ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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Hidradenitis Suppurativa: A 9-Year Retrospective Study from Malatya, Turkey

Hidradenitis Süpürativa: Türkiye Malatya'dan 9 Yıllık Retrospektif Bir Çalışma

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ABSTRACT Objective: Hidradenitis suppurativa (HS) is a chronic, recurrent inflammatory skin disease. Our aim of this study is to review the demographic, clinical characteristics, treatment options of the patients who were being followed up with diagnosis of HS in our hospital during the last 9 years and to make a comparison with the data from other countries. **Material and Methods:** A total of 59 patients with HS diagnosed in our Dermatology Department between 2010-2019 were evaluated retrospectively. **Results:** Seventeen (28.8%) of 59 patients were female, 42 (71.2%) were male. The mean age at diagnosis was 31.05±1.61 (minimum / maximum: 14-60). Seventeen patients (28.8%) had stage 1, 26 patients (44.1%) had stage 2 and 16 patients (27.1%) had stage 3 disease. Axilla was the most affected area. Topical agents (topical clindamycin, antiseptic solutions) and oral antibiotics (doxycycline, ciprof loxacin, ampicillin-sulbactam, amoxicillin-clavulanic acid) were the most commonly used treatment options. Treatment resistant eight patients were treated with a biological agent adalimumab. **Conclusion:** In literature, there are few epidemiological studies related to HS in Turkey. The clinical, demographic and therapeutic data of 59 HS cases in our clinic were summarized. However, we believe that multi-center studies conducted with larger number of patients are needed in order to reach more comprehensive data on this subject.

Keywords: Hidradenitis suppurativa; hidradenitis; disease management

ÖZET Amaç: Hidradenitis süpürativa (HS) kronik, tekrarlayan inflamatuar bir cilt hastalığıdır. Bu çalışmada amacımız, son 9 yılda hastanemizde HS tanısı ile takip edilen hastaların demografik, klinik özellikleri, tercih edilen tedavi seçeneklerini gözden geçirmek ve diğer ülkelerdeki verilerle karşılaştırmaktır. **Gereç ve Yöntemler:** Çalışmamızda 2010-2019 yılları arasında Dermatoloji kliniğinde tanı koyulan 59 HS hastası retrospektif olarak değerlendirildi. **Bulgular:** Elli dokuz hastanın 17'si (%28,8) kadın, 42'si (%71,2) erkekti. Hastaların tanı sırasındaki yaş ortalaması 31,05±1,61 (minimum/maksimum: 14-60) idi. Hastalardan 17'si (%28,8) evre 1,26'sı (%44,1) evre 2,16'sı (%27,1) evre 3 olarak değerlendirildi. Aksilla en fazla etkilenen bölgeydi. Topikal ajanlar (topikal klindamisin, antiseptik solüsyonlar) ve oral antibiyotikler (doksisiklin, siprofloksasin, ampisilin-sulbaktam, amoksisilin-klavulanik asit) en sık kullanılan tedavi seçenekleriydi. Tedaviye dirençli 8 hasta biyolojik ajanlardan adalimumab ile tedavi edildi. **Sonuç:** Literatürde, Türkiye'de HS ile ilgili yapılan az sayıda epidemiyolojik çalışma bulunmaktadır. Kliniğimizde takip edilen 59 HS vakasının klinik, demografik ve terapötik verileri özetlendi. Ancak, bu konuda daha kapsamlı verilere ulaşmak için çok merkezli ve daha fazla vaka içeren çalışmalara ihtiyaç olduğuna inanıyoruz.

