Crystallized Phenol Treatment of Pilonidal Disease Improves Quality of Life

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Abstract The effects of crystallized phenol treatment of pilonidal sinus on quality of life has not been investigated before. This study aimed to compare the phenol treatment with surgical excision plus primary closure technique in terms of life quality by means of a life quality questionnaire. This is a prospective randomized clinical study. The study was conducted at Training and Teaching Hospital, Kayseri, Turkey. In total, 40 patients with pilonidal disease were randomly assigned into 2 clinically comparable groups between September 2010 and June 2011. Crystallized phenol application was done to 20 patients and surgical excision plus primary closure was done to 20 patients for the treatment of pilonidal disease. Data regarding demographic variables were recorded. To evaluate quality of life and patient

comfort all patients asked to fill the questionnaire after complete healing occurred. There was no difference between the groups in age, sex and occupation. Two of the 20 patients in the excision and primary closure group had complication of wound dehiscence and needed prolonged wound care. There was significant differences in favor of the phenol group in all terms of life quality except for complete healing time. As a first degree treatment, phenol treatment is better than the other treatment choices of pilonidal disease in terms of time off work perioperative pain, being away from school and social life. Also phenol treatment can be done without any pretreatment laboratory examination. Further studies will be needed about cost-effectivity of phenol treatment.

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Introduction

Pilonidal disease is a chronic discharging wound in the natal cleft. The estimated incidence is 26 per 1,00,000 people, and most of the patients are men aged between 20 and 30 years [1, 2]. There is no mortality report in the English literature about pilonidal disease, but there is some morbidity for pilonidal disease such as abscess formation, purulent discharge, pain, and discomfort [2, 3].

Although many surgical methods have been proposed, no clear consensus as to optimal treatment has been reported so far in the literature [4]. Surgery has been getting minimally invasive since the first surgical operation was performed. Minimally invasive surgical procedures are advantageous, as they reduce the costs, shorten the length of hospital stay,

and quicken the return to work [5]. An ideal treatment (surgical or nonsurgical) should be simple, should not need prolonged hospital stay, should have a low recurrence rate, and should be associated with minimal pain and wound care to decrease time off work.

Phenol treatment is one of the minimally invasive treatments for pilonidal disease that has not been commonly used. It is simple, inexpensive, and applicable under local anesthesia in outpatient clinics with minimal discomfort and disability [2, 6].

We aimed at comparing two techniques: the phenol treatment with surgical excision and the primary closure technique (the most commonly used techniques in our clinic) in terms of the quality of life by means of a life quality questionnaire.

For this purpose, we searched for a life quality questionnaire. SF-36 and other questionnaires were general, inadequate, and could not identify problems arising from the treatment of pilonidal disease. For this reason, we designed a questionnaire with 14 items (Table 1) containing perioperative pain assessment as well as a visual analog scale (VAS).

Patients and Methods

From September 2010 to June 2011, 40 patients were randomly assigned into two clinically comparable groups. Crystallized phenol application was performed in 20 patients, and surgical excision as well as primary closure was done in 20 patients for the treatment of pilonidal disease. Patients who had sinuses with purulent discharge and the presence of inflammatory signs or abscess formation

were considered as having acute pilonidal disease, and patients with acute pilonidal disease were excluded from the study. We prospectively recorded patient demographics; age, gender, and occupation were recorded. Informed consent was obtained from all the patients.

