Indian J Surg (January–February 2014) 76(1):17–20
DOI 10.1007/s12262-012-0548-y

ORIGINAL ARTICLE

The Results of a One-Time Crystallized Phenol Application for Pilonidal Sinus Disease

Mustafa Girgin · Burhan Hakan Kanat

Received: 22 February 2012 / Accepted: 4 June 2012 / Published online: 16 June 2012

Abstract The aim of this study was to investigate the cure rate after a one-time phenol application for pilonidal sinus disease. Forty-eight patients diagnosed with pilonidal sinus from May 2006 to September 2009 were retrospectively reviewed. They were all managed under the same polyclinic conditions in different hospitals by the same surgeon under local anesthesia. Crystallized phenol was applied a total of 97 times on 48 patients. The median follow-up was 22 months (range, six to 38 months). Two patients (4 %) could not participate in the follow-up. One of these patients had 12 sinuses and didn't continue treatment after eight applications of phenol, and the other had nine sinuses and didn't continue treatment after five applications of phenol. The one-time application cure rate was 64.5 %, and the rate of success was 95 % with two or more applications. Recurrence did not occur during this period. A one-time phenol application is an effective treatment for pilonidal sinus disease. Hence, it can be an alternative to surgical treatment.

Keywords Pilonidal disease · Crystallized Phenol · Treatment · Outpatient surgery

M. Girgin
Department of General Surgery, Faculty of Medicine,
Firat University,
Elazig, Turkey

B. H. Kanat (✉)
Department of General Surgery,
Elazig Training and Research Hospital,
Elazig, Turkey
e-mail: ku318@mynet.com

Introduction

In 1833, Herbert Mayo presented the case of a young woman with a hair-containing sinus in the sacrococcygeal region [1]. In 1847, Anderson [2] published a case report entitled "Hair Extracted from an Ulcer." In 1854, Warren [3] described incising a draining sacrococcygeal sinus and extracting a hair ball from it. It was Hodges in 1880 who related this disease to the presence of hair, using the term "pilonidal" from Latin *pilus* (hair) and *nidus* (nest) [4].

Pilonidal disease occurs predominantly in males at a ratio between 3:1 and 4:1. The estimated incidence is 26 per 100,000 people [5, 6]. The management of pilonidal sinus disease is frequently unsatisfactory. Many surgical and non-surgical treatment modalities have been suggested, but an ideal and widely accepted treatment has yet to be found [7]. There are a lot of conservative treatment methods, such as phenol application. Phenol treatment for pilonidal disease was first described by Maurice and Greenwood in 1964 [8] and consisted of an injection of 80 % phenol into the sinus tract. In this study, we used crystallized phenol.

The aim of this study was to evaluate the results of a single-cure, minimally invasive treatment for sacrococcygeal pilonidal sinus with crystallized phenol application.

Subjects and Methods

Forty-eight patients diagnosed with pilonidal sinus disease from May 2006 to September 2009 were retrospectively reviewed. They were all managed under the same polyclinic conditions, although in different hospitals, by the same surgeon under local anesthesia. Age, gender, number of sinus

openings, maximal distance between sinus openings, recurrences, and success rate during follow-up were analyzed.

Procedure

Patients were shaved from the waist to mid-thigh posteriorly, and they remained this way during the treatment period. The area was cleaned with povidone-iodine solution and covered with gauze. The skin and sacrococcygeal fascia along with the surrounding tissue of the main sinus and its lateral tracts were infiltrated with approximately 5 ml lidocaine (concentration 20 mg/ml) with epinephrine (concentration 0.0125 mg/ml). If the sinus opening was less than 3 mm in diameter, it was enlarged by the use of a mosquito clamp (BH-109 Aesculap®, Aescuplap Werke AG, Tutlingen, Germany) under local anesthesia. If at least one of the sinus openings was 3 mm or more in diameter, this enlargement was not performed. Following determination of the direction of the sinus, the hair was removed with the use of the same clamp. If the sinus abscess had been previously drained, the drainage opening was usually large enough to remove the hair. The sinus tract was curetted through the use of a biopsy curette (ER015R Aesculap®, Aesculap Inc, Center Valley, USA). After removal of the hair and curetting, a swab or large piece of cotton wool was used to protect the anus while the rest of the area was liberally coated with nitrofurantoin ointment (Furacin® Eczacıbası Ilaç San ve Tic A.S., Istanbul, Turkey). The phenol application was made concurrently with the abscess drainage for the treatment of the acute disease. The crystallized phenol (BotaFarma İlaç Medikal İtriyat Kimya San.Tic.Ltd.Şti, Ankara, Turkey) was put into the sinus with the aid of the same clamp where it turned into the liquid form quickly at body temperature and filled the sinus. The phenol was left in situ for approximately 2 min and then expressed by pressure. The excess was mopped away with the debris. This maneuver was repeated two or three times depending on the sinus width. The procedure was finished after closing the wound with a gauze pack. All procedures were performed with the patient in a prone position. The patients were able to return to daily activities immediately after the procedure and had their first follow-up 3 weeks later. If the patient's wound had no leakage, no further procedure was done. If leakage was observed on the wound, the same method described above was repeated. The same approach was repeated at the third and sixth weeks after the initial procedure. Closure of the orifices was accepted as a complete cure. Nonrecurrence of the same sinus and the nonappearance of a new sinus during follow-up, the treatment were considered a success. Those who were cured were recommended to return for a follow-up consultation on a yearly basis. Recurrence was classified as sinus reappearance following complete cure. Antibiotics were not used with any of the patients.

