

# Dermatology Consultations in the Hospital Setting

## YATAN HASTALARDA DERMATOLOJİ KONSÜLTASYONLARI

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### Abstract

**Objective:** Dermatology and venereology plays an important role in the care of inpatients. Only a few studies examining the role of dermatological consultation in care of inpatients have been reported. We studied dermatological consultations in Ankara Numune Education and Research Hospital, retrospectively.

**Material and Methods:** In a period of one year we retrospectively evaluated the services requesting consultation, diagnoses of patients in those services, dermatological diagnoses and the relation between both diagnoses.

**Results:** We recorded 656 patients in one year (2004 August-2005 August). The services requesting Dermatology consultation were most frequently Endocrinology (14.32%), Physical Medicine and Rehabilitation (14.17%) and Internal Medicine (13.41%). Most frequent diagnoses of patients in that services were diabetes mellitus (16%), malignancy (9.6%) and hypertension (3.81%). The most frequent dermatosis observed in these patients was superficial dermatophytosis (29.87%). The incidence of allergic contact dermatitis was 6.70%, and drug eruption 5.94%, xerosis 5.03%, generalized pruritus 4.57% were seen. In 7 patients nonmelanoma skin cancer, in 2 patients malignant melanoma and in 3 patients cutaneous metastases were detected. 38.1% of these dermatological diagnoses were related with diagnoses in those services.

**Conclusion:** Dermatology consultation in the hospital setting can improve diagnostic accuracy, efficiency, treatment and the care of inpatients.

**Key Words:** Referral and consultation; inpatients

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### Özet

**Amaç:** Yatan hastaların tedavisinde dermatovenerolojinin önemli rolü vardır. Yatan hastaların bakımında dermatoloji konsültasyonlarının rolünü inceleyen çok az sayıda çalışma yapılmıştır. Retrospektif olarak Ankara Numune Eğitim ve Araştırma Hastanesinde yatan hastalarda dermatoloji konsültasyonlarının katkısını inceledik.

**Gereç ve Yöntemler:** Bir yıllık bir süre içinde konsültasyon isteyen servisler ve hastaların bu servislerdeki tanıları, dermatolojik tanıları ve bu iki tanı arasındaki ilişki değerlendirildi.

**Bulgular:** Bir yılda (2004 Ağustos-2005 Ağustos) 656 hasta kaydedildi. En sık Dermatoloji konsültasyonu isteyen servisler Endokrinoloji (%14.32), Fizik Tedavi ve Rehabilitasyon (%14.17) ve Dahiliye (%13.41) idi. Hastaların bu servislerdeki en sık tanıları diabetes mellitus (%16), malignansi (%9.6) ve hipertansiyonu (%3.81). Bu hastalarda en sık gözlenen deri hastalığı yüzeysel dermatofitozdu (%29.87). Alerjik kontakt dermatit %6.7, ilaç erüpsiyonu %5.94, kserozis %5.03 jeneralize prürisi %4.57 oranında gözlemlendi. Yedi hastada melanom dışı deri kanseri, iki hastada malign melanoma ve 3 hastada da kutanöz metastaz tespit edildi. Bu dermatolojik tanıların %38.1'i yattıkları servislerdeki tanıları ile ilişkili idi.

**Sonuç:** Dermatoloji konsültasyonları, hastanelerde diğer kliniklerde yatan hastaların teşhis, tedavi ve bakımının kalitesine katkı sağlamaktadır.

**Anahtar Kelimeler:** Konsültasyon, yatan hasta

It is generally believed that dermatological practice takes place mainly in an outpatient setting, and dermatological consultations are

ignored in the hospital setting. Therefore, the frequency and impact of inpatient dermatologic consultations are largely unstudied.<sup>1</sup> We analyzed the reasons of requesting the nature of dermatological consultations in the largest government teaching hospital in Turkey.