Phenol treatment was performed as nonsurgical treatment. The treatment procedure was performed for all patients on an outpatient basis as previously described by Doğru et al [7]. Briefly, the patient was placed in a prone position and shaved posteriorly from the waist to the mid-thigh. Sinus openings less than 3 mm in diameter were widened with local anesthesia, and hair was removed. The anus was protected with a swab or cotton wool, and the rest of the area was liberally coated with nitrofurantoin ointment (Furacin, Eczacıbaşı Ilac, Sanve Tic A.S., Istanbul, Turkey). Crystallized phenol (Botapharma Laboratories, Ankara, Turkey) was applied, by forceps, and left in situ for approximately 2 min, and it was then expressed by applying pressure. Then, the wound was closed with a gauze pack. The patients were allowed to return to their normal daily activities immediately after the procedure. The first follow-up visit took place after 10 days. If the patient's wound had no leakage, then no further procedures were undertaken. If leakage from the wound was observed, then the treatment procedure was repeated as just described. When no more leakage from the wound was observed, the treatment was terminated.

Closure of the sinus openings was accepted as healing. Recovery time was defined as the number of days from the application of phenol to the observed healing. Recurrence was defined as reappearance of the sinus and leakage after healing had been reached.

Sinus excision and primary closure was performed as surgical treatment. All patients were admitted to the hospital the day before surgery and operated under general anesthesia. The patients were placed in the prone jack-knife position on the operating table. The natal cleft was shaved just before the surgery. Excision and primary closure was carried out as recommended by Goligher [8].

Suction drains were not used in any of the patients. The patients were seen postoperative days 7 and 14 for wound inspection and the removal of sutures. When no leakage from the wound and no dehiscence signs were observed, the last dressing was detached, and this was accepted as complete healing.

To evaluate the quality of life and patient comfort, all patients were asked to fill in the questionnaire after complete healing had occurred. They were asked to complete a 10-cm long VAS that ranged from 0 cm for “no pain” to 10 cm for “the worst pain you can imagine” for their pain perception before and during the treatment. The scale was constructed with numeration, thus allowing the patients to mark a point along the scale that best represents their pain perception. Responses were documented and analyzed.

Table 1 The questionnaire to evaluate the life quality of pilonidal disease patients

1.	How many days did you stay at hospital?
2.	How many days did you keep away from your job or school?
3.	How many times did you have wound dressing?
4.	How many days did you take drugs?
5.	How many days later were you be able to sit normally?
6.	How many days later were you be able to sit on the toilet?
7.	How many days later were you be able to walk without pain?
8.	How many days later were you be able to sport?
9.	How many days later were you be able to lift heavy things?
10.	How many days later were you completely healed?
11.	How many days later did you travel?
12.	How many days were you away from sexual life?
13.	What do you think about cosmetic results? ^a
14.	Visual analog scale ^b

^a Four for maximum and 1 for minimum satisfaction

^b 0 for “no pain” to 10 for “the worst pain you can imagine”

Table 2 Patients' characteristics

Characteristics	Crystallized phenol (<i>n</i> =20)	Excision and primary closure (<i>n</i> =20)	<i>P</i> value
Age (y)	25.6 (±6.1) ^a	27.4 (±7.8)	NS
Sex (male:female)	17:3	17:3	NS
Occupation			NS
Student	8	7	NS
Worker	3	4	NS
Officer	4	3	NS
Driver	2	2	NS
Other	4	3	NS

NS not significant, ^a Mean ± SD

Statistical Analysis

All data are presented as mean ± standard deviation (SD) unless stated otherwise in the text. Continuous variables were checked for the normal distribution assumption using the Kolmogorov–Smirnov statistics. Differences among the groups were analyzed by the Student's *t*-test and the Mann–Whitney U test for continuous variables, and the chi-square test for categorical variables, as considered appropriate. A value of *P*<0.05 for the final model was considered as statistically significant. Data were analyzed using the SPSS 15.0 for Windows software (SPSS® Inc. Chicago IL).

Results

During the study time, no recurrence had occurred. Two of 20 patients in the excision and primary closure group had

complications of wound dehiscence and needed prolonged wound care.

Patients' characteristics are presented in Table 2. There was no difference between the groups in age, sex, and occupation. The clinical outcome of both treatment modalities is listed in Table 3.

There were significant differences in favor of the phenol group in terms of quality of life except for complete healing time.

