

The role of surgery in perianal disease developing in hematology malignancy patients

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Abstract

Objective: Perianal diseases may impair the comfort of life in immunosuppressive patients as well as cause life-threatening complications. In this study, we aimed to analyze the surgical management and results of perianal region diseases in hematological patients who were consulted by the hematology clinic and to present non-surgical treatment options in these patients.

Method: The files of the patients who were consulted by the Hematology Clinic of our hospital between January 2011 and January 2021 due to perianal disease were retrospectively reviewed. Patients with multiple data deficiencies were excluded from the study. Gender, age, hematological diagnosis, neutropenic status, number of consultations, surgical diagnosis, radiological imaging methods, treatment modalities and survival data of the patients were recorded.

Results: A total of 911 consultations were requested from 627 patients. The number of patients consulted with the diagnosis of perianal disease was 147. Ninety (61.2%) of the patients were male and 57 (38.7%) were female. Of the patients, 74 (50.3%) had acute myeloid leukemia, 29 (19.7%) lymphoma, 15 (10.2%) acute lymphoblastic leukemia, 12 (8.1%) myelodysplastic syndrome, 10 (6.8%) multiple myeloma, 7 (4.7%) of them were followed up with the diagnosis of chronic lymphocytic leukemia, 53 (36%) patients had additional systemic disease besides hematological disease. All patients were examined and prediagnosed. Magnetic resonance imaging was performed in 72 patients with suspected abscess and fistula. Surgical treatment methods were applied to 30 (20.4%) of the patients.

Conclusion: Perianal diseases frequently accompany hematological diseases, especially in neutropenic periods. With early examination, close follow-up and appropriate treatment, surgical necessity and the number of relapsed diseases can be minimized.

Keywords: Hematology, Neutropenia, Perianal Disease, Leukemia, Lymphoma

INTRODUCTION

Perianal disease and infections are the most feared complications in patients whose body defenses against microorganisms are weakened. Neutropenic patients are more prone to anorectal complications (1). Neutropenia is one of the most important risk factors for perianal sepsis. Anal mucosal damage and related lesions may develop in leukemic patients who develop neutropenia as a result of chemotherapy and radiotherapy. These neutropenic patients cannot show an adequate inflammatory response, and therefore even weaker virulent microorganisms can cause life-threatening perianal infections (2).

Perianal region infections are not rare in patients with hematological malignancies, and the rate is around 8-9% in acute leukemia patients (3,4). Disease severity ranges from self-resolving limited infection to life-threatening sepsis (5). Perianal infection may affect the quality of life with anal pain and discomfort, as well as cause mortality with a more severe course (6).

Surgical treatment is more effective in perianal abscesses and fistulas (5,7). However, since patients with leukemia are usually neutropenic during treatment, surgical intervention may cause sepsis and poor wound healing. Neutrophil counts influence treatment choice during anorectal infection.

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The optimal time for surgical treatment in patients with leukemia with perianal disease is still controversial (4). We aimed to analyze the surgical management and results of patients with hematological malignancies who were consulted to the general surgery clinic for perianal disease during hospitalization and present them to the literature.

METHOD

The files of the patients who were consulted to the General Surgery Clinic with the prediagnosis of perianal disease by the Hematology Clinic between January 2011 and January 2021 were reviewed retrospectively. We included 147 patients without missing data in the study. Patients under 18 years of age with multiple data deficiencies were excluded from the study. Pre-diagnosis was made by examining the patients at the bedside, radiological evaluations were made when necessary, and then their treatments were arranged and daily follow-ups were made. Patients' gender, age, hematological diagnosis, neutropenic status (<2000/mm³), number of consultations, surgical diagnoses, radiological imaging, treatment modalities, recurrence and mortality findings were recorded. The results were analyzed considering their neutropenic status and surgical or non-surgical treatment modalities.

Data were obtained from patient files and computer-based hospital operating system and analyzed using SPSS v16.0 (IBM) operating system. Frequency (n) and percentage were used in the evaluation of categorical variables as descriptive statistics, and median (minimum-maximum) values were used in the evaluation of numerical variables.

