

# Pattern of Inpatient Dermatology Consultations in a Tertiary Care Centre from Northern India

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## ABSTRACT

**Introduction:** The importance of dermatology inpatient consultation is of significant importance yet is not well documented.

**Aim:** To retrospectively analyse the spectrum of dermatology inpatient consultations from the various departments and to document the most commonly occurring dermatological disorders from each speciality.

**Materials and Methods:** This study was done in an 800 bedded premier teaching hospital in Ludhiana, Punjab, North Western India. It was an audit of inpatient referrals to the dermatology department from January 2014 to August 2014. We analysed the spectrum of dermatological disorders in relation to the various specialities, demographic profile and age groups.

**Statistical Analysis:** The data was entered in Microsoft Excel and analysed using SPSS Version 21. Descriptive statistics, frequency and proportions were used.

**Results:** Of the 559 in-patients, 60% were males. The majority

of the patients belonged to age group 51-60 years (25.9%). The departments most commonly requesting for dermatology consultations were Medicine (27.7%), Neurology (9.7%), Cardiology (8.8%), Urology (7%), Haematology (6.4%), Nephrology (6.1%), Intensive Care Unit (ICU) (5.4%), General Surgery (5.2%), Orthopaedics (5%), Gynaecology and Neurosurgery (2.9%) and Paediatrics (2.7%). The commonest dermatological diagnoses for which consultations were sought were eczematous dermatitis (12.9%), superficial dermatophytosis (12.3%), drug reactions (8.9%) and viral skin infections (8.5%).

**Conclusion:** Dermatology consultations offer a significant role in diagnosis and management of the in-patients from various clinical speciality departments. There is a significant need of inter-departmental dermatology consultations which help to decrease morbidity and improve the quality of the patient's hospital stay. Knowledge about the pattern of dermatoses in the inpatients can help the primary clinician to recognize when to seek dermatology consultation on a priority basis.

**Keywords:** Consultation, Dermatology, Inpatients, Referral

## INTRODUCTION

The spectrum of dermatological dermatoses is vast. Some dermatological complaints are only skin deep while others heralding a systemic disease. There are various diseases and syndromes well documented with a cutaneous marker. Certain dermatological diseases such as psoriasis are associated with metabolic syndrome and cardiovascular disease. There is an increased prevalence of various cutaneous infections with diabetes mellitus and other immune-compromised states. Therefore, it is highly likely that the hospitalised patients complain of dermatological problems while admitted. Some patients who are admitted in the hospitals with a non-dermatological complaint might have an underlying skin disorder or some patients might develop an acute dermatological disease like drug rash while in the hospital. It is known that the non-dermatology specialities who call for dermatological consultations often miss the common dermatoses [1]. Dermatology consultations were considered important because it facilitated diagnosis and / or treatment of a dermatological disease that was unrelated to the reason for admission in 58% of the study cases [2].

The importance of Outpatient Department (OPD) dermatology consultation is described in medical literature but the same is not true for the Inpatient Department (IPD) consults from other specialities. The contribution of inpatient dermatology consultations is enormous, yet is not well recorded. The pattern of skin dermatoses in IPD differs significantly from those seen on an OPD basis. Whereas acne, eczemas, scabies and tinea tend to be common in an OPD setting [3], IPD patients have eczemas, drug reactions and infective dermatoses as the most frequently diagnosed skin patterns [1,2].

Though there are various Indian studies on the OPD pattern of dermatology diseases, there is a paucity of Indian literature regarding the pattern of IPD dermatology consultations.

Hence, this study was undertaken to document the pattern of dermatoses seen in various specialties and super specialties and to understand their referral patterns in order to sensitize the respective clinicians regarding the commonly occurring dermatoses in their respective fields. In a multidisciplinary hospital, dermatologists play a key role in diagnosis and management of the in-patients [4]. In this study, we have tried to analyse the burden of dermatological consultations and the most common disorders which prompt the doctors from other specialities to send for a dermatologist's opinion. We have also tried to study the pattern of dermatology disorders in various specialities and in various age groups.