Discussion

Pilonidal disease, which usually occurs in the intergluteal region, was described in 1833 by Herbert Mayo and is predominantly seen in young adults of working age [9]. The treatment for pilonidal disease is still controversial.

The treatment options for pilonidal disease include a wide spectrum of surgical methods such as incise lay open, excision with primary closure, excision with open packing, and excision with flap procedures. The nonoperative methods used for pilonidal disease include natal cleft shaving and improved perineal hygiene, laser epilation, and phenol application [1, 6, 10–12].

Quality of life is the main goal for patients with pilonidal disease; it also minimizes the time off work, deviation from normal activity, and costs [6, 11].

Ideal treatment for pilonidal disease should be simple, should not need hospitalization, should minimize financial cost to the community as well as to the patient, should not worsen the quality of life, and should be associated with a low complication rate and minimal pain [2, 3].

Table 3 The clinical outcome of both treatment modalities

	Crystallized phenol application (<i>n</i> =20)	Excision + primary closure (<i>n</i> =20)	<i>P</i> values
Hospital stay ^a	0±0	1.5±0.9	0,00001
Time off work	0.15±0.6	16.2±10,5	0,00001
Dressing count	0.95±1.3	18.2±18.7	0,005
Taking medication	0.2±0.8	10.8±7,1	0,001
Time to sitting normally	0.05±0,2	10.3±7,6	0,00001
Time to sitting on toilet	0.2±0,4	5,3±6,9	0,001
Time to walk without pain	0.05±0,2	7,9±8,9	0,00001
Time to sport	0.5±1,5	21.2±21,3	0,002
Time to lift heavy things	1±1,9	28±32,8	0,003
Time to complete healing	23,7±10,4	32,1±23,1	0,1
Time to travel	0,1±0,4	16,7±13,8	0,00002
Time to be away from sexual life	1±2,6	11,5±7	0,001
Satisfaction for cosmetic results	2,2±0,9	1,5±0,5	0,03
VAS scores during treatment	2,6±2,2	5,2±3,7	0,04

^adays. Mean ± SD

In a study evaluating the quality of life, Ertan et al report that the Limberg flap technique used in pilonidal sinus surgery is better than primary closure [4].

Aydede et al report that the excision and flap procedures seem to be successful in the large pilonidal sinus. However, in uncomplicated cases, excision and primary closure gives better results [13].

Less invasive and aggressive treatment regimens have become more popular in the treatment of pilonidal disease. Phenol application in the treatment of pilonidal disease results in a short hospital stay and less loss in work power when compared with surgical procedures. The use of phenol in the treatment of pilonidal disease has success rates that are similar to those of various other surgical procedures [14].

Gips et al reported another minimal surgical treatment for pilonidal disease. They used trephines for the excision of sinus tracts and bone curette and hydrogen peroxide for cleaning and debridement [15]. Phenol application is less invasive than this method, because there is no need for any tissue excision and cavity debridement with a curette, which is chemically done by crystallized phenol.

Doğru et al report that the success rate of crystallized phenol application is found to be 95 % [7]. In this study, crystallized phenol application can be suggested as being the first-line treatment for any type of pilonidal sinus.

In another study, Doğru et al [6] reported on recurrent pilonidal disease, stating that crystallized phenol application is a simple and inexpensive nonoperative procedure that can be performed on an outpatient basis and which has a low recurrence rate.

Phenol application is closer to the ideal treatment by application under local anesthesia in outpatient clinics with minimal comfort and disability. Furthermore, it is simple and cost-effective; however, it has not been extensively practiced [2].

Conclusion

As a first-degree treatment, phenol treatment is better than the other treatment choices of pilonidal disease in terms of time off work, perioperative pain, and being away from school and social life. In addition, phenol treatment can be done without any pretreatment laboratory examination. Further studies will be needed on the cost effectivity of phenol treatment.

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