Anahtar Kelimeler: Hidradenitis süpürativa; hidradenit; hastalık yönetimi

Hidradenitis suppurativa (HS) is a chronic, recurrent inflammatory skin disease that occur in the areas of apocrine glands. The disease was first described by Velpeau in 1839. Its prevalence is estimated to vary between 0.03% and 4%. It is more common in women than men. Perianal HS incidence is higher in men.[1-3]

Etiopathogenesis is not definitely known. It was thought that the disease originated from apocrine sweat glands, but later it was argued that follicle hyperceratosis started the event, follicle occlusion developed and that apocrine glandular involvement in the event was secondary to it.[4,5] The dead skin cells and the material from the apocrine gland slow down the flow in the follicle canal and combine with the sebum from the sebaceous gland to form a plug. Plugs prevent apocrine gland drainage and cause local irritation. Bacteria then trigger the local inflammatory response and lead to the development of infection. The disease is frequently accompanied by acne, pilonidal cyst, chronic scalp folliculitis, and this supports the thesis of follicular obstruction.[6] Rare appearance before puberty, exacerbation in premenstrual and postpartum period and improvement in lesions at pregnancy suggest that hormones play a role in the disease. The role of bacteria in etiopathogenesis is controversial. Bacteria were not isolated in half of the cases. The most commonly isolated bacteria is staphylococci. However, streptococci (the most common beta-hemolytic), *Escherichia coli* and enteric bacteria in the perianal region can be detected.[1,6] Axillary, inguinal, perineal, perianal region, inner face of thighs, inframammary and genital area are affected. Clinically, painful indurated papules and deep subcutaneous nodules are seen. Then nodules are drained and frequent relapses are observed. Lesions can heal with fibrosis and dermal contractures may occur.[1]

Histopathological examination may include follicular hyperkeratosis, folliculitis or abscess, sinus formation, fibrosis and granuloma formation, inflammation of the apocrine glands, subcutis fibrosis, fat necrosis or inflammation.[1,4]

Medical or surgical methods are recommended in treatment. The disease, comorbid conditions treatment cost and patient tolerance are the factors which determine the choice of treatment.[1,6,7]

The aim of the present study was to evaluate the demographic, clinical features and treatment options of the patients followed up with diagnsois of HS in our hospital during previous 9 years and to make a comparison with the literature data.

MATERIAL AND METHODS

A total of 59 patients with HS who admitted to Dermatology Department of İnönü University Faculty of Medicine between 2010-2019 were evaluated retrospectively. The diagnosis of HS was made by clinical, physical examination and / or histopathological findings. Medical data of the patients were analyzed and recorded in terms of age, gender, localization of lesions, disease severity, accompanying diseases, wound culture results, histopathological results and treatment regimens. The severity of the disease was assessed using Hurley's staging.[8] Staging was done according to the first examination findings.

The study was designed in accordance with the principles of the Helsinki Declaration. Ethics committee approval was received for 2019/96 protocol code. SPSS (Statistical Program for Soc ial Sciences) 22 package program was used for statistical analysis. Results are expressed as mean values ± standard deviation. Categorical variables were compared using the Chi square test. Comparisons between continuous variables were performed by Mann-Whitney U test (skewed variables). A p value less than 0.05 was considered statistically significant.

RESULTS

Seventeen (28.8%) of 59 patients were female and 42 (71.2%) were male. The mean age at diagnosis was 31.05±1.61 (minimum / maximum: 14-60). Seventeen patients, (28.8%) were diagnosed with stage 1, 26 (44.1%) stage 2 and 16 (27.1%) stage 3. Axilla was the most affected area (Table 1).

In 17 patients, examination results showed bacterial growth in culture. Ten of the culture results were evaluated as contamination. *Acinetobacter baumannii, proteus mirabilis, enterococcus* spp, *pseudomonas aeruginosa* were detected.

The treatment options are shown in Table 2. Topical agents (topical clindamycin, antiseptic

TABLE 1: Demographic and clinical characteristics of the patients.

