



Cost effectiveness of routine pathological evaluation in sacrococcygeal pilonidal sinus specimens

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Received: 24.02.2024

Accepted/Published Online: 09.05.2024

Final Version: 30.09.2024

Abstract

Pilonidal sinus is a benign pathology that occurs especially in the sacrococcygeal region. Routine specimen examination is controversial because malignancy is very rare in histopathological examination. In this study, we aimed to discuss the pathological findings of patients who were operated for sacrococcygeal pilonidal sinus in our clinic in the light of the literature. Between May 2019 and December 2022, 257 patients who were operated on with the diagnosis of pilonidal sinus at the Samsun Training and Research Hospital General Surgery Clinic were retrospectively analyzed and included in the study. In the histopathological examination, it was reported that pilonidal sinus was found in 115 patients, chronic active inflammation in 79 patients, foreign body type inflammatory event in 60 patients, epidermal cyst in 1 patient, fibrolipoma in 1 patient, and Hidraadenitis Suppurativa in 1 patient. In some recent studies, histopathological examination should be performed in patients over 50 years of age. Malignant pathology is mostly seen in males and squamous cell carcinoma was seen in 76 of these patients and epidermoid carcinoma, basal cell carcinoma and malignant degeneration were seen in the others. Although our average age is low, our male / female ratio was found close to the literature. None of our pathology results were malignant. Pathologic examination of specimens removed in operation requires a certain workload and cost. We think that pathological examination is not required in every patient and that it is more effective in terms of both cost and workload to select the patients to be examined according to characteristics such as advanced age, chronic inflammation, suspicion of macroscopic malignancy and recurrent disease.

Keywords: pilonidal sinus, cost effectivity, clinical pathology, pathology

1. Introduction

Pilonidal sinus is a benign pathology that mainly occurs in the sacrococcygeal region. It commonly leads to abscess, sinus tract formation, and cellulitis. Risk factors for pilonidal sinus include male gender, obesity, and a high hair density (1). While pilonidal sinus is mostly observed after the second decade of life, it is rare after the fifth decade (2). Various treatment methods are available, including phenol application, simple incision and drainage, excision, unroofing, surgical flap advancement, cleft lift procedure, and Limberg flap (3). The routine examination of surgical specimens for malignancy is controversial due to the rarity of malignant diagnoses in histopathological evaluations (4-6).

Minimal invasive approaches have been successfully employed in the treatment of pilonidal sinus. Current approaches include the use of silver nitrate, phenol, and laser for the destruction of the cavity after hair removal (7-9). The safe use of these contemporary techniques, which do not involve tissue removal, raises questions about the necessity of histopathological examination. In this study, we aimed to discuss the pathological findings of patients who underwent surgery for sacrococcygeal pilonidal sinus in our clinic, based

on the literature.

2. Materials and Methods

Between May 2019 and December 2022, a total of 257 patients who underwent pilonidal sinus surgery at a 3rd level education and research hospital were retrospectively analyzed and included in the study. All pilonidal sinus specimens were sent to the pathology department for histopathological examination due to medicolegal reasons. Patients with pilonidal sinuses outside the sacrococcygeal region and those who underwent minimal invasive treatment without undergoing histopathological examination were excluded from the study. The demographic data, age, gender, pathology results, and costs of the patients were analyzed using the hospital system. The average duration of pathological examination was calculated by consulting the relevant department.

3. Results

Of the 257 patients in the study, 209 (81%) were male and 48 (19%) were female. The average age was determined to be 26.5 (14-68) years (Table 1). In the analysis of histopathological results, the histopathological examination of 115 (44%) patients resulted in a diagnosis of pilonidal sinus. Among these

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patients, 93 were male and 22 were female. Furthermore, chronic active inflammation was observed in 79 (30%) patients, with 61 males and 18 females. Sixty (23%) patients had inflammatory reactions associated with foreign bodies, with 53 males and 7 females. One patient had an epidermal cyst, one had fibrolipoma, and one had hidradenitis suppurativa. The patient reported as fibrolipoma was female, while the other two were males. The average cost of pathological examination per specimen was calculated as 170 TL, and the average examination duration from macroscopic examination to reporting was 60 minutes (Table 2).