## MATERIALS AND METHODS

The study was an audit of inpatient referrals to the dermatology department from January 2014 to August 2014. The department maintains a consultation register where the demographic details, speciality requiring dermatological consultation and primary diagnosis of the patient are entered. The dermatologist is required to visit the patient within 24 hours for a routine consult and within one hour in case of an emergency consult. The treatment is advised based on the examination and in some cases procedures such as skin biopsy, Tzanck or KOH smears etc. The final diagnosis is later entered into the same register. The consultation records of 559 such consultations were studied from January 2014 to August 2014. In this study, only the final diagnosis was considered.

## STATISTICAL ANALYSIS

The data was entered in Microsoft Excel and analysed using SPSS Version 21. Descriptive statistics, frequency and proportions were used.

## RESULTS

A total of 559 in-patients were seen on consultation of which 60% (334) were males. The majority of the patients belonged to age group 51-60 years (25.9%). The demographic profile of the patients is shown in [Table/Fig-1]. The specialities requesting dermatology consultation are shown in [Table/Fig-2]. The proportion of dermatology consultations were Medicine (27.7%), Neurology (9.7%), Cardiology (8.8%), Urology (7%), Haematology (6.4%), Nephrology (6.1%), ICU (5.4%), General Surgery (5.2%), Orthopaedics (5%), Gynaecology and Neurosurgery (2.9%) and Paediatrics (2.7%) [Table/Fig-2].

The most common dermatological diagnosis for which the consultations were sought were eczematous dermatitis (12.9%), superficial

Age group (years)	Male (334)	Female (225)	Total No (%)
<10	11	7	18(3.2)
11-20	29	8	37(6.6)
21-30	22	34	56(10)
31-40	40	28	68(12.2)
41-50	60	41	101(18.1)
51-60	83	62	145(25.9)
61-70	52	37	89(15.9)
>70	37	8	45(8.1)

[Table/Fig-1]: Demographic data.

Department	Males	Females	Total (%)
Medicine	82	73	155(27.7)
Neurology	41	13	54(9.7)
Cardiology	30	19	49(8.8)
Urology	27	12	39(7)
Haematology	26	10	36(6.4)
Nephrology	22	12	34(6.1)
ICU	17	13	30(5.4)
Surgery	15	14	29(5.2)
Orthopaedics	23	5	28(5)
Gynaecology	0	16	16(2.9)
Neurosurgery	12	4	16(2.9)
Paediatrics	5	10	15(2.7)
Others* (Departments with Frequency <5%)	34	24	58(10.3)

[Table/Fig-2]: Distribution of Dermatology Consultations.

Others\* = Rheumatology, Chest Medicine, Psychiatry, Neonatology, Gastroenterology, Endocrinology, Radiotherapy

Dermatological diagnosis	n= 559	Percentage
Eczemas	72	12.9
Superficial dermatophytosis	69	12.3
Drug rash	50	8.9
Viral Infections of the skin	48	8.5
No skin lesions	26	4.7
Intertrigo	22	3.9
Scabies	19	3.4
Generalised pruritus	15	2.7
Oral candidiasis	15	2.7
Frictional blisters	12	2.1
Psoriasis	12	2.1
Generalised Xerosis	11	2
Others*(frequency <2%)	188	31.4

[Table/Fig-3]: Common dermatoses for which consultation was sought.

Others\* = Subungualhaemorrhages, Flushing, Migratory glossitis, Idiopathic guttatehypomelanosis, Neurofibromatosis type 1, Perniosis, Pyodermagangrenosum, Cherry angiomas, Pruritus vulvae, Xanthlasma, Stria, Corn, Lymphangiectasia, Thermal injury, Leg ulcers, Seborrhoeic keratosis, Spider nevi, Senilecomedons, Brittle nails cracked lips etc

dermatophytosis (12.3%), drug reactions (8.9%), viral-skin infections (8.5%) and others as are listed in [Table/Fig-3]. The entire spectrum of dermatological diagnoses with a frequency of <2% is classified in [Table/Fig-4]. [Table/Fig-5] projects the common dermatoses seen from each department.