### Material and Methods

Six hundred fifty six consecutive calls in a period of one year (2004 August-2005 August) from other inpatient clinics were included in the study.

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We retrospectively evaluated the clinics requesting consultation, the primary diagnoses of patients in these clinics, dermatological diagnoses and the relation between the primary diseases and dermatologic diagnoses. The time interval between request and performance of consultation was maximally 24 hours. The diagnostic tests such as potassium hydroxyde (KOH) examination, patch test, cultures, dermoscopy and biopsies were performed from the patients in order to confirm the diagnoses whenever necessary. The systemic, topical and combination therapies that were administered were also recorded.

### Results

We recorded 656 patients (338 male, 318 female) whom dermatological consultations were requested in one year. The ages of patients ranged from 2.5 to 91 years old (mean age: 48.8 years). Because our hospital did not have any inpatient pediatrics clinic, only 13 patients who were under 16 years old were examined in this study.

The most frequent requests of consultations were from endocrinology (14.32%), physical medicine and rehabilitation (14.17%), internal medicine (13.41%) and general surgery (5.94%) clinics (Table 1).

To evaluate the nature of the consultations, they were divided into five groups (Table 2).

Group 1: Dermatological diseases which primary disease may cause predisposition (n: 189)

Group 2: Dermatological diseases which may cause predisposition for primary disease (n: 7)

Group 3: Dermatologic diseases which may be cutaneous findings of primary disease or may co-exist with primary disease (n: 24).

Group 4: Unrelated primary disease and dermatological disease (n: 420)

Group 5: Drug eruption (n: 39) (Table 3).

The most frequent diagnoses of patients in these services were diabetes mellitus (DM) (16%), malignancy (9.6%), hypertension (3.8%), hemiplegia/paraplegia (3.5%), and HIV infection (1.8%).

The most frequent dermatoses observed among all patients were superficial dermatophyto-

**Table 1.** The number of dermatologic consultations in different clinics.

Requested clinics	Number of patients	%
Endocrinology	94	14.3
Physical medicine and rehabilitation	93	14.2
Internal medicine	88	13.4
Surgery	39	5.9
Orthopedics	37	5.6
Infection diseases	35	5.3
Cardiology	32	4.9
Neurology	31	4.7
Neurosurgery	24	3.7
Internal intensive care unit	20	3.0
Otorhinolaryngology	17	2.6
Psychiatry	17	2.6
Hematology	17	2.6
Urology	15	2.3
Gynecology and obstetric	14	2.1
Nephrology	13	2
Oncology	13	2
Surgery intensive care unit	11	1.7
Gastroenterology	9	1.2
Nuclear medicine	9	1.2
Ophthalmology	7	1.1
Plastic surgery	6	1
Bone marrow transplantation	6	1
Rheumatology	6	1
Burn unit	2	0.3

ses (31.1%). KOH examinations were performed in 242 patients, and positive results were obtained in 204 patients (87 tinea pedis, 87 onychomycosis, 15 tinea versicolor, 4 tinea cruris, 3 tinea corporis, 8 oral candidiasis). There were predisposing disorders such as DM (39), malignancies (9), HIV infection (5) and use of immunosuppressive drugs in 77 patients with dermatophyte infections. Lymphangitis was diagnosed in 2 patients and thrombophlebitis and cellulitis were diagnosed in one patient as a result of tinea pedis.

The most second frequently observed disease was contact dermatitis (CD) (6.7%) (44 allergic, 6 irritant). In 17 of patients with CD, the lesions were localized on the diaper area due to pad use for hemiplegia, or paraplegia. In 12 patients CD developed after topical medication for various reasons like burns and operations. Irritant CD were detected in 2 patients on the skin at the operation

