

Crystallized phenol treatment is less effective in patients with recurrent pilonidal disease after surgery compared to patients with primary pilonidal disease

Mehmet Eren Yuksel

Ankara Yildirim Beyazit University, Faculty of Medicine, Intensive Care Unit, Ankara, Turkey

Copyright © 2020 by authors and Annals of Medical Research Publishing Inc.

Abstract

Aim: Primary pilonidal disease can be treated with crystallized phenol with an overall cure rate of 80%. However, the effect of crystallized phenol in patients who had recurrence after pilonidal disease surgery has not been analyzed in the English medical literature in detail yet. The purpose of this study was to investigate the effect of crystallized phenol in recurrent pilonidal disease.

Material and Methods: 28 male and 10 female patients who had recurrence after surgical intervention to treat pilonidal disease were evaluated. Twenty male and 8 female patients underwent excision and primary closure surgery, whereas 8 male patients and 2 female patients underwent modified Limberg flap surgery. All of these 38 patients were treated with one-time application of crystallized phenol.

Results: The mean period for recurrence of patients treated with single application of crystallized phenol after primary excision and primary closure surgery was 45.85 ± 11.82 days (range: 35-90 days) and it was 66.5 ± 25.31 days (range: 40-120 days) after modified Limberg flap surgery. The follow-up period was 6 months. The cure rate in recurrent excision and primary closure group was 57.14%, whereas the cure rate in the recurrent modified Limberg flap group was 40%. Overall cure rate was 52.63%.

Conclusion: As a result, crystallized phenol treatment was less effective in patients who had recurrence after pilonidal disease surgery in comparison to patients who were only treated with crystallized phenol without prior surgical intervention.

Keywords: Crystallized phenol; pilonidal disease; recurrence

INTRODUCTION

Pilonidal disease is a condition related to the presence of hair in the gluteal cleft (1). Trapped hairs in the intergluteal sulcus cause foreign body reaction, thus this reaction causes the formation of pits with persistent drainage and subcutaneous tracts. In pilonidal disease, the underlying cavity communicates with the overlying skin through sinuses (2). Therefore, crystallized phenol is used as a chemical debridement agent in order to treat pilonidal disease. Crystallized phenol particles are meticulously introduced into the pilonidal cavity through pilonidal pits. The chemical burn induced by crystallized phenol leads to the disruption of both pilonidal cavity and existing sinus tracts.

Kayaalp et al. published a review of phenol treatment in sacrococcygeal pilonidal disease in 2009 (3). Overall success rate with phenol treatment was $87 \pm 10\%$ with

a mean follow-up of 2.0 ± 1.1 years. Kayaalp et al. also investigated one-time phenol application for pilonidal disease. The overall success rate was 70% (3). Emiroglu et al. published a review article in 2017, and they reported that the overall success rate of phenol application was between 62-95% (4). Our six-month follow-up of fifty patients treated with crystallized phenol revealed 88% overall cure rate for pilonidal disease (5). However, two-year follow up of these fifty patients revealed 80% overall cure rate.

Treatment of pilonidal disease with crystallized phenol is a minimally invasive technique. Short operation and recovery time makes this technique superior to other surgical techniques. Moreover, post-operative cosmetic results are excellent. Therefore, application of crystallized phenol for the treatment of pilonidal disease is a good alternative to surgical methods such as primary

Received: 08.11.2019 **Accepted:** 17.12.2019 **Available online:** 10.03.2020

Corresponding Author: Mehmet Eren Yuksel, Ankara Yildirim Beyazit University, Faculty of Medicine, Intensive Care Unit, Ankara, Turkey **E-mail:** doctormehmeteren@yahoo.com

excision and Limberg flap technique. However, the number of publications in the English medical literature investigating the effect of crystallized phenol in patients who had recurrence after pilonidal disease surgery is limited. Therefore, we would like to share the outcomes of our patients who were treated with crystallized phenol because of recurrence after having surgery for pilonidal disease.

MATERIAL and METHODS

Between January 2015 and January 2019, 28 male and 10 female patients who had surgery for the treatment of pilonidal disease were evaluated. Local ethics committee approval was obtained (Approval number: 2019/03-31). All the patients with complete records were included in the study to prevent selection bias. Twenty male and 8 female patients underwent excision and primary closure surgery, whereas 8 male patients and 2 female patients underwent modified Limberg flap surgery (Figure 1).