Table 1. Demographic and clinicopathological characteristics of patients with pilonidal sinus

	n=257
Age (mean± SD) (year)	26.60±8.93
Gender (%)	
Male	209 (81.3)
Female	48 (18.7)
	5 (1.9)
Pathology	
Benign	257 (100)
Malignant	0
Age Distribution (%)	
15-20	68 (26.5)
21-30	118 (45.9)
31-40	51 (19.9)
41-50	14 (5.4)
51-60	5 (1.9)
>60	1 (0.4)

Table 2. Detailed classification of histopathological results

Histopathology	Female	Male	n (%)
Benign findings			
Pilonidal sinus	22	93	115(44.7)
Chronic active inflammation	18	61	79(30.7)
Foreign body type inflammatory event	7	53	60(23.4)
Epidermal cyst	0	1	1(0.4)
Fibrolipoma	1	0	1(0.4)
Hidradenitis suppurativa	0	1	1(0.4)
Malignant findings (%)			0 (0)

4. Discussion

Pilonidal sinus can lead to abscesses, cellulitis, and occasionally recurrent cases, and it can rarely result in malignancy (0.1%) (10). Treatment options range from conventional surgery to minimally invasive surgery, and in contemporary minimally invasive treatment modalities, sending the specimen for histopathological examination has started to be eliminated from routine practice. Among minimal invasive treatments, phenol application is particularly

recommended in current approaches. Some studies have reported success rates of pilonidal sinus treatment with phenol between 70% and 95% (11-12). Pit excision, cavity destruction, and laser ablation are also minimal invasive methods, and studies have shown that the success rates of laser ablation are 80-90% higher than pit excision (13). Procedures using minimal invasive methods can be performed quickly under local anesthesia, and they are completed within a short period. The main advantage is that the procedure is minimally invasive, and the cavity is destroyed rapidly. However, the inability to obtain an intact specimen for pathological examination raises theoretical concerns about the possibility of missing certain malignancies.

In most centers today, surgical specimens of pilonidal sinus operations are still sent for histopathological examination. Some studies suggest that this examination is unnecessary and that histopathological examination in patients over the age of 50 is sufficient (4-5). The average age of the 86 pilonidal sinus patients reported with malignancy in the literature is 55.3, and they are mostly encountered in male patients. The male-to-female ratio in malignancy is reported as 4.7/1. Squamous cell carcinoma was observed in 76 of these patients, while others had epidermoid carcinoma, basal cell carcinoma, and malignant degeneration (14-15). In our study, the average age of the 257 patients operated on was 26.5 (14-68) years, and the male-to-female ratio was 4.35/1. Although our average age was low, our male-to-female ratio was similar to the literature. Similarly, in line with the literature, none of our patients were diagnosed with malignancy in histopathological examination. In our study, due to the majority of the analyzed time period coinciding with the Covid-19 pandemic, the case series was limited. However, it was observed that routine pathological examination incurred a total cost of approximately 43,700 TL and required approximately 257 hours of time investment.

Until recently, surgical specimens of every pilonidal sinus case were routinely examined, but the literature reports low malignancy rates. Although our findings are limited to a small patient group and based on a short follow-up period, we believe that routine pathological examination could seem to impose an additional workload and cost. Therefore, except for advanced age, prolonged duration of the disease, macroscopic suspicion, and recurrent cases, we believe that pathological examination is unnecessary.

Conflict of interest

All authors of this article declare no conflict of interest.

Funding

None to declare.

Acknowledgments

None to declare.

Authors' contributions

Concept: M.A.A., Design: M.A.A., Data Collection or Processing: C.A., Analysis or Interpretation: C.A., Literature

Search: C.A., Writing: C.A., M.A.A., O.F.B.

Ethical Statement

This study was conducted with the approval of Samsun University Faculty of Medicine ethics committee (Protocol number: SÜKA EK-2023 15/5, approval date:23.08.2023)

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