Characteristics	n	%
Gender		
Male	42	71.2
Female	17	28.8
Age	36.3±1.67	
Age at diagnosis	31.05±1.61	
Severity of HS		
Hurley stage 1	17	28.8
Hurley stage 2	26	44.1
Hurley stage 3	16	27.1
Location of lesion		
Axillary	43	72.9
Inguinal	22	37.3
Gluteal/Perianal	13	22
Inframammary	12	20.3
Genital	8	13.6

TABLE 2: Treatment modality.

	n (n =59)	%
Surgical management	8	13,5
Topical therapies	59	100
Intralesional corticosteroids	25	42,4
Systemic therapies		
Antibiotics	52	88,1
Isotretinoin	27	45,8
Acitretin	6	10,2
Biologics	8	13,6
Methotrexate	2	3,4
Dapsone	1	1,7
Finasteride	4	6,8

solutions) and oral antibiotics were the most commonly used treatment options. The most preferred agents were doxycycline, ciprofloxacin, ampicillin-sulbactam, amoxicillin-clavulanic acid. Treatment was applied for at least 10 weeks. Other treatment options were applied in the patients who did not benefit from topical agents and oral antibiotics. 5-alpha reductase inhibitor, finasteride was used in 4 patients. Acitretin was applied in 6 patients and isotretinoin was used in 27 patients. In patients receiving isotretinoin and acitretin, either partial response or no response was obtained. Treatment resistant eight patients were treated with a biological agent adalimumab. Adalimumab was administered subcutaneously at an initial dose of 160 mg and 80 mg on the following 15th day and 40 mg per week from the 29th day. One patient did not respond to adalimumab and infliximab treatment was started. Infliximab was administered intravenously at a dose of 5 mg/kg at the 0-2-6. weeks. Then the dose was repeated at every 8 weeks. One patient was unable to respond to treatment with adalimumab and did not receive treatment for 2 years. Methotrexate 15 mg/week treatment was started when the patient was admitted again. Dapsone 100 mg/day was added to another patient because of inadequate response to adalimumab treatment. Partial response to treatment was obtained in the follow-up of these three patients.

The distribution of disease severity, involvement zone and comorbidities according to gender are shown in Table 3. The most affected areas were the inframamarian region in women and the axillary region in men. Obesity was detected in 8 male patients and one female patient. Eight of the male patients had dyslipidemia, 5 had diabetes and 5 had hypertension. One patient had severe pustular psoriasis. The most common psychiatric comorbidity was anxiety.

DISCUSSION

Many epidemiological studies from different countries have been reported in the literature about HS.[7,9-12] A limited number of epidemiological studies have been reported related to HS in Turkey.[13,14]

Hurley described a clinical severity score for HS in 1989.[8] The abscess formation without scar formation and sinus tracts was defined as stage 1, recurrent abscesses with scar and sinus tracts, stage 2, abscesses and multiple interconnected tracts throughout the site, and diffuse involvement as stage 3. The diagnosis of HS is usually delayed and most patients are diagnosed in stage 2 or 3.[9] In our study, 71.2% of the patients were stage 2 and 3 patients (Figure 1, Figure 2).

Hidradenitis suppurativa is more common in women, but the development of perianal abscess in

TABLE 3: The distribution of disease severity, involvement zone and comorbidities according to gender.

Clinical characteristics	Male (n=17) (%)	Female (n=42) (%)	p value
Severity of HS			
Hurley stage 1	13 (31)	4 (23.5)	
Hurley stage 2	15 (35.7)	11 (64.7)	0.099
Hurley stage 3	14 (33.3)	2 (11.8)	
Location of lesion			
Axillary	36 (85.7)	7 (41.2)	0.0
Inguinal	15 (35.7)	7 (41.2)	0.694
Gluteal/Perianal	11 (26.2)	2 (11.8)	0.31
Inframammary	2 (4.8)	10 (58.8)	0.0
Genital	5 (11.9)	3 (17.6.9)	0.678
Comorbidities			
Acne	10 (23.8)	7 (41.2)	0.182
Obesity	8 (19)	1 (5.9)	0.263
Diabetes	5 (11.9)	2 (11.8)	1.0
Hypertension	5 (11.9)	0 (0)	
Dyslipidemia	8 (19)	0 (0)	0.09
Hirsutism	0 (0)	2 (11.8)	0.079
Familial Mediterranean Fever	1(2.4)	1(5.9)	0.497
Pilonidal sinus	5 (11.9)	1 (5.9)	0.662
Nephritis	1 (2.4)	0 (0)	1.0
Schizophrenia	1 (2.4)	0 (0)	1.0
Anxiety	6 (14.3)	0 (0)	0.168
Depression	0 (0)	1 (5.9)	0.288
Psoriasis	1 (2.4)	0 (0)	1.0
Ankylosing spondylitis	1 (2.4)	0 (0)	1.0
Vitiligo	1 (2.4)	0 (0)	1.0