Statistical Analysis

The SPSS® 10.05 for Windows (SPSS, Inc., Chicago, IL) computer program was used for statistical analysis, which was then evaluated by the Descriptive statistics.

Results

During this period, phenol applications were performed for a total of 97 times in 48 patients. All cases had primary pilonidal disease. Forty-four (91.6 %) patients were male and four (8.4 %) patients were female. The mean age was 28.7 (standard deviation (SD) ±8.2) years, with a range of 14–45 years. Eight (16 %) sinuses were acute, and 40 (84 %) were chronic. The mean number of sinus openings was 2.5 (SD ±1), ranging from 1 to 12. There were midline orifices in 30 patients (62.5 %), and the remaining 18 patients had lateral orifices.

Two (4 %) patients could not be followed up. One of these patients had 12 sinuses and did not continue treatment after eight applications of phenol. The other patient had nine sinuses and chose not to continue treatment after five applications of phenol. Thirty-one (64.5 %) patients had one application, four patients had two, six patients had three, one patients had four, three patients had five, one patient had six, one patient had seven, and one patient had eight applications. The median follow-up for patients treated with crystallized phenol was 22 (range 6–38) months. Recurrence did not occur during this period.

Discussion

Pilonidal sinus, although usually found near the coccyx, is a condition that can also affect the navel, armpit, or other regions, but it occurs rarely in these locations [9, 10]. Pilonidal disease has been studied for a long time, and its causes are unknown [5, 11, 12]. Some authors have suggested that the pilonidal cyst is a congenital disease corresponding to remnants of the medullary canal. Others believe it results from the penetration of hair follicles into the intergluteal sulcus subcutaneous tissue which causes a foreign body reaction [13].

The discussion of the disease has not been limited to the etiology, and the treatment of pilonidal sinus still remains controversial.

The ideal approach should provide a high chance of cure with a low recurrence rate, avoid hospital admission and general anesthetic, involve minimal inconvenience and time off from work, and be cost-effective. Discussion about which treatment method is the best is still ongoing. As a result, there are many surgical and nonsurgical techniques which have

been suggested for pilonidal sinus, and one of the non-surgical techniques is crystallized phenol application [12, 14].

The ideal treatment would necessitate a minimal time off from work and a short hospital stay. Crystallized phenol application is a simple procedure that meets these requirements. Postoperative discomfort is minimal, and patients can return to work almost immediately. In our study, all patients returned to work the same day.

Another problem for determining the best treatment is the recurrence rate, with a low recurrence rate being optimal. Several studies have reported different recurrence rates. Kaymakcioglu et al. [1] studied 143 patients with sinus pilonidalis treated with 80 % phenol. They were followed up for a 24-month period, and a recurrence rate of 8.3 % (12 of 143 patients) was found. Katsoulis et al. [15] studied 25 patients with sinus pilonidalis treated with the Limberg technique. They were followed up for a 20-month time frame, and a recurrence rate of 4 % (1 of 25 patients) was found. There have been similar results in other studies [16]. In 22 months (range 6–38) of follow-up in our study, there was no recurrence. Two patients could not be followed up, and their outcomes are unknown.

The surgical procedure for pilonidal sinus disease is most often carried out under general or spinal anesthesia, with some cases occurring under local anesthesia [17]. In this study, patients underwent the procedure under local anesthesia in the outpatient clinic, and the treatment was well tolerated by all patients. The ability to apply the phenol application under local anesthesia is another important advantage of this procedure.

The complications described in the literature involving surgery for this disease are infections (30 %), noninfected collections, such as seromas or hematomas (3 %), and dehiscences of the surgical wound (6 %) [18]. The most common postoperative complications reported after phenol treatment are the development of abscesses and cellulitis [1, 19, 20]. Kayaalp et al. reported complications in 10 % of phenol application cases. One of them was a superficial skin burn due to an accidental scattering of phenol. The remaining three patients had abscesses [19]. During the treatment, if an ointment containing nitrofurantoin is used to protect around the surgical area, skin burns will be decreased. There were no complications in our study.