A 30-year-old Caucasian male patient who had a previous modified Limberg flap surgery was admitted to our surgery clinic after recurrence. Two pilonidal pit orifices were clearly visible in the intergluteal sulcus. The patient was treated with one-time application of crystallized phenol. The closure of pilonidal sinus openings without any leakage was accepted as healing. Unfortunately, the patient had again pilonidal disease recurrence after wound site infection

Figure 1. Recurrence after modified Limberg flap surgery

The mean age of the patients was 29.2 ± 5.2 (range: 22–40). The mean period for recurrence after primary excision and primary closure surgery was 45.85 ± 11.82 days (range: 35–90 days). The mean time interval for recurrence after modified Limberg flap surgery was 66.5 ± 25.31 days (range: 40–120 days). All of the patients were treated with one-time application of crystallized phenol as described previously by Yuksel(5). Hair was gently removed from the pilonidal pits with a mosquito clamp. Afterwards, the pilonidal orifices were gently filled with crystallized phenol (Phenol, Emprove®, Merck, Darmstadt, Germany). The

closure of pilonidal orifices without any discharge after one-time application of crystallized phenol was accepted as healing. Recurrence of pilonidal disease was defined as discharge from pilonidal pits and non-healing wound that required surgical intervention after 30 days from the application of crystallized phenol (6).

RESULTS

In addition to 12 male patients and 4 female patients who had previous excision and primary closure surgery, 4 male patients who had recurrence after modified Limberg flap surgery healed completely after the treatment with crystallized phenol. The mean postoperative healing time was 35 days (range: 30 to 60 days). The follow-up period was 6 months. The cure rate in recurrent excision and primary closure group was 57.14%, whereas the cure rate in the recurrent modified Limberg flap group was 40%. Overall cure rate was 52.63% (Table 1).

Table 1. Results of one-time application of crystallized phenol in patients with recurrent pilonidal disease

Number of patients	28	10
Sex	(20 male, 8 female)	(8 male, 2 female)
Previous surgical treatment	Excision and primary closure	Modified Limberg flap
Mean recurrence period	45.85 ± 11.82 days (range: 35–90 days)	66.5 ± 25.31 days (range: 40–120 days)
Cure rate with crystallized phenol	57.14%	40%
Overall cure rate	52.63%	
Mean healing time	42.02 ± 9.08 days (range: 30 to 60 days)	

Crystallized phenol was applied to 28 patients (20 male, 8 female) with recurrent pilonidal disease who had previous excision and primary closure surgery. Mean recurrence period after surgery was 45.85 ± 11.82 days (range: 35–90 days). The cure rate with one-time application of crystallized phenol in excision and primary closure group was 57.14%. Moreover, crystallized phenol was administered to 10 patients (8 male, 2 female) with recurrent pilonidal disease who were previously treated with modified Limberg flap surgery. Mean recurrence period after modified Limberg flap surgery was 66.5 ± 25.31 days (range: 40–120 days). The cure rate with one-time application of crystallized phenol in modified Limberg flap surgery group was 40%. However, overall cure rate was 52.63%. Mean healing time after the application of crystallized phenol was 42.02 ± 9.08 days (range: 30 to 60 days)

DISCUSSION

The American Society of Colon and Rectal Surgeons' clinical practice guidelines for the management of pilonidal disease stated that phenol application was an effective treatment in patients with acute or chronic pilonidal disease without abscess (1). This strong recommendation was based on moderate-quality evidence. However, management of recurrent pilonidal disease lacked of a

single optimal treatment strategy. Whether crystallized phenol treatment in recurrent pilonidal disease is effective as it is in primary pilonidal disease is debatable.

Bascom et al. claimed that the source of pilonidal disease was not the deep tissue but rather the epidermis in the moist, hypoxic, and bacteria-laden gluteal cleft. Therefore, Bascom et al. proposed that simple non-operative treatment options would be effective in the initial treatment of pilonidal disease (7). Moreover, Doll et al. reported that 20% recurrence rate was observed in patients who had surgery for the treatment of pilonidal disease (8). Therefore, crystallized phenol treatment could be an alternative to other surgical interventions both for primary and recurrent pilonidal disease.