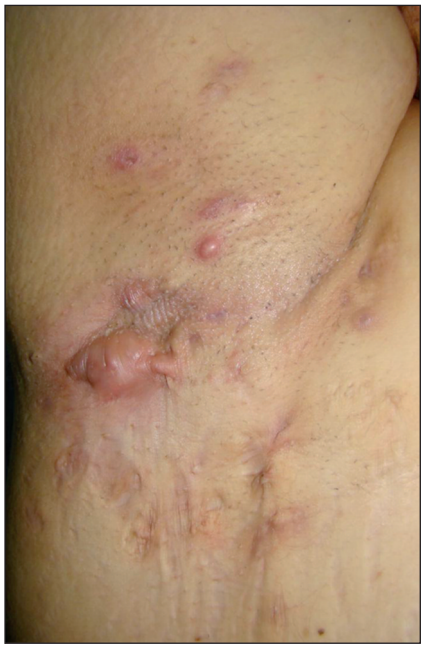

FIGURE 1: A patient with Hurley stage 2.

men is twice as common than women. In our records, the majority of our patients were men. We thought that this could be due to less hospital admissions rates of female patients. In addition, female patients may also apply to other branches such as gynecology or general surgery. Perianal region, the inner face of the thighs, under the breasts and genital region are the other affected areas.

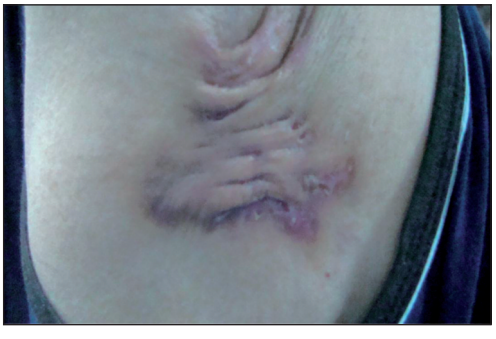

FIGURE 2: A patient with Hurley stage 3.

The disease is rarely seen before puberty and in old age. The mean age of onset was reported as third decade.[15] In our study, the mean age at diagnosis was 31.05±1.61 consistently with literature.

In our study, most of the cases were diagnosed clinically and histopathological examination was performed in patients undergoing surgery and in suspected patients. The diagnosis is based on clinical findings and usually histopathological examination is not necessary. Histological examination of skin samples shows follicular plug, neutrophilic abscesses and sinus tracts. In severe cases, granuloma formation; abscesses, histiocytes and sinuses surrounded by giant cells can be seen.[10]

In the literature, many studies have mentioned the relationship between smoking and obesity with HS. Smoking is thought to play a role in etiology by increasing the chemotaxis of polymorphonuclear leukocytes. Nicotine has been reported to trigger an inflammatory response by increasing interleukin (IL) 10 levels.[16] In addition, the relationship between metabolic syndrome, cardiovascular diseases and HS has been mentioned in recent years.[1,17,18] The most common psychiatric comorbidities in patients with HS were reported as anxiety and depression.[19] Obesity was detected in 9 of our patients. In our study, we could not evaluate the smoking rates of the patients due to insufficient data. We identified smoking in 7 of the 9 patients whose records could be reached. Anxiety was detected to be the most frequent psychiatric comorbidity and one patient had schizophrenia.

