



Comparative Analysis of Two Different Treatment Methods in Pilonidal Sinus Disease in Childhood: Phenol and Surgical Excision

Çocukluk Çağı Pilonidal Sinüs Hastalığında İki Farklı Tedavi Yönteminin Karşılaştırmalı Analizi: Fenol ve Cerrahi Eksizyon

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Abstract

Pilonidal sinus disease (PSD) is a common infectious and chronic inflammatory problem in the pediatric age group with no precise incidence data. PSD is more common in the pediatric age group between the ages of 15-17 due to rush routine educational activities in this age group, such as university entrance examinations. It is essential to early back to the daily routine, which the patient and parent highly desire, after treatment in PSD. This study was performed between December 2016 and March 2020. The files of 152 pediatric patients treated for PSD were analyzed retrospectively. The study group included 96 boys (63.2%) and 56 girls (36.8%). Eighty-five patients (55.9%) underwent phenol application, 41 (27.0%) underwent surgery, and 26 (17.1%) children underwent multiple procedures. The mean age of the patients was 16.2±1.39 years. The mean follow-up time was 21.6±12.2 months, and the mean body mass index (BMI) was 25.2±4.4 kg/m². In the phenol group, the mean age was 16.3±1.2 years, the mean follow-up time was 17.3±9.55 months, and the mean BMI was 24.6±4.31 kg/m². In the surgical group, the mean age was 16.0±1.74 years, the follow-up time was 35.6±3.82 months, and the mean BMI was 25.6±4.66 kg/m². The patients' demographic data were gathered age, gender, BMI, type of procedure, number of applications, follow-up, complications, recurrence rate, and postoperative complication. Phenol application has essential advantages over surgical procedures in treating PSD, such as simple application, short hospitalization, cost-effectiveness, and low complication rates. To sum up, the phenol procedure is a straightforward treatment method that reduces complication rates and provides an early return to ordinary life.

Keywords: Children, Phenol, Pilonidal sinus, Treatment.

Özet

Pilonidal sinüs hastalığı (PSH), pediatrik yaş grubunda sık görülen, kesin insidans verisi olmayan enfeksiyöz ve kronik inflamatuvar bir problemdir. PSH, 15-17 yaş arasındaki pediatrik yaş grubunda, bu yaş grubundaki üniversite giriş sınavları gibi rutin eğitim faaliyetlerinin yoğun olması nedeniyle daha sık görülür. PSH'de tedaviden sonra günlük rutine erken dönmek önemlidir, ki bu hasta ve ebeveynin çok istediği bir durumdur. Bu çalışma Aralık 2016 ile Mart 2020 tarihleri arasında gerçekleştirilmiştir. PSH ile tedavi edilen 152 pediatrik hastanın dosyaları retrospektif olarak incelendi. Çalışma grubuna 96 erkek (%63.2) ve 56 kız (%36.8) dahil edildi. Seksen beş hastaya (%55.9) fenol uygulaması, 41 (%27.0) hastaya ve 26 (%17.1) çocuğa birden fazla işlem uygulandı. Hastaların yaş ortalaması 16.2±1.39 yıldır. Ortalama takip süresi

21.6±12.2 ay, ortalama vücut kitle indeksi (VKİ) 25.2±4.4 kg/m² idi. Fenol grubunda yaş ortalaması 16.3±1.2 yıl, ortalama takip süresi 17.3±9.55 ay ve ortalama VKİ 24.6±4.31 kg/m² idi. Cerrahi grupta yaş ortalaması 16.0±1.74 yıl, takip süresi 35.6±3.82 ay ve ortalama VKİ 25.6±4.66 kg/m² idi. Hastaların demografik verileri yaş, cinsiyet, VKİ, işlem tipi, uygulama sayısı, takip, komplikasyonlar, nüks oranı ve postoperatif komplikasyon olarak toplandı. Fenol uygulaması, PSH tedavisinde cerrahi prosedürlere göre basit uygulama, kısa hastanede yatış, maliyet etkinliği ve düşük komplikasyon oranları gibi önemli avantajlara sahiptir. Özetlemek gerekirse, fenol prosedürü komplikasyon oranlarını azaltan ve normal hayata erken dönüş sağlayan basit bir tedavi yöntemidir.

Anahtar Kelimeler: Çocuk, Fenol, Pilonidal sinüs, Tedavi.