RESULTS

Of the 147 patients included in the study, 90 (61.2%) were male and 57 (38.7%) were female. The median age was 47.5 (17-82) (min-max) years. From the total patients, 74 (50.3%) had acute myeloid leukemia (AML), 29 (19.7%) had lymphoma, 15 (10.2%) had acute lymphoblastic leukemia (ALL), 12 (8.1%) had myelodysplastic syndrome (MDS), 10 (6.8%) had multiple myeloma (MM), 7 (4.7%) had chronic lymphoblastic leukemia (CLL). Ninety-six patients were in the neutropenic phase secondary to treatment. The number of patients with comorbid disease was 53 (36%). 128 (87%) of them were consulted once, and 19 (11.9%) more than once. Of the patients, fifty-eight (39.4%) abscesses, 33 (22.4%) fissures, 24 (16.3%) fistulas, 19 (12.9%) hemorrhoids, 5 (3.4%) edema, 6 (4%) normal examination, 2 (1.3%) necrotizing fasciitis surgery were diagnosed. Magnetic resonance imaging (MRI) was performed in 72 (48.9%) patients with suspected abscess and fistula. One hundred and seventeen (79.5%) patients were treated medically, while 30 (20.4%) patients underwent surgery. Twenty (13.6%) abscess drainage, 4 (2.7%) fistulotomy, 4 (2.7%) seton, 2 (1.3%) debridement were performed. There was no mortality. (Table 1).

DISCUSSION

Table 1. Distribution of findings according to patients

	n	%
Sex		
Male	90	61.2
Female	57	38.7
Age	47.5 (17-82 yıl)	
Hematological diagnosis		
Acute myeloid leukemia	74	50.3
Lymphoma	29	19.7
Acute lymphocytic leukemia	15	10.2
Myelodysplastic syndrome	12	8.1
Multiple myeloma	10	6.8
Chronic lymphocytic leukemia	7	4.7
Neutropenic patient	96	65.3
Comorbidity	53	36
Number of consultations		
Single	128	87
Multiple	19	12.9
Reason for consultation		
Pain	138	93.8
Discharge	4	2.7
Bleeding	3	2
Swelling	2	1.3
MRI	72	48.9
Surgical diagnosis		
Abscess	58	39.4
Anal fissure	33	22.4
Anal fistula	24	16.3
Hemorrhoids	19	12.9
Normal	6	4
Edema	5	3.4
Necrotizing fasciitis	2	1.3
Treatment		
Medical	117	79.5
Surgical	30	20.4
Abscess drainage	20	13.6
Fistulotomy	4	2.7
Seton	4	2.7
Debridement	2	1.3
Mortality	0	0

Anorectal diseases are more common in patients with hematological malignancies compared to other cancer patients (8,9). In some studies, it is mentioned that the incidence of anorectal disease is high in young male patients in relation to age (10). However, there are not many studies supporting this. Only one study reported a relationship between young age and septic disease, and septic complications were more common in younger patients (11). In this study, the proportion

of male patients (63.1%) was higher than female patients, and the mean age was 47 years.

The manifestation of perianal diseases differs according to the state of the body defense system in hematological patients (1). Neutrophils are a critical component of the innate immune system. Neutropenic patients cannot produce an adequate inflammatory response and are susceptible to infection by less virulent microorganisms. Therefore, there may be unusual infections (12). Qualitative deficits from underlying malignancy combined with periods of neutropenia from chemotherapeutic agents are the main risk factors for the development of bacterial and fungal infections in patients with acute leukemia (13). It has been shown that there is a consistent relationship between a lower absolute neutrophil count and an increased incidence of septic anorectal complications in patients with hematological diseases (11). Unlike patients with normal neutrophil counts, *E. Coli* and *P. Aeruginosa* are the most common bacteria in anorectal cultures in neutropenic patients. The coexistence of anorectal mucosal integrity, enteric colonization and neutropenia may be responsible for this condition (14). In the study, 63.1% of patients were neutropenic and perianal abscess was the most common anorectal disease. In this patient group, enteric bacteria such as *E.Coli* and *P.Aeruginosa* were predominant in the culture, consistent with the literature.