The disease is located in the intertriginous areas of the apocrine sweat glands. Axillary, inguinal and perineal regions are the main affected areas.[1,4] Similarly to the studies in the literature, the most common site in our patients was axilla.[12] However, inframammarian region involvement was the most common in women.

Bacterial colonization is often not observed in early stages of hydradenitis suppurativa. However, in later stages, secondary bacterial infection may be a risk factor for the expansion of the lesion and scarring development.[1,11] In our study, wound culture positivity was found in 17 patients. Ten of them were evaluated as contamination. *Acinetobacter baumannii, proteus mirabilis, enterococcus* spp, *pseudomonas aeruginosa* were detected.

Medical and surgical methods can be used in treatment. Systemic antibiotics, topical antibiotics and antiseptics are the most commonly used drugs in medical treatment. In addition, 5-alpha reductase inhibitor finasteride, isotretinoin, acitretin, cyclosporin, anti-TNF antibody known as infliximab, adalimumab, methotrexate and dapsone are the other treatment options.[1,20-22] In our clinic, topical agents and oral antibiotics were preferred in the first stage of treatment. The most preferred agents were doxycycline, ciprofloxacin, ampicillin-sulbactam, amoxicillin-clavulanic acid and treatment continued for at least 10 weeks. In our retrospective analysis, we found that the combination of rifampicin and clindamycin, which is commonly recommended for use in antibiotic preference, is not applied in our clinic. We thought that this was due to the advancement of further treatment steps in patients who had no response to another group of antibiotics. However, as most of the patients were in the intermediate and severe groups, advanced treatments were needed. One of the other treatment regimens, 5-alpha reductase inhibitor finasteride, was used in 4 patients. Acitretin was administered in 6 patients and isotretinoin was applied in 27 patients. Recently, a biological agent, adalimumab was preferred in the intermediate and severe patient group.[23] Eight patients with adalimumab in our study were treated. In 5 patients using adalimumab, a 50% reduction was detected in disease severity during the eighth week of treatment. In one patient, failure to respond to treatment was followed by infliximab treatment. In one patient, dapsone was added to the treatment. In another patient, metrotrexate was used instead of adalimumab. Partial response to treatment was obtained in the follow-up of these three patients.

Surgical treatment is preferred when medical treatment fails in patients with advanced and recurrent HS. Complete resection is a good option because less invasive techniques such as local incision and abscess drainage or limited excision and primary closure may result in failure. Total excision of HS

may cause defects that are too large to allow primary closure. In this case, secondary healing, grafting and closure with local flaps are the recommended treatment options in the literature.[14] Surgical treatment was performed in 8 of our patients and the most common technique was excision and flap closure.

CONCLUSION

As a result, the clinical, demographic and therapeutic data of 59 HS cases in our clinic were summarized. The results show that HS is a chronic skin disease that usually occurs in the 3rd decade, which is seen in the apocrine glands, requires many treatments, and surgery in severe cases and comorbidities may accompany. We consider that this paper contributes toliterature due to reporting the data about HS in Turkish population. However, we believe that multi-center studies conducted with larger patient groups are needed in order to reach more comprehensive data on this subject.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Nihal Altunışık;* ***Design:*** *Nihal Altunışık;* ***Control/Supervision:*** *Nihal Altunışık, Serpil Şener;* ***Data Collection and/or Processing:*** *Nihal Altunışık, Serpil Şener;* ***Analysis and/or Interpretation:*** *Nihal Altunışık;* ***Literature Review:*** *Nihal Altunışık;* ***Writing the Article:*** *Nihal Altunışık;* ***Critical Review:*** *Nihal Altunışık, Serpil Şener;* ***References and Fundings:*** *Nihal Altunışık, Serpil Şener;* ***Materials:*** *Nihal Altunışık.*

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