Aygen et al. reported that 36 patients with recurrent pilonidal disease were treated with crystallized phenol. The mean number of phenol applications per patient was 3.7 ± 1.3 (range: 1-7). The overall success rate was 91.7% (9). This overall cure rate was even higher than our 80% overall cure rate achieved after the treatment of primary pilonidal disease cases treated with crystallized phenol. High treatment success rate of Aygen et al. might be related to the number of repetitive administration of crystallized phenol into the pilonidal pits until complete healing occurred.

The number of sessions to administer crystallized phenol might be directly proportional to the treatment success rate. As the dissection area under Limberg flap is large, crystallized phenol may be applied several times in recurrent cases. Therefore, one-time application of crystallized phenol might be the reason of overall 47.37% treatment failure rate in recurrent pilonidal disease.

Surgical interventions such as excision plus primary closure and modified Limberg flap depend on the resection of the pilonidal cavity with all visible pilonidal pits. However, disruption of the tracts between the skin and the pilonidal cavity during surgical intervention may be the reason of high treatment failure rate after crystallized phenol treatment. A cut-off in the course of a pilonidal sinus tract after surgical intervention hinders the outreaching of crystallized phenol to the deepest part of the sinus. Therefore, crystallized phenol may not be effective in the treatment of recurrent pilonidal disease. However, the sinus tracts are morphologically intact in not previously operated primary pilonidal disease patients. Thus, crystallized phenol may easily reach out to the deepest parts of the pilonidal tracts. This hypothesis might explain the difference between the overall treatment success rates 80% and 52.63% of primary and recurrent pilonidal disease treated with crystallized phenol, respectively.

CONCLUSION

In conclusion, crystallized phenol treatment is less effective in patients who had recurrence after pilonidal disease surgery compared to patients who are only treated with crystallized phenol without prior surgical intervention. The 52.63% overall cure rate achieved with one-time application of crystallized phenol in patients who had recurrence after pilonidal disease surgery is below satisfaction. Therefore, the patients who prefer minimally invasive crystallized phenol technique rather than surgical intervention for recurrent pilonidal disease should be firstly informed in detail regarding high treatment failure rate. Other available off-midline treatment options such as Karydakis flap and cleft lift technique should also be discussed with patients who have recurrent pilonidal disease.

Financial Disclosure: There are no financial supports.

Ethical approval: Local ethics committee approval was obtained (Approval number: 2019/03-31).

Mehmet Eren Yuksel ORCID:0000-0002-7110-0717

REFERENCES

1. Johnson EK, Vogel JD, Cowan ML et al. The American Society of Colon and Rectal Surgeons' clinical practice guidelines for the management of pilonidal disease. *Dis Colon Rectum* 2019;62:146-57.
2. Kober MM, Alapati U, Khachemoune A. Treatment options for pilonidal sinus. *Cutis* 2018;102:23-9.
3. Kayaalp C, Aydin C. Review of phenol treatment in sacrococcygeal pilonidal disease. *Tech Coloproctol* 2009;13:189-93.
4. Emiroglu M, Karaali C, Esin H, et al. Treatment of pilonidal disease by phenol application. *Turk J Surg* 2017;33:5-9.
5. Yuksel ME. Pilonidal sinus disease can be treated with crystallized phenol using a simple three-step technique. *Acta Dermatovenerol Alp Pannonica Adriat* 2017;26:15-7.
6. Halleran DR, Lopez JJ, Lawrence AE, et al. Recurrence of pilonidal disease: our best is not good enough. *J Surg Res* 2018;232:430-6.
7. Bascom J, Bascom T. Failed pilonidal surgery: new paradigm and new operation leading to cures. *Arch Surg* 2002;137:1146-50.
8. Doll D, Krueger CM, Schrank S, et al. Timeline of recurrence after primary and secondary pilonidal sinus surgery. *Dis Colon Rectum* 2007;50:1928-34.
9. Aygen E, Arslan K, Dogru O, et al. Crystallized phenol in nonoperative treatment of previously operated, recurrent pilonidal disease. *Dis Colon Rectum* 2010;53:932-5.