We provided a cure rate of 64.5 %, with a one-time application, in our study. Kayaalp et al. [19] provided a cure rate of 70 % with a one-time application. These rates are similar. Each rate is not very high, but our final success rate was 95 % with two or more applications. We believe this is significant for this treatment.

The one and only disadvantage of this technique was the need for repeated phenol applications to evoke a cure in some patients. Seventeen (35.5 %) patients required repeat applications, but this may still be preferable to more radical surgery with the risk of delayed healing and subsequent wound breakdown. In the study by Dogru et al. [9], patients underwent a follow-up every week, but we only checked the patients every 3 weeks.

The ideal operation for pilonidal sinus disease should be simple, require a short hospitalization, if any is required, and have a low recurrence rate. There should be minimal pain and wound care with a rapid return to normal activity. Finally, the treatment should be cost-effective.

In summary, the very short hospital stay and early return to work together with a cure rate of 64 % (5 % for one-time application), and a final 95 % success rate with two or more curative applications combine to make this method of treatment attractive for pilonidal sinus. Crystallized phenol is a cheap and easily accessible chemical agent that can be used for treatment of pilonidal disease in polyclinics. The cure rate of 64.5 % should not be underestimated. As a result, all patients suffering from pilonidal sinus disease should be given the opportunity of undergoing the one-time phenol application.

References

1. Kaymakcioglu N, Yagci G, Simsek A, Unlu A, Tekin OF, Cetiner S, Tufan T (2005) Treatment of pilonidal sinus by phenol application and factors affecting the recurrence. Tech Coloproctol 9:21–24
2. Anderson AW (1847) Hair extracted from an ulcer. Boston Med Surg J 36:74–76
3. Warren JM (1854) Abscess containing hair on the nates. Artı J Med Sci 28:112
4. Hodges RM (1880) Pilonidal sinüs. Boston Med Surg J 103:485–486
5. Hull TL, Wu J (2002) Pilonidal disease. Surg Clin North Am 82 (6):1169–1185
6. da Silva JH (2000) Pilonidal cyst: cause and treatment. Dis Colon Rectum 43(8):1146–1156
7. Schoeller T, Wechselberger G, Otto A, Papp C (1997) Definite surgical treatment of complicated recurrent pilonidal disease with a modified fasciocutaneous V-Y advancement flap. Surgery 121 (3):258–263
8. Maurice BA, Greenwood RK (1964) A conservative treatment of pilonidal sinus. Br J Surg 51:510–512
9. Dogru O, Camci C, Aygen E, Girgin M, Topuz O (2004) Pilonidal sinus treated with crystallized phenol: an eight-year experience. Dis Colon Rectum 47:1934–1938
10. Meher R, Sethi A, Sareen D, Bansal R (2006) Pilonidal sinus of the neck. J Laryngol Otol 120:5
11. Ferdinand RD, Scott DJ, McLean NR (1997) Pilonidal cyst of the breast. Br J Surg 84:784
12. Thomas D (2002) Comparison of three methods in surgical treatment of pilonidal disease. ANZ J Surg 72(7):528
13. Kapan M, Kapan S, Pekmezci S, Durgun V (2002) Sacrococcygeal pilonidal sinus disease with Limberg flap repair. Tech Coloproctol 6(1):27–32
14. McGuinness JG, Winter DC, OConnell PR (2003) Vacuum-assisted closure of a complex pilonidal sinus. Dis Colon Rectum 46(2):274–276

15. Katsoulis IE, Hibberts F, Carapeti EA (2006) Outcome of treatment of primary and recurrent pilonidal sinuses with the Limberg flap. Surgeon 4(1):7–10
16. Aslam MN, Shoaib S, Choudhry AM (2009) Use of lımberg flap for pılonıdal sınus—a vıable option. J Ayub Med Coll Abbottabad 21(4):31–33
17. Abdel-razek ESM (2006) Cleft lift operation for recurrent pilonidal sinus repair; two years experience. Egypt J Plast Reconstr Surg 30 (1):7–11
18. Liboni NS, Fregnani CHTG (2007) Preliminary results from 28 cases of pilonidal cyst treated by excision and primary closure of the wound, reinforced with support suturing. Einstein 5(2):148–152
19. Kayaalp C, Olmez A, Aydin C, Piskin T, Kahraman L (2010) Investigation of a one-time phenol application for pilonidal disease. Med Princ Pract 19(3):212–215
20. Kelly SB, Graham WJ (1989) Treatment of pilonidal sinus by phenol injection. Ulster Med J 58:56–59