**Table 2.** The relationship between dermatological diagnosis and primary disease.

Dermatologic diagnosis (n: 679)	Predisposing internal disorders (n: 189)	Dermatologic disorders causing predisposition for primary disease (n:7)	The skin finding of same diseases/or associated diseases (n: 24)	Unrelated with skin diseases (n: 420)
<b>Fungal infections (n: 204)</b>	DM, HIV infection, malignancies, immunosuppressive drug intake	Trombophlebitis, Lymphangitis, Cellulitis		Hypertension, BPH, vertigo, anal fissure, RA arthralgia, cardiac diseases, depression, MS, pregnancy, fracture, osteoarthritis, discopathy, urolithiasis
<b>Contact dermatitis (n: 50)</b>	Plegia, due to the topical therapy			HT, psychosis, BPH, thrombocytopenia, CPD, arthralgia, otitis, CRF
<b>Xerosis (n: 33)</b>	Hypothyroidism, CRF, DM, malabsorption			BPH, hernia, HT, PU, hemiplegia, hepatitis
<b>Generalized pruritus (n: 30)</b>	Malignancies, hepatitis infection, hyperthyroidism, colestasis, HIV infection			Arthritis, psychosis, BCC, hernia, fracture, BPH
<b>Urticaria (n: 21)</b>	Infections, malignancies, hyperthyroidism			HT, gonarthrosis, arthralgia, fracture
<b>Cutaneous vasculitis (n:18)</b>	Malignancies, SLE, RA, Fever		Connective tissue disorder	DM, HT, fracture, trauma
<b>Pyoderma (n: 17)</b>	DM			Gastric ulcer, hypertension, hypothyroidism
<b>Intertrigo (n: 16)</b>	Obesity			DM, SLE, RA, dispepsy, MM
<b>Herpetic infection (n: 15) (9 herpes, 6 zoster)</b>	DM			HT, discopathy, PU, hernia, pregnancy, BPH
<b>Cellulitis (n: 14)</b>	Malignancies, MI, emphysema, pancytopenia			HT, RA, BPH, CRF, discopathy
<b>Psoriasis (n: 12)</b>				Fracture, HT, hemiplegia, discopathy, pulmoner disorder, DM
<b>Foot and leg ulcers (n: 11)</b>	DM	Cellulitis	Ischemic leg ulcer,	
<b>RAS (n: 11)</b>	Anemia		RA, NHL, polyarthritits	Psychosis, discopathy, DI, sinus trombosis
<b>LSC (n: 11)</b>				Myoma uteri, hepatitis, tirotoxicosis, arthrosis
<b>Stases dermatitis (n: 10)</b>	Cardiac failure			DM, mastoidit, plegia, HT
<b>Nail disorders (n: 9)</b>	Foot deformity			DM, psychosis, HT
<b>Purpura and Echimose (n: 8)</b>	Hematologic malignancies, fracture			Dyspnea
<b>Decubitus ulcer (n: 89)</b>	Plegia, fractures, brain abscess, pneumonia, CRF, brucella infection			
<b>Seborrheic dermatitis (n: 8)</b>			HIV	HT, trauma, otitis, plegia, bipolar disorder
<b>Stomatitis (n: 8)</b>	DM, HIV, empyema			Psychosis
<b>Behçet's disease (n: 7)</b>		Uveitis, vertigo, hemoptysis	Behçet's disease	Multiple sclerosis
<b>Erythema nodosum (n: 7)</b>	Fever, malignancy		Behçet's disease	Hemiplegia
<b>Rosacea (n: 6)</b>			Xerotic eyes	DM, nephritis, arthritis, AS
<b>Traumatic wounds (n: 6)</b>	DM, epilepsy			Hepatoma, gonarthrosis
<b>Acne (n: 5)</b>				DM, fracture, CRF, hepatitis, AS
<b>PPD (n: 5)</b>	Stasis ulcer			DM, corpulmonale, hydatidic cyst
<b>APD (n: 5)</b>	DM, CRF, Hemodialysis			
<b>SLE (n: 4)</b>			SLE	
<b>Vitiligo (n: 4)</b>			DM, anemia	PU
<b>NF 1 (n: 4)</b>			Cranial, gluteal tumor, scoliosis	
<b>PH (n: 4)</b>				Cor pulmonale, DM, HT, hidatic cyst
<b>Others (n: 90)</b>	Bone marrow transplantation, foot deformity, malignancy, DM, CRF, hemodialysis		Ehlers-Danlos syndrome, connective tissue disorders, pylonidal sinus, genital wart, DM, malign melanoma, SCC	Cataract, HT, DM, hemiplegia, paraplegia, psychosis, otitis, discopathy, MS, CRF, arthralgia, strabismus,

