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## Routine Histopathological Evaluation of Benign Anorectal Interventions: Essentiality or Excess?

Benign Anorektal Girişimlerde Rutin Histopatolojik Değerlendirme: Gereklik mi, Fazlalık mı?

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### ABSTRACT

**Objective:** To evaluate the necessity of routine histopathological examination in benign anorectal surgeries and to explore the potential for a selective approach based on patient characteristics.

**Methods:** Retrospective analysis of patients who underwent surgery for benign anorectal diseases between January 2013 and December 2023. Demographic data, surgical procedures, and histopathological findings were assessed.

**Results:** Among 830 patients, 482 underwent histopathological examination. No malignancy was detected. However, human papilloma virus (HPV)-related lesions were diagnosed in 2.1% of patients. A retrospective design and limited patient population were identified as major limitations.

**Conclusion:** Routine histopathological examination may be unnecessary for benign anorectal surgeries in patients without HPV-related risk factors. Further large-scale studies are required to determine the criteria for selective examination, optimizing resource usage in clinical practice.

**Keywords:** Anal fistula, anal fissure, hemorrhoid, human papilloma virus, pathology, routine histopathologic examination

### ÖZ

**Amaç:** Benign anorektal cerrahilerde rutin histopatolojik incelemenin gerekliliğini değerlendirmek ve hasta özelliklerine göre seçici bir yaklaşım potansiyelini araştırmaktır.

**Yöntemler:** Ocak 2013 ile Aralık 2023 tarihleri arasında benign anorektal hastalıklar nedeniyle ameliyat edilen hastaların verileri retrospektif analiz edildi. Demografik veriler, cerrahi prosedürler ve histopatoloji bulguları değerlendirildi.

**Bulgular:** Sekiz yüz otuz hastanın 482'sine histopatolojik inceleme yapıldı. Malignite tespit edilmedi. Ancak hastaların %2,1'inde human papilloma virüs (HPV) ile ilişkili lezyonlar teşhis edildi. Retrospektif dizayn ve sınırlı hasta popülasyonu çalışmanın önemli sınırlamalar olarak tanımlandı.

**Sonuç:** HPV ile ilişkili risk faktörleri olmayan hastalarda benign anorektal cerrahi sonrası rutin histopatolojik inceleme gereksiz olabilir. Seçici inceleme kriterlerini belirlemek ve klinik uygulamada kaynak kullanımını optimize etmek için daha büyük ölçekli çalışmalara ihtiyaç vardır.

**Anahtar Sözcükler:** Anal fistül, anal fissür, hemoroid, human papilloma virüsü, patoloji, rutin histopatolojik inceleme

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## INTRODUCTION

Histopathological examination is indispensable in all surgical resections performed when there is suspicion of malignancy or when the diagnosis is unclear (1). When evaluated in terms of cost, routine histopathological examination constitutes a significant financial burden for many procedures. Additionally, it holds an important place in healthcare practices in terms of time and workforce (1). The growing world population, increasing life expectancy, and the rising number of surgical interventions each year justify examining measures to reduce the financial burdens on the healthcare system (2). The rationale against routine histopathology includes the rarity of malignancy in benign lesions, low clinical significance of these malignancies, and high procedural costs (3).

In clinical practice, histopathological examination is routine for patients undergoing surgery for benign anorectal diseases; however, its value and necessity are not fully understood. From this perspective, it is inevitable to question the necessity of routine histopathological examination in surgical procedures for benign anorectal diseases, which generally fall within the definition of ambulatory surgery and constitute a significant portion of our clinical practice, is inevitable. This study aimed to examine the histopathological results in patients undergoing surgical excision for hemorrhoidal disease, anal fistula, and anal fissure, determine the incidence of malignancy or premalignant lesions, and evaluate the results in terms of a selective approach that could replace routine examination.

## MATERIALS AND METHODS

Data of patients who underwent surgery with a diagnosis of benign anorectal disease between January 2013 and December 2023 in the Department of General Surgery, Gazi University Faculty of Medicine, were retrospectively screened using the hospital computer operating system and patient file archives. The inclusion criteria for the study were as follows: 1) preoperative diagnosis of benign anorectal disease, 2) age 18 and older, and 3) postoperative histopathological examination. The exclusion criteria for the study were as follows: 1) incomplete patient archive data. The demographic characteristics (age and gender), surgical procedures (hemorrhoidectomy, fissurectomy, fistulectomy), and histopathological results (benign, malignant, or infectious) of patients meeting the study criteria were evaluated.

