquired disease.[9,12,13] The suggested two important causes of PNS are deep natal cleft, causing buttock friction and poor personal hygiene causing accumulation of loose hair and debris in the cleft.[11]

Pilonidal sinus disease is one of the most common problems, requiring surgical management in the population of Kingdom of Saudi Arabia.[8] Almost all the patients included in this study were young and majority of them were male. This is in accordance with worldwide distribution of disease.[4-9] The poor representation of female patients has also been noticed elsewhere in the Kingdom.[8,14] This may be because of reluctance among the female to seek medical advice for personal problems or may represent the relatively low incidence of PNS in female population.

A number of procedures have been advocated in the treatment of chronic PNS. They range from an extreme conservative, non-surgical approach to extensive surgical procedures with full thickness flaps techniques.[15-17] The ideal treatment of PNS remains a topic of debate. The ideal surgery should be simple, with short hospital stay, have a low recurrence rate, associated with minimum pain and wound problems. It should also be cost effective.[11] None of the surgical procedures for PNS proved to be ideal according to the results of wound infection, wound failure, or recurrence.[18]

Simple excision and healing by secondary intention would cause more patient discomfort, more outpatient attendance for many painful dressings; require longer time for healing and more time off work.[6,8] Primary closure provides an earlier wound healing, reduced hospitalization and less time off work when compared to lay open techniques or marsupialization.[6,8-10] In this study, the healing time and time off work in EMC group was significantly shorter than the patients in EWC group. The advantages of early wound healing and early return to work outweigh an increase in the wound infection and recurrence rate observed by some authors by this technique.[18,19]

The operation time for EMC group was longer than the time recorded for EWC group. This may be explained by the fact that wound closure necessitates additional time over that needed for dissection. The hospital stay of the patients in EMC group was significantly shorter than the patients in EWC group. Recently, primary closure procedures appear to be appropriate as day care in majority of the patients.[7] The cost of a day care surgery has been calculated by Senapati et al[22] to about 60% of the cost for same procedure as in patient care in the United Kingdom.

The main controversy among the surgeons revolves around the wound related complications, like wound failure, wound infection and higher recurrence rate in primary closure techniques. We did not encounter any significant difference in the wound infection rate (4.2% vs. 3.12%) of both the groups. The recurrence rate in EMC and EWC group was 3.7% and 3.12% respectively, which was statistically not significant. These figures correlate well with the literature.[4,6-9] Recurrence after the treatment of PNS are usually evident within first 3 years.[11] We had a median follow up of 36.3 and 35.2 months for EMC and EWC group respectively, which is quite acceptable to detect the recurrence.

In author's view, it is not justified to leave the wound open, in a good number of patients because of the fear of recurrence. Wound remains a constant source of nuisance to the patient, till complete healing. Early recurrence may be due to the presence of midline wound, acting as portal for hair entry and late recurrence may be due to deep natal cleft in which loose hair may collect.[6] By improving personal hygiene and regular shaving the natal cleft, we can decrease the number of recurrence.[5,7,11,13] The recurrence rate is also related to remaining pilonidal cyst or pits.[18] The meticulous surgical techniques, with complete excision of all sinus tracks can reduce the recurrence rate after midline closure.[7,11]

Conclusions

Excision and primary closure is recommended as a preferred procedure in the management of chronic PNS disease. It has the advantages of short hospital stay, early wound healing, rapid return to work and comparable recurrence rate with excision and the open wound.

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