LSC: Lichen simplex chronicus, CRF: Chronic renal failure, CPD: Chronic pulmonary disease, RA: Rheumatoid arthritis, MS: Multiple sclerosis, HT: Hypertension, SLE: Systemic lupus erythematosus, BPH: Benign prostate hypertrophy, PU: Peptic ulcer, NHL: Non Hodgkin lymphoma, DI: Diabetes insipitus, BCC: Basal cell carcinoma, MM: Multiple myeloma, SCC: Squamous cell carcinoma.

area due to use of antiseptics. Other CD's were not related with the cause of hospitalization.

Drug eruption was observed in 39 (5.9%) patients. In 12 patients, the offending drug could be

detected because of being the only drug that had been used for primary diseases. These drugs were diphenylhydantoin (3 patients), ampicillin plus sulbactam (2 patients), ciprofloxacin (2 patients),

**Table 3.** Number of drug eruptions in different services.

Clinics	The number of patients with drug eruption (n:39)	Percent	Primary disease
Neurosurgery	10	25.6	Intracranial <b>hematom</b> (3), trauma (3), malignancy (3), brain abcess (1)
Orthopedics	4	10.3	Fractures (3), discopathy (1)
Internal medicine and Internal intensive care unit	4	10.3	Malignancy (2), fever (1), pulmonar HT (1),
Hematology	3	7.7	AML (3)
Physical medicine and rehabilitation	3	7.7	Hemiplegia (1), MS (1), paraplegia (1)
Infectious disease	3	7.7	Brucella (1), fever (1), cellulitis (1)
General surgery	3	7.7	Hematom (2), perforation (1),
Gynecology	3	7.7	Endometritis (2), PID
Cardiology	2	5.1	Malignancy (1), cardiac failure (1)
Oncology	2	5.1	Rectum carcinoma (2)
Other	2	5.1	Bone marrow transplantation (1), malignancy (1)

HT: Hypertension, AML: Acute myeloblastic leukemia, MS: Multiple sclerosis, PID: Pelvic inflammatory disease.

vancomycin, cisplatin, cyclosporin A, sulperazon, diclofenac sodium in one each. Steroid acne was diagnosed in 5 patients who were hospitalized in neurosurgery intensive care units for various reasons. The other 22 patients received multiple drug therapy, therefore, responsible drugs could not be detected certainly. However most of these patients were receiving systemic antibiotics and nonsteroid antiinflammatory drugs. Localized bullous reactions due to intravenous ceftriaxon sodium therapy on the infusion area developed in 2 patients.

Xerosis was observed in 33 (5%) patients. Only 5 patients had disorders such as hypothyroidism (2), chronic renal failure (2) and malabsorption disorder (1) which might predispose to xerosis.

Generalized pruritus was diagnosed in 30 (4.6 %) patients. In half of these patients pruritus was related to primary diseases which were the reasons of hospitalization: DM (7), malignancies, infections, thyrotoxicosis (1), colestasis (1). Pruritus of the other patients did not have any relationship with the primary diseases.

Urticaria was diagnosed in 21 (3.2 %) patients. Twelve of these cases were thought to be related to the primary diseases. These disorders were DM (3), malignancies, infections, autoimmune hyperthyroidism (1) and myocardial infarction (1). No

cause was detected in 9 patients. The most common type of urticaria was chronic urticaria.