Introduction

The term "pilonidal" comes from the Latin words "pilus" (hair) and "nidus" (nest) [1]. Pilonidal sinus disease (PSD) that mainly affects teenagers and young adults with higher incidence in boys is a common infectious and chronic inflammatory problem in the pediatric age group, with no precise incidence data [2,3]. The pediatric incidence is estimated as %0.26 approximately [3,4].

The management of the PSD has remained controversial [5,6]. Several therapeutic techniques have been described, from minimally invasive approaches to gross surgical resection techniques with or without flaps were used with similar success rates for PSD [7-9]. In the pathogenesis, factors such as obesity, hairy body structure, poor hygiene, local irritation, a sedentary lifestyle, and prolonged sitting times have been described as causative factors and the most common reasons for applying to the outpatient clinic due to pilonidal sinus disease can be listed as pain and/or discharge and/or abscess while sitting [3,4,7,10,11]. Pilonidal sinus disease is most commonly seen in the sacrococcygeal region, but it can be seen in any area where there is hair, such as the navel or over the sternum [1,12]. PSD is more common in the pediatric age group between the ages of 15-17 due to rush routine educational activities in this age group, such as university entrance examinations. It is essential to early back to the daily routine, which the patient and parent highly desire, after treatment in PSD [13]. There are many treatment methods for pilonidal sinus disease. This is because the ideal treatment method is still not clear. There are many factors that affect the failure of pilonidal sinus disease treatment [3,4,7,10,11]. In this study, we aimed to compare the results of two

different treatment methods in childhood pilonidal sinus disease.

Material and Method

After detailed information about the treatment options (phenol and surgical excision), informed consent was taken from the patients according to the patient decision on procedure choice. The study was designed according to the Declaration of Helsinki and was approved by the hospital Ethics Committee (26.05.2020/46418926-2020-135).

The files of 152 children admitted to our clinic between December 2016 and April 2020 due to pilonidal sinus disease were retrospectively reviewed. The patients were divided into the phenol and surgical excision group. Twenty-six patients (17.1%) who needed multiple procedures (phenol+surgical excision) were excluded from the study. The patients were informed of these two treatment methods in all facets, and the parents chose the procedure. The patients' demographic data were gathered age, gender, body mass index (BMI), type of procedure, number of applications, follow-up, complications, recurrence rate, and postoperative complication.

Surgical technique

In the prone position, phenol application and surgical excision were performed in the operating room under sterile anesthesia. Before the procedure, the area was shaved with a clipper, and a single prophylactic intravenous antibiotic (cefazolin sodium 25mg/kg) was administered.

Phenol application; the sinus opening was enlarged with a clamp, and its contents were evacuated. The mucosa was gently curetted with a thin curette through the sinus opening. In case of bleeding during this procedure, it was

controlled by pressure or rarely electrocautery. Nitrofurazone (Furacin 0.2%, Zentiva, Türkiye) was applied to the skin around the sinus opening before phenol (Crystal Phenol 99.9%, Galenik, Ankara, Türkiye) application to prevent skin burns. The pilonidal sinus cavity was filled with crystal phenol as much as possible. Phenol overflowing from the hole was removed by absorbing the sponge. The process was terminated by dressing with nitrofurazone.

Excision and primary closure technique; after preparing and sterile draping of the surgical area, a fusiform incision was performed. The sinus and surrounding healthy tissue were excised; en-bloc up to the presacral fascia. The incision was closed with prolene sutures by interrupted fashion sutures.

Statistical analysis

Data in continuous variables; "mean \pm standard deviation" and median (minimum-maximum) values. The Shapiro-Wilk test evaluated whether the variables were distributed normally or not, and the Levene test assessed the homogeneity of the variances. When parametric assumptions were comfortable, ANOVA was used, and Bonferroni correction was applied in post-Hoc binary comparisons. In categorical variables, the data is; summarized in percentages. In comparing two groups independent in terms of a categorical variable, the Chi-square test or Fisher Exact test was applied by evaluating their assumptions.

Results

The study was performed between December 2016 and March 2020. The files of 152 pediatric patients treated for PSD were analyzed retrospectively. The study group included 96 boys (63.2%) and 56 girls (36.8%). Eighty-five patients (55.9%) underwent phenol application, 41 (27.0%) underwent surgery, and 26 (17.1%) children underwent multiple procedures. The mean age of the patients was 16.2 ± 1.39 years. The mean follow-up time was 21.6 ± 12.2 months, and the mean BMI was 25.2 ± 4.4 kg/m². In the phenol group, the mean age was 16.3 ± 1.2 years, the mean follow-up time was 17.3 ± 9.55 months, and the mean BMI was 24.6 ± 4.31 kg/m². In the surgical group, the mean age was 16.0 ± 1.74

years, the follow-up time was 35.6 ± 3.82 months, and the mean BMI was 25.6 ± 4.66 kg/m². Seventy-five (88.2%) of 85 patients who applied crystal phenol did not require further intervention after the first procedure. Five patients (5.9%) needed two phenol applications, two patients (2.4%) needed three phenol application required, and an open surgical excision procedure after phenol application was three (3.5%) of 85 patients.