The clinical manifestation of anorectal infection is often masked by the absence of inflammatory cells. Therefore, it may be difficult to recognize signs and symptoms in neutropenic patients (15). Pain, swelling and constipation often accompany perianal disease and may cause systemic infection (16). 92.5% of our patients were consulted with complaints of pain in the perianal region.

Diagnosis of infection in neutropenic patients is difficult due to the absence of granulocytes to localize the perianal infection. The diagnosis is correct about 50% (17). Imaging is essential to determine the best treatment and disease management. The American Society of Colon and Rectal Surgeons recommend Computed Tomography (CT) and MRI imaging in selected patients (18). In the study, MRI imaging was used to support the differential diagnosis in patients with suspected abscess and fistula.

In a series of 92 patients with acute and chronic leukemia, the most common perianal disease was abscess (27%). This was followed by anal fissure (23%) and external hemorrhoids (19%) (1). In another study performed in 83 patients with hematological malignancies, anal fissure (36.1%) was the most common, followed by hemorrhoidal disease (26.5%), fistula (15.7%), and abscess (10.8%) (19). Abscess (39.4%) was the most common perianal disease in the study. We think that the immune status of the patients is effective in this.

There is no consensus in the literature on perianal disease management in hematological patients. While some studies advocate operative treatment, some studies have reported high mortality rates with operative treatment (4). Some concerns have been expressed about the development of septicemia and poor wound healing secondary to diagnostic or therapeutic procedures in patients with neutropenia (20). Treatment management should be determined according to the granulocyte count (21). Today, with the expansion of the pool of antibiotics against gram-negative and anaerobic bacteria, the need for surgery has decreased (11). Consistent with the literature, 117 (79.5%) patients were treated medically. Broad spectrum antibiotics (carbapenem, teicoplanin, ciprofloxacin) were used in the treatment. We believe that in addition to the antibiotic pool, the necessary examination and close examination follow-up are effective in the effectiveness of medical treatment.

In the literature, recurrence of perianal infectious disease is more common in neutropenic patients. Neutropenia and mucositis are common because patients with acute myeloid leukemia receive high-dose cytarabine-based chemotherapy. This may explain why patients with acute myeloid leukemia have a higher rate of recurrence of perianal infection than patients with acute lymphoblastic leukemia (16). In the study, in accordance with the literature, 46.2% of the patients were diagnosed with AML and 80% of the 15 patients who were consulted more than once for the same reason were neutropenic patients.

When septic complications develop in neutropenic patients, mortality rates range from 11-57% (19). There was no mortality in our patients. We believe that the reason for this is early diagnosis, effective treatment, strict patient follow-up and correct surgical indication.

The study includes various limitations such as not having a comparison group and not knowing the perianal disease history of the patients. Despite all these limitations, we believe that this clinical observation made in the homogeneous patient group will contribute to the literature.

CONCLUSION

Anorectal diseases are serious cause of morbidity that impairs the quality of life in hematology patients who receive chemotherapy and have active disease. Especially since perianal infectious diseases can cause life-threatening consequences, diagnosis and treatment are important. Due to the body defense system and wound healing problems in neutropenic patients, the surgical decision should be made with care. With early diagnosis and appropriate treatment plan, the need for surgery can be minimized and morbidity and mortality rates can be significantly reduced.

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Conflict of Interest

The authors declare that they have no conflict of interests regarding content of this article.

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Ethical Declaration

For this study, permission was obtained from Başkent University Medical and Research Board with the letter dated 14.07.2021 and numbered E-94603339-604.01.02-47888, and the Helsinki Declaration criteria were taken into consideration.

Authorship Contributions

Concept: HY, Design: RG, MK, Supervising: MK, HY, Data collection and entry: SE, RG, Analysis and interpretation: SE, HY, Literature search: SE, MK, Writing: SE, Critical review: HY.

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