Dermatological diagnosis	n=188	Percentage %	
Pityriasis versicolor	6	1.1	
Hansen's disease	8	1.4	
Ichthyosis	Ichthyosis vulgaris	2	0.4
	Acquired Ichthyosis	7	1.3
Pigmentary disorder	Vitiligo	4	0.7
	Post inflammatory hyperpigmentation	1	0.2
Viral exanthema	4	0.7	
Disorders of skin appendages	Acne vulgaris	4	0.7
	Acneiform eruptions	5	0.9
	Sebaceous cyst	1	0.2
Perforating folliculitis	3	0.5	
Nevoid conditions	Becker's nevus	1	0.2
	Neurofibromatosis	1	0.2
	Nevus achromicus	1	0.2
Cutaneous Graft Versus Host Disease	2	0.4	
Bullous disorders	Epidermolysisbullosaacquisita	1	0.2
	Dermatitis herpetiformis	2	0.4
Diabetic bullae	2	0.4	
Erythema nodosum	3	0.5	
Urticarial reactions	Acute urticarial	10	1.8
	Chronic urticarial	1	0.2
	Papular urticarial	5	0.9
Disorders of coagulopathy	Purpura fulminans	7	1.3
	Ecchymosis	3	0.5
	Senile purpura	6	1.1
Others* (with frequency <1%)	-	98	52

[Table/Fig-4]: The spectrum of dermatological diagnoses <2% >1% across all departments

Others\* = Subungualhaemorrhages, Flushing, Migratory glossitis, Idiopathic guttatehypomelanosis, Neurofibromatosis type 1, Perniosis, Pyodermagangrenosum, Cherry angiomas, Pruritus vulvae, Xanthlasma, Stria, Corn, Lymphangiectasia, Thermal injury, Leg ulcers, Seborrhoeic keratosis, Spider nevi, Senilecomedons, Brittle nails cracked lips etc

## DISCUSSION

Dermatology consultations of in-patients have an impact on treatment [5]. However, the spectrum of skin diseases amongst in-patients from non-dermatological specialities has rarely been studied. In this study we not only report the common dermatoses which prompt the request for consultations but also note the pattern of various skin disorders from the common specialities and super-speciality departments. We have also tried to study the dermatoses in the various age groups from each speciality and have come to some remarkable conclusions.

The heaviest demand for dermatology consultations were from the Internal medicine physicians. Apart from General medicine and its various specialities, Urology, General surgery and Orthopaedics were the main surgical departments to seek a dermatology opinion. The study conducted by Mancusi S et al., had similar results [2].

Falanga V et al., also reported that the majority of the consults in their study (39%) were from medicine. However, the other departments in their study who requested dermatology consultations most frequently were Paediatrics, Surgery and Psychiatry [5]. Davila et al., noted a similar pattern for dermatology referrals [6].

Department	Total consultations	Percentage (%)	Dermatological diagnosis	Number =501	Percentage (%)
Medicine	155	27.7	Fungal skin infections	31/155	20
			Eczematous dermatitis	18/155	11.6
			Drug rash	11/155	7.1
Neurology	54	9.7	Fungal skin infections	8/54	14.8
			Drug rash	3/54	5.6
			Leprosy	3/54	5.6
Cardiology	49	8.8	Fungal skin infections	12/49	24.5
			Eczematous dermatitis	9/49	18.4
			Drug rash	7/49	14.3
			Psoriasis	6/49	12.2
Urology	39	7	Generalised Xerosis	6/39	15.4
			Intertrigo	5/39	12.8
			Leprosy	3/39	7.7
Haematology	36	6.4	Drug rash	7/36	19.4
			Fungal skin infections	6/36	16.7
			Bacterial infections	2/36	5.6
Nephrology	34	6.1	Fungal skin infections	11/34	32.4
			Perforating folliculitis	4/34	11.8
			Eczematous dermatitis	4/34	11.8
ICU	30	5.4	Purpura fulminans	8/30	26.7
			Viral skin infections	6/30	20
			Fungal skin infections	4/30	13.3
General surgery	29	5.2	Eczematous dermatitis	8/29	27.6
			Fungal skin infections	8/29	27.6
			Viral skin infections	3/29	10.3
Orthopaedics	28	5	Eczematous dermatitis	6/28	21.4
			Fungal skin infections	5/28	17.9
			Generalised pruritus	3/28	10.7
Gynaecology	16	2.9	Viral skin infections	4/16	25
			Urticaria	3/16	18.8
			Bacterial infections	2/16	12.5
Neurosurgery	16	2.9	Drug rash	3/16	18.8
			Eczematous dermatitis	3/16	18.8
			Fungal skin infections	3/16	18.8
Paediatrics	15	2.7	Drug rash	3/15	20
			Urticarial	2/15	13.3
			Eczematous dermatitis	2/15	