While painkillers were used for the first five days after open surgery, painkillers were no longer needed after the first day after phenol. While the return to school time in open surgery is 30 ± 7 days, it is 5 ± 3 after phenol. Postoperative hospital stay was 4 hours in the phenol group and 1.4 days (1-8 days) in the surgical group.

There was no statistically significant difference between patient groups in terms of age. There was a statistically significant difference between BMI, follow-up duration, and length of stay between the groups. Of these, when the advanced test of the hospitalization time (post-hoc) was performed, it was seen that the group that underwent "phenol" was statistically shorter ($p < 0.001$) than the group that underwent multiple procedures. There was also a significant statistical difference in the follow-up period. The follow-up period of the group that underwent surgical excision was statistically significantly longer than the other two groups ($p < 0.001$). Regardless of the separation of groups, a statistically significant relationship existed between high BMI and prolonged length of stay ($p = 0.047$). A statistically significant inverse correlation was observed between the age and BMI of the patients ($p = 0.044$). There was a substantial difference between the BMI of the group that applied phenol and the group that underwent multiple procedures. The BMI of the group that used phenol was statistically significantly lower.

Discussion

PSD has different ways of surgical treatment, such as drainage, flap procedures, and etc. The most successful way of treatment of PSD is which provides low recurrence and low complications and reduces hospital payments and the time in

the hospital before discharge [14]. The biggest problem in the treatment of pilonidal sinus is relapse, and the success or failure of PSD treatment is mainly associated with wound healing and the degree of inflammation [5]. A systematic review of the current pilonidal disease literature reported that recurrence after treatment after traditional surgical excision was higher than in minimally invasive procedures [9].

When the literature is examined, it has been reported that PSD is more common among 15-30 years of age [6]. Our study's 10-18 age range (mean 16.2) was consistent with the literature. In the literature the male-female ratio reported as 3/4 to 1 [6,15], and 3 to 1.7 in our study. In the literature, when evaluated in terms of BMI, there was no difference between men and women, and no difference was detected in our study [1]. The literature reports postoperative infection in 1.5% and secondary bleeding in 0.2%, as postoperative complications [3,16]. Remarkably, no bleeding or infection was observed in postoperative follow-ups. In our research, the most striking problems were the burning of normal healthy skin due to phenol in 8 patients and the closure of the room due to the dispersion of phenol in the operating room due to the fall of phenol to the ground.

The literature states that abscesses are seen in 9% of postoperative patients [6]. In the process of widening the sinus mouth we performed, no abscess was observed except for two patients. In the literature, while the recurrence rate in pediatric patients was 1.6 at 30 months of follow-up, it was stated that the recurrence rate after ten years was 16.2% when late recurrence was examined [3,16]. In our 17-month follow-up, the recurrence rate was 3.5% (3

patients), and our follow-up for long-term results continues. As our study results indicate, less invasive treatment options have been getting more popular than others. Phenol application has essential advantages over surgical procedures in treating PSD, such as simple application, short hospitalization, cost-effectiveness, and low complication rates.

Phenol application was described in 1964 as a simple procedure in the conservative treatment of the pilonidal sinus [15]. Afterward, the application technique and the material were modified to reach the optimum success rate. Although the method is simple and cost-effective, it has yet to be implemented extensively. The logic of phenolization in the pilonidal sinus is that the sinus can successfully heal by destroying the epithelium of the sinus tract and removing buried hair. Multiple sinus patency is not an obstacle to the procedure. However, there has yet to be a consensus on the definition of the success or failure of phenol therapy for pilonidal disease. The literature reported the success rate as 59-95% [9]. There is high success in the Limberg flap procedure. However, the most important disadvantages are that the procedure cannot be performed under outpatient conditions, and hospitalization is required afterward. In our study, phenol is easier to apply, has a low recurrence rate (67% success rate), and prevents patients from open surgery.

Conclusion

To sum up, the phenol procedure is a straightforward treatment method that reduces complication rates and provides an early return to ordinary life.

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