Cutaneous vasculitis which was seen in 18 (2.7%) patients was mostly associated with malignancy. Also, it coexisted with systemic lupus erythematosus (1), rheumatoid arthritis (1) and systemic vasculitis (2). The other cases were not related with the primary hospitalization causes; such as hypertension (3), DM (2), femur fractures (1), gun-shut wound (1).

Pyoderma was diagnosed in 17 (2.6%) patients, and 7 of them were hospitalized for DM. Among 14 consulted cellulitis patients, 2 of them had already been hospitalized for cellulitis. One patient with cellulitis had DM. The others were independent from causes of hospitalization.

In 7 patients non melanoma skin cancer [basal cell carcinoma (5), squamous cell carcinoma (2)], in 2 patients malignant melanoma, in 2 patients mycosis fungoides and in 3 patients cutaneous metastases were detected. The other dermatological diagnoses are seen Table 4.

Thirty eight percentage of the whole dermatological diagnoses were related with diagnoses in those clinics or intake of drugs for primary diagnoses. No dermatological pathology was found in 16 patients of all requested consultations. Total 679

**Table 4.** Other Dermatologic diagnoses.

Number of patients	Diagnoses
17	Pyodermia
16	Intertriginous dermatitis
15	Herpetic infections (herpes 9, zoster 6)
12	Psoriasis
11*	Foot and leg ulcer, RAS, lichen simplex chronicus
10	Stasis dermatitis
9	Nail dermatosis
8*	Decubitus ulcer, purpura and ecchymosis, stomatitis, seborrheic dermatitis,
7*	Behçet's disease, erythema nodosum
6*	Rosacea, traumatic wounds
5*	Acne, pigmented purpuric dermatosis, acquired perforating dermatosis
4*	Keratosi pilaris, systemic lupus erythematosus, postinflammatory hyperpigmentation, vitiligo, neurofibromatosis type 1
3*	Diabetic dermopathy, lichen planus, scabies, GVHD, hyperkeratosis
2*	Lupus vulgaris, poikiloderma, nummular dermatitis, dermatofibroma, angioedema, actinic keratosis, perniosis, livedo reticularis, alopecia, seborrheic keratosis, erythrasma, lepra, verruca vulgaris and anogenitalis
1*	Icthyosis vulgaris, skin tag, miliaria, pediculosis, lipoma, glomus tumor, granuloma annulare, burn, callus, macular amyloidosis, erythema multiforme, pyoderma gangrenosum, polymorphous light eruption, pilonidal sinus, sarcoidosis, giant comedon, pilar cyst, insect bite, Ehlers-Danlos syndrome and black hairy tongue

\*for each diagnoses.

dermatologic disorders were diagnosed. One patient with HIV infection refused dermatological examination. Although 656 patients with requested consultations were enrolled in our study, 679 dermatologic disorders were diagnosed as some patients had more than one diagnosis.

While topical treatments were administered to 345 patients and systemic treatments were administered to 119 patients, combined therapy were recommended in 105 patients. Excision surgery was done in 12 patients and cryotherapy was performed to the lesions of 3 patients.

### Discussion

A wide range of skin diseases are present in hospitalized patients. Some patients may attend to non-dermatologists for skin disorders. Because of these, dermatological consultation has an expanding role in hospitalized patients.<sup>2</sup> The nature of dermatological consultations in a hospital setting has not been studied in detail until today. Sheretz reported the dermatological diagnoses of 705 consultations and approximately 57% of the diagnoses were common dermatoses seen frequently in outpatient

setting, whereas 9% were skin manifestations of systemic diseases.<sup>3</sup> Gupta et al. studied the nature of dermatological consultations in emergency setting and they reported that internal medicine, pediatrics, general surgery and neurology were the most common clinics requesting consultation.<sup>4</sup> In 2004, Fischer et al. assessed dermatological consultations retrospectively and found that most of the consultations were made from internal medicine, pediatrics, neurology and cardiothoracic surgery.<sup>5</sup> We found that the clinics requesting consultation most frequently were endocrinology, physical medicine and rehabilitation, internal medicine, general surgery, orthopedics, infectious diseases, cardiology. As our hospital did not have pediatric inpatient clinic the number of children in our study was low.