All procedures performed in this study are in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. This study was approved by the Gazi University Local Ethics Committee (approval number: E-77082166-604.01.02-839857, date: 02.01.2024).

### Statistical Analysis

All data were transferred to a computer environment, and SPSS 20.0 software (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. Relevant variables were analyzed using descriptive statistics. Categorical measurements were reported as numbers and percentages, whereas continuous measurements were reported as mean  $\pm$  standard deviation and range.

## RESULTS

A total of 830 patients underwent surgery for benign anorectal diseases. Among them, 482 patients met the study criteria and constituted the final analysis study group (Figure 1). Of these patients, 329 (68.3%) were male and 153 (31.7%) were female. The median age was 48 with a mean age of 48.8 years (range, 18-84). Upon examination of the surgical procedures, fissurectomy was performed in 58 patients (12%), hemorrhoidectomy in 230 patients (47.7%), and fistulectomy in 194 patients (40.2%). Histopathological examination revealed benign findings in all patients. No malignancy was detected in any patient; however, human papilloma virus (HPV)-related lesions were diagnosed in 10 patients (2.1%) (Table 1). Of the patients with HPV-related lesions, 3 were males and 7 were females.

## DISCUSSION

Advancements in medical science and healthcare services have led to a global increase in life expectancy. As a natural consequence, there is a demographic shift toward an aging population, and epidemiologically, the types of diseases and causes of death are also changing. In addition to these developments, healthcare expenditures in all countries are increasing at a faster rate than per capita national income growth, prompting policymakers to seek

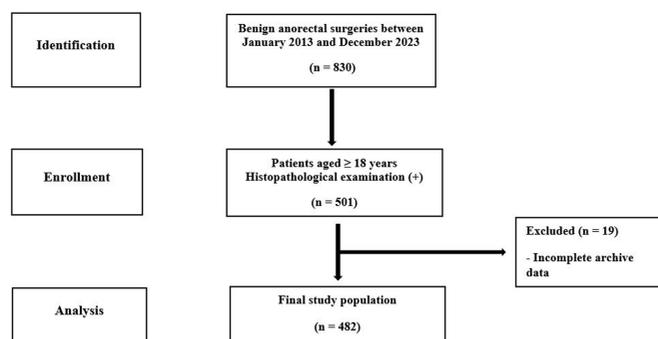


Figure 1. Sample collection scheme.

Table 1. Demographics, surgical procedure, and histopathological results

Characteristics	
Age (year)	Median 48, mean 48.8 $\pm$ 13.1 (range, 18-84)
<b>Gender</b>	
Female	329 (68.3%)
Male	153 (31.7%)
<b>Surgical procedure</b>	
Fissurectomy	58 (12%)
Fistulectomy	194 (40.2%)
Hemorrhoidectomy	230 (47.7%)
<b>Histopathology</b>	
Benign	482 (100%)
HPV-related lesion*	10 (2.1%)
Malign	0

\*HPV: Human papilloma virus.

ways to control healthcare spending (2). In contemporary times, controlling costs in healthcare services is particularly emphasized, especially in terms of ensuring the effective utilization of healthcare expenditures (1). While research has consistently revealed that a significant percentage, varying between 25% and 40%, of laboratory tests are deemed unnecessary, the demand for such tests continues to rise. This increase can be attributed to various factors, including the desire for thorough diagnostic evaluations, peer and commercial pressures, patient expectations, and apprehensions regarding legal consequences (4).

It is noteworthy that a significant portion of the cost of routine histopathological examination is attributed to the most commonly submitted specimens (1). Therefore, there are studies in the literature questioning the routine pathological examination in common surgical procedures in general surgery, such as hernia repair, appendectomy, and cholecystectomy (1,3-6). In a study conducted by the Royal College of Pathologists in the United Kingdom, the workload associated with gastrointestinal specimens lacking clinical value or having limited value was investigated, and a list of diseases for which histopathological examination is not recommended was provided (4). Another study examining the effectiveness of routine histopathology following appendectomy, cholecystectomy, and hemorrhoidectomy concluded that routine examination of hemorrhoidectomy specimens is unnecessary, whereas examination limited to cases over 60 years old and cases with empyema is sufficient for the gallbladder and appendix (5). However, there are also studies advocating for the continued routine examination of cholecystectomy specimens, albeit at a low level, because of their potential to provide diagnoses of invasive cancer and other conditions that may impact postoperative monitoring (6).

