



## Is a pathological assessment required following pilonidal sinus surgery? 10-year retrospective analysis

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### Research Article

#### History

Received: 11/11/2022

Accepted: 19/12/2023

#### ABSTRACT

Pilonidal sinus is most often seen in men between the ages of 15-30. It is regarded as a benign condition that most frequently affects the sacrococcygeal area. However, malignant degeneration can occur at a rate of 0.1%. Malignant degeneration patients tend to be older than 50, untreated for a long time, or to have relapsed frequently. Squamous cell carcinoma (SCC) is the most frequent type of cancer to appear on the pilonidal sinus's base. The first course of treatment is surgery. After surgery, local recurrence rates have been estimated at 40%. Adjuvant radiotherapy or chemoradiotherapy has an effect in reducing recurrence. In this study, we looked at the frequency of cancer and potential risks as well as the value of routine pathological evaluation in patients who underwent pilonidal sinus surgery in our clinic during a ten-year period.

We performed a retrospective analysis of 1070 patients who underwent pilonidal sinus surgery at the Recep Tayyip Erdogan University Training and Research Hospital between January 2012 and June 2022.

After a retrospective analysis of 1070 cases, 0.18% (n=2) of them had a malignancy developed on the basis of the pilonidal sinus, and the pathological result of both patients was reported as SCC. Additionally, one patient had histology that revealed tissue from the pilonidal sinus with a high Ki-67 index and significant mitotic activity. The mean age of the two patients with malignancy was 51. Patients with cancer were found to have complained for approximately 20 years. The patient with high Ki-67 index and mitotic activity was 60 years old, and had complaints for about 10-11 years.

Pilonidal sinus has a risk of malignancy in patients with long-term existence, multiple recurrences, and those over 50 years of age. Despite the low rates of malignancy in the pilonidal sinus or the advanced age and long-term disease of the patients with malignancy risk, we advocate pathological examination of all specimens.

Keywords: Pilonidal sinus, malignant transformation, squamous cell carcinoma

## Kıl dönmesi ameliyatı sonrası patolojik değerlendirme gerekli midir? 10 yıllık geriye dönük analiz

#### Süreç

Geliş: 11/11/2022

Kabul: 19/12/2023

#### ÖZ

Giriş: Pilonidal sinüs, sıklıkla 15-30 yaş aralığında ve erkeklerde görülmektedir. En sık olarak sakrokoksigeal bölgede görülmekte olup benign bir hastalık olarak kabul edilir. Ancak %0.1 oranında malign dejenerasyon da gelişebilmektedir. Malign dejenerasyon saptanan hastaların büyük kısmı 50 yaş üstünde, uzun dönem tedavi olmamış veya birçok kez nüks etmiş vakalardır. Pilonidal sinüs zemininde gelişen malignitelerde en sık olarak skuamöz sellüler karsinom (SCC) görülmektedir. Tedavide ise cerrahi ilk seçenektir. Cerrahi sonrası lokal nüks oranları %40 düzeylerinde bildirilmiştir. Lokal nüksü azaltmada adjuvan radyoterapi veya kemoradyoterapinin etkisi vardır. Çalışmamızda, pilonidal sinüs nedeniyle kliniğimizde 10 yıllık bir süreçte opere edilen olgularda, malignite insidansını ile olası riskleri saptamak ve rutin uygulanan patolojik incelemenin değerini gözden geçirmek amaçlanmıştır.

Yöntem: Çalışmamızda Ocak 2012- Haziran 2022 tarihleri arasında T.C. Sağlık Bakanlığı Recep Tayyip Erdoğan Üniversitesi Eğitim ve Araştırma Hastanesi Genel Cerrahi Kliniğinde pilonidal sinüs hastalığı nedeniyle opere edilmiş 1070 olgu retrospektif olarak incelenmiştir.

Bulgular: 1070 olgu retrospektif incelenmesi sonrasında %0.18'inde (n=2) pilonidal sinüs zemininde gelişmiş olan malignite mevcuttu ve her iki hastanın patolojik sonucu ise SCC olarak rapor edilmişti. Ayrıca bir hastada da patoloji sonucunda, Ki-67 indeksi ve mitotik aktivitesi yüksek olan pilonidal sinüse ait doku saptandı. Malignite saptanan iki hastanın yaş ortalaması 51 idi. Malignite saptanan hastaların yaklaşık 20 yıl kadar süredir şikayetlerinin var olduğu saptandı. Ki-67 indeksi ve mitotik aktivitesi yüksek olarak saptanan hasta ise yaşı 60 idi ve bu hastanın da yaklaşık 10-11 yıl kadar şikayetlerinin var olduğu saptandı.

Sonuç: Pilonidal sinüs, uzun dönem var olan, çoklu olarak nüks eden ve 50 yaş üzerinde olan hastalarda malignite riskine sahiptir. Pilonidal sinüste malignite oranlarının düşük olması veya malignite riski olan hastaların da ileri yaş ve uzun dönem hastalıklı olmasına rağmen tüm spesmenlerin patolojik incelemesinin yapılması taraftarıyız.

Anahtar sözcükler: Pilonidal sinus, malignant transformation, squamous cell carcinoma

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How to Cite: Özdemir A, Acehan T (2023) Is a pathological assessment required following pilonidal sinus surgery? 10-year retrospective analysis?, Cumhuriyet Medical Journal, December 2023, 45(4): 85-89

## Introduction

Pilonidal sinus is a disease characterized by chronic inflammation, first described by A.W.Anderson in 1847<sup>1</sup>. It is generally encountered in the 15-30 age range and in male<sup>1,2</sup>. Although it is most commonly seen in the sacrococcygeal region, it can also be detected in many different localizations such as the umbilicus, axilla, penis, and anal canal<sup>3</sup>.

Although pilonidal sinus has been accepted as a fairly common benign disease, malignant degeneration can also develop at a rate of 0.1%<sup>4,5</sup>. Most of the patients with malignant degeneration are over 50 years of age, have not been treated for a long time or have relapsed many times<sup>5,6</sup>. Detection of ulceration, seropurulent discharge, and peripheral adenopathy in a long-term pilonidal sinus area should suggest that malignant degeneration may have developed<sup>7</sup>. Continuous and uninterrupted tissue damage due to chronic inflammation is thought to cause malignant degeneration ranging from hyperplasia to invasive carcinoma<sup>6,8</sup>. Squamous cellular carcinoma (SCC) is most commonly seen in malignancies developing in the pilonidal sinus basis. More rarely, basal cell carcinomas and adenocarcinoma cases have also been reported<sup>3,9</sup>.

Although malignancies developing due to the pilonidal sinus show slow growth, local invasion and metastasis tendency are observed (10). Surgery is the first choice in treatment. Reconstructions can be made with wide excision and flap if necessary<sup>10,11</sup>. Local recurrence rates after surgery have been reported as 40%. Adjuvant radiotherapy or chemoradiotherapy have an effect in reducing local recurrence<sup>11</sup>.

In our study, it was aimed to determine the incidence of malignancy and possible risks and to review the value of routine pathological examination in patients who were operated for pilonidal sinus in our clinic over a 10-year period.

## Material Method

In our study, 1070 patients who were operated for pilonidal sinus disease in the General Surgery Clinic of Recep

Tayyip Erdoğan University Training and Research Hospital between January 2012 and June 2022 were retrospectively analyzed. Age, gender and pathological reports of the patients were

evaluated. Ethics committee approval was obtained from the Ethics Committee of Recep Tayyip Erdoğan University Training and Research Hospital, dated November 2022 and numbered 2022/198.

## Statistical Analysis

Data IBM SPSS Statistics for Windows Armonk, NY, USA, IBM Corp. analyzed with software. Numerical data obtained in the study are shown with mean and standard deviation values, and categorical data are shown with numbers and percentages. The relationship between age and gender was evaluated with the Mann Whitney U test,  $p < 0.05$  was accepted as the statistical significance limit.

## Results

Between January 2012 and June 2022, 1070 patients who were operated on for pilonidal sinus disease in the General Surgery Department of the Recep Tayyip Erdoğan University Training and Research Hospital were retrospectively analyzed. Of these patients, 0.18% (n=2) had malignancies developed on the basis of the pilonidal sinus, and the pathological result of both patients was reported as SCC. In addition, as a result of pathology, tissue belonging to the pilonidal sinus with high Ki-67 index and high mitotic activity was detected in one patient. Since there was no carcinomatous tissue as a result of the pathology in this patient, it was not classified as a malignancy that developed on the basis of the pilonidal sinus.

Of the 1070 patients evaluated, 84.2% (n=901) were male and 15.8% (n=169) were female. The mean age of the patients was 28.6 (Table 1).

The ages of two patients with malignancy were 50 and 52 years old. The average was 51. When the complaints of two patients with cancer were examined for the duration of their occurrence, it was found that both patients' problems had been present for around 20 years. The patient with high Ki-67 index and mitotic activity was 60 years old, and this patient had complaints for about 10-11 years.

**Table 1. Age and gender information of the patients**

	Male	Female	p
Mean age ( $\pm$ SD)	29.5 ( $\pm$ 9.8)	24.1 ( $\pm$ 7.4)	p=0,103
Gender (%) / (n)	84,2 (n=901)	15,8 (n=169)	p<0.001

## Discussion

Pilonidal sinus disease is most common between the ages of 15-30 and is more common in males<sup>2</sup>. Of 1070 patients evaluated retrospectively in our study, 84.2% (n=901) were male and 15.8% (n=169) were female. The mean age of the patients was found to be 28.6 (Table 1) Gender distribution and mean age values were consistent with the literature<sup>5</sup>.

Bree et al. reported that 80% of the patients were male and the mean age was 52 years in their study on 59 cases of malignancy developed on the basis of the pilonidal sinus<sup>11</sup>. Another study indicated that individuals with malignant degeneration of the pilonidal sinus were on average 54 years old<sup>12</sup>. In our study, two patients with malignancy were male and the mean age was 51.

Pilonidal disease is a benign condition, however numerous studies have indicated that it has a low malignancy risk of 0.1%. (4,5). Alarcón del et al. analyzed 3729 cases retrospectively and found malignancy secondary to pilonidal sinus in 4 cases (0.11%)<sup>12</sup>. Boulanger et al. 731, Akin et al. on the other hand, examined 2486 patients retrospectively and stated that they did not detect any malignancy in pilonidal sinus excision materials in their series (13,14). In our study, the incidence of malignant degeneration was found to be 0.18% in pilonidal sinus cases.

While basal cell carcinoma and adenocarcinoma are infrequently observed, up to 94% of malignancies that arise on the basis of the pilonidal sinus are SCC<sup>12</sup>. In our study, SCC was detected in two patients with malignancy. In the literature, it is seen that the disease has been present for at least 10 years in cases with malignancy and the average age of the patient is 50<sup>6,8</sup>. Considering the cases with malignancy, it is seen that the disease has not been treated for a long time and/or there are frequent recurrences. Malignant degeneration is thought to

develop secondary to chronic inflammation. It is thought that free oxygen radicals released in tissues due to chronic inflammation disrupt DNA repair mechanisms, and then degeneration from hyperplasia to carcinoma develops in the tissues<sup>6</sup>. It was learned that 2 patients with malignancy in our patient group had complaints for about 20 years. A third patient, 60 years old and known to have had the disease for about 10 years, was not reported as malignant, but Ki-67 proliferation index and mitotic activity were found to be high. The surgical margin was found to be clean in the excision material of the patient and close follow-up was recommended in terms of recurrence. The increase in Ki-67 index and mitotic activity is accepted as an indicator of proliferation in tumor lesions<sup>15</sup>. We believe that such a situation in our patient overlaps with the theory in the process of malignant degeneration due to pilonidal sinus.

In the clinical evaluation, a long-term and/or recurrent pilonidal sinus, sinus openings in the gluteal regions on both sides of the midline, ulcerated mass lesion, seropurulent discharge and inguinal adenopathy can be seen<sup>5,10,15</sup>. In our study, two patients with clinical complaints for about 20 years and SCC, and the third patient who had complaints for about 10 years, had multiple sinus openings extending to the bilateral gluteal regions and persistent seropurulent discharge complaints on physical examination. No inguinal lymphadenopathy was detected.

Due to the low risk of malignancy related to the pilonidal sinus and the fact that malignant degeneration cases are generally over 50 years of age and have been ongoing for at least 10 years, ideas have emerged that pathological examination should not be performed in all patients or that pathologic examination should be performed in

selected patients<sup>5,8,18</sup>. There are also publications in the literature that there is no malignancy in large case series. During World War II, no malignancy was

reported in 86333 young and acutely symptomatic pilonidal sinus patients<sup>17</sup>. Boulanger (731 cases) and Akin (2486 cases) stated that they did not detect

any malignancy in their case series<sup>13,14</sup>. No cancer was detected in the study of Yüksel et al., which involved 905 patients<sup>18</sup>. However, there are also studies reporting that malignant degeneration has been detected. Retrospective analysis of 3729 patients by Alarcón-del et al. revealed 4 cases of cancer at the pilonidal sinus base. (0.11%)<sup>12</sup>. The quality of medical care must be maintained while retaining cost effectiveness, even though needless pathological investigation is regarded to negatively

affect labor and cost analysis. The management of pathology samples is very important for the patient for the correct diagnosis of the diseases and then for the correct treatment. In addition, it should be kept in mind that the examination of pathological plays is under legal protection with the “Law on Tissue Collection, Storage and Transplantation” in our country<sup>19</sup>. In this context, although the risk of malignancy is low, we believe that routine pathological examination is necessary.

## Conclusion

In conclusion, although pilonidal sinus is seen as a benign disease, there is a risk of malignancy, especially in patients with long-term existence, multiple recurrences, and those over 50 years of age. Early treatment of the disease will reduce the

risk of developing malignancy. Despite the low rates of malignancy in the pilonidal sinus or the patients at risk for malignancy, advanced age and long-term disease, we advocate pathological examination of all specimens.

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