Previously it was thought that the few rare diseases that were more accurately diagnosed and treated by specialists did not justify reliance on specialty care. Falanga et al. reported that the diagnosis and treatment changed after the dermatological consultation in 40%-60%.<sup>1</sup> We did not compare the dermatologic diagnosis and initial diagnosis (which was thought by non-dermatologist), because in our

hospital consultations were requested generally without initial diagnosis. Our study showed that the dermatology consultations provided diagnosis of the skin lesions. We detected that 38.1% of total dermatological diagnoses were related with diagnoses in those clinics or the drugs used.

Antic et al. reported that eczema was the most common diagnosis, followed by actinic and Bowenoid precancerosis, drug eruption, verrucae and mycosis in their study that was about the dermatological consultations.<sup>6</sup> Their study was made only within departments of internal medicine differently from ours. In our study, we observed that most common dermatological diagnosis was superficial superficial dermatophytoses. The reason of this might be the low socioeconomic level of the patients in our hospital.

Dermatologic consultation is useful for many reasons. For example; in our study, as different from other studies in the literature, the consultations were requested from us for the diagnosis and treatment of cutaneous findings of Behçet's disease in 28 patients. Three of them were diagnosed as Behçet's disease and 11 of them had only recurrent aphthous stomatitis and 10 of them were healthy. Cutaneous findings of Behçet's disease were treated in four patients. We detected cutaneous malignancy in 11 patients and cutaneous metastases in 3 patients by obtaining biopsy from skin lesions. Due to this, in 14 patients treatment protocols were changed. The examination and biopsy of skin lesions provided the diagnosis or exclusion of some systemic disorders such as systemic lupus erythematosus, systemic vasculitis, arthritis (psoriatic, Behçet's disease) and GVHD. The treatment of 39 patients were stopped or changed because of the diagnosis of drug eruption. Also in 12 patients topical treatments were changed as these drugs caused to contact dermatitis.

In this study, dermatological consultation revealed following outcomes.

Group 1: Dermatological diagnoses which primary disease may cause predisposition (n: 189). DM was found as a predisposing factor for the dermatologic disorders (40%). Malignancy and HIV infection were the other predisposing factors.

Group 2: Dermatological disease which may cause predisposition for primary disease (n: 7)

Superficial dermatophytosis (3) and Behçet's disease (3) provoked the primary diseases.

Group 3: Dermatologic diagnoses which may be cutaneous findings of primary disease or may coexist with primary disease (n: 24). Dermatologic diagnoses were cutaneous findings of connective tissue disease in 6 patients, Behçet's disease in 4 patients and NF type 1 in 4 patients. Dermatological consultation confirmed skin cancer in 4 patients (2 squamous cell carcinoma, 1 malign melanoma, 1 basal cell carcinoma).

Group 4: Unrelated primary disease and dermatological disease (n: 420). Important skin disorders for patients such as malignant melanoma (1), basal cell carcinoma (4), mycosis fungoides (2) were diagnosed on dermatological consultation, although these diseases were not related with primary diseases. In 3 patients cutaneous metastases were detected and the treatment protocols of patients were changed.

Group 5: Drug eruption (n: 39); We found that drug reactions occurred mostly in neurosurgery, orthopedics and internal medicine clinics. The cause of this may be the drugs such as antiepileptics, antibiotics and nonsteroid antiinflammatory drugs which cause mostly drug reactions were frequently administered to the patients hospitalized in these clinics.

We believe that dermatology consultation should be obtained in hospitalized patients with cutaneous findings to improve diagnostic accuracy, therapy and the care of inpatients and to decrease period and cost of treatment.

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