A significant portion of our clinical practice comprises surgeries for benign anorectal diseases. Among proctologic surgeries, hemorrhoidectomy, anal fistula, and fissure surgeries are the most common. Given that these procedures are often performed as outpatient or office-based procedures to reduce costs, the necessity of histopathological examination is being questioned. There is no clarity or consensus on this issue in the literature. In a study examining 914 hemorrhoidectomy specimens, it was reported that histopathological examination for hemorrhoidal disease is unnecessary (5). However, in a large series involving 10,532 cases of hemorrhoidectomy and anal fistula excision, unexpected pathologic malignancy was detected at a rate of 0.16%. This study particularly emphasizes that being aged 60 years is a risk factor. The fourfold increase in the frequency of incidental malignancy in individuals aged 60 years is remarkable (7). One of the largest series in the literature, based on a retrospective analysis of 21,257 cases of hemorrhoidectomy, reported an unexpected malignancy in only one patient. This result emerges as a significant argument in favor of selective histopathological examination instead of routine practice. In our literature review, no cases of unexpected malignancy were encountered following anal fissure surgery. In our study, none of the patients were diagnosed with an unexpected malignancy. Therefore, we cannot identify a specific patient group for whom selective examination might be recommended instead of routine examination. We do not support routine examination in surgeries performed with a preoperative diagnosis of benign anorectal disease; however, we cannot ignore the necessity of a selective approach. It is evident

that extensive studies are needed to determine which age group or characteristics of patients would benefit from the selective approach.

An interesting finding of our study was the diagnosis of HPV-related lesions in 10 patients (2.1%). None of these patients had suspicion of anal intraepithelial neoplasia (AIN) or HPV-related lesions during preoperative clinical evaluation. Of the patients with HPV-related lesions, 3 were males and 7 were females. However, due to the retrospective nature of our study, we did not have access to the clinical histories of these patients to determine their association with HPV. In a prospective study examining the prevalence of AIN in macroscopically normal hemorrhoidectomy and fissurectomy specimens, a rate of 3.2% AIN was reported. This study, encompassing 2997 procedures, demonstrated that the prevalence of subclinical AIN in macroscopically normal hemorrhoidectomy and fissurectomy specimens is significant (3.2% overall, 2.5% high-grade disease). Our findings are similar to and supportive of the findings of this study. AIN is a premalignant lesion of squamous cell carcinoma. Screening tests for AIN and human papillomavirus vaccine are important for high-risk patients, including those who are positive for human immunodeficiency virus and men who have sex with men (9). It seems imperative not to compromise on routine histopathological examination for these two high-risk groups.

### **Study Limitations**

The most significant limitation of our study is its retrospective design and the restricted nature of the patient population. The formation of a final population with histopathological examination conducted in 482 out of 830 patients from the initial population actually indicates that surgeons did not request histopathological examination for every patient. Here, it appears that a selective or perhaps even random approach was adopted without an objective selection criterion.

### **CONCLUSION**

In conclusion, routine histopathological examination after benign anorectal surgeries may not be necessary for patients without a history of HPV-related risk factors. However, standardized and large-scale studies are needed to identify the patient population suitable for a selective approach. These studies can help establish clear criteria for which patients should undergo routine histopathological examination, contributing to more efficient resource usage in clinical practice.

### **Ethics**

**Ethics Committee Approval:** This study was approved by the Gazi University Local Ethics Committee (approval number: E-77082166-604.01.02-839857, date: 02.01.2024).

**Informed Consent:** Retrospective study.

### **Authorship Contributions**

Concept: R.K., E.A., K.D., Design: R.K., E.A., K.D., Data Collection or Processing: R.K., E.A., Analysis or Interpretation: R.K., E.A., Literature Search: R.K., E.A., K.D., Writing: R.K., E.A.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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