Comparison between three therapeutic modalities for non-complicated pilonidal sinus disease

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Objective: To evaluate the outcome of each of the three methods used to treat pilonidal sinus disease. **Study Design:** A prospective blind randomised study. **Materials and Methods:** Between April 2000 and February 2003, 83 patients (68 male and 15 female), aged between 19 and 31 years (mean 26.6), scheduled for elective operations for pilonidal sinus disease. Patients were randomly assigned to receive one of three excisional surgical procedures. Group A consisted of 28 patients (22 males and six females) and underwent wide resection of the skin and subcutaneous tissue of the natal cleft, followed by primary closure of the wound in two layers after insertion of suction drain. Group B consisted of 26 patients (22 males and four females) and underwent wide resection of the skin and subcutaneous tissue and their wounds left opened for secondary intention healing. Group C consisted of 29 patients (24 males and five females) and underwent limited excision of the fistulous tract and their wounds were left opened for secondary intention healing. Patients were followed-up for 15 to 48 months post-operatively. Demographic data, operative time, hospital stay, operative blood loss, post-operative pain, wound healing time and patient's satisfaction were recorded. **Results:** The limited excision group of patients had a highly significant shorter operative time than the closed wound group of patients ($p<0.001$). They also had the shortest hospital stay, operative blood loss and post-operative pain ($p<0.001$). The closed wound group of patients showed significantly shortest wound healing time, followed by the limited excision group of patients; the wide excision group of patients showed the longest healing time. Apart from the minimal non-significant elevation of the rate of recurrence in the closed wound group of patients, there was no difference between the three groups. All recurrent cases were obese patients and presented within the first six months after operations. **Conclusion:** Limited excision of a pilonidal sinus represents one of the best therapeutic options. The result of this method is comparable with the more aggressive frequently used excisional method, and it has the advantage of having a shorter convalescence and better patient satisfaction

Keywords: Pilonidal sinus, PNS, open wound, limited excision, closed wound
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INTRODUCTION

Pilonidal disease is a common, chronic, intermittent disorder of the sacrococcygeal region. Despite surgical therapy dating back more than one century, management remains controversial and recent reports have advocated different surgical approaches.[1] The management of pilonidal sinus is frequently unsatisfactory. No current method satisfies all the necessary requirements for the ideal treatment, namely rapid healing, no hospital admission, minimal patient inconvenience, and low recurrence.[2] In many cases treated, there has been a variable lack of success of the surgical methods employed, as regards morbidity, healing, recurrence and cure. The choice of a particular surgical approach depends on the surgeon's familiarity with the procedure and their perceived results, in terms of low recurrence rate and a rapid healing of the resulting cavity or surgical wound. Conservative non-operative management, closed methods, laying open of the track, wide excision and open drainage, wide excision and primary closure, and limited excision, are the methods currently used.[3] Pilonidal sinus treatment is still controversial, since all the most commonly used methods cause the patients considerable discomfort ("open" method) or increase the recurrence rate ("closed" method).[4]

The aim of this study was to compare the length of hospital stay, post-operative pain, wound healing time, length of time to return to work, patient satisfaction and recurrence rate in patients with chronic pilonidal sinus, after treatment by three different surgical techniques.

PATIENTS AND METHODS

A total of 83 patients (68 male and 15 female), scheduled for elective operations for pilonidal sinus disease between April 2000 and February 2003 in the Misr University for Science and Technology hospital, were studied. Their ages ranged from 19 to 31 (mean 26.6) years. Recurrent cases and patients with acute abscesses were excluded from the study. The study was approved by the Local Ethical Committee and an informed consent was obtained from all patients.

Patients were admitted to hospital on the day of the operation and were randomly assigned to receive one of three excisional surgical procedures, performed by one of the three consultant surgeons who participated in this study, using a closed envelope randomisation. Group A consisted of 28 patients (22 males and six females) and underwent wide resection of the skin and subcutaneous tissue of the natal cleft reaching to the sacral periosteum. This was followed by primary closure of the wound in two layers after insertion of a suction drain. Group B consisted of 26 patients (22 males and four females) and underwent wide resection of the skin and subcutaneous tissue of the natal cleft reaching to the sacral periosteum. Patients in this group had their wounds left open for secondary intention healing. Group C consisted of 29 patients (24 males and five females) and underwent limited excision of the fistulous tract. The excision was performed through a small elliptical incision around the primary opening of the sinus. Sharp dissection of the sinus tract, aided by mild traction, was performed. Side tracts were meticulously dissected and the sinuses were extracted through the initial small incisions. In only four patients from group C were the sinuses too complex to be dissected via a single incision. In these cases a further elliptical incision was created around the original opening of the sinus to facilitate completion of the dissection. All patients in group C had their wounds left opened for secondary intention healing.

Demographic data on age, gender, height, weight and body mass index (weight in kg divided on square value of the height in metres) were all recorded upon admission to hospital. Operative time, hospital stay and operative blood loss, were also recorded.

Post-operative pain was recorded by the aid of a visual analogue scale, scoring one as the mildest pain and ten as the worst pain. The patients expressed their pain perception by pointing to a special graduated coloured scale at four, 10 and 16 hours post-operatively. The mean of the three records for each patient was taken.

Follow-up was designed for all patients on monthly intervals for a period ranging from 15 to 48 months. Time needed for complete wound healing and patient satisfaction and all other variants were recorded by trained personnel.

STATISTICAL METHODS

Data collection was limited to a time interval and the results were simply subjected to descriptive and analytical statistics that were performed on an IBM-compatible computer by using SPSS 11.5 software package under windows XP operating system.

Continuous data were presented in the form of mean $\pm$SD (range) for continuous data parameters and median (inter-quartile range) for non-parametric data parameters. Categorical data were presented in the form of number and percentage.

Analytical statistics of data between group comparisons of continuous data parameters were performed by using the Student's t test for normally distributed data (t value) and Mann Whitney U test for non parametric data distribution (z value). Analytical statistics of data between group comparisons of categorical data parameters were performed by using the chi square test or Fisher exact test (x^2 value).

Disease-free survival analysis with Kaplan-Meier curve plots and log rank comparison was performed to compare cumulative survival between studied groups.

The power of significance (probability) was postulated as $p \geq 0.05$ for non significant comparisons, $p \leq 0.05$ for significant comparisons and $p < 0.001$ for the highly significant comparisons.

RESULTS

The results of this study show no statistical significant differences between the three groups as regard the demographic data (age, sex distribution within each group and body mass index).

It is worth noting that the body mass index for the studied patients ranged from 21.2 to 34.6 and the natal clefts for all patients in the three groups were not deep.

The operative time, started with the skin incision and ended with application of the dressings, was significantly lowest for group C patients. Group B patients also spent significantly shorter operative time than those of group A (Table 1). The hospital stay was the time needed for any individual patient from admission until discharge from the hospital. This was significantly shorter for group C than the other groups. It was also significantly shorter for group B patients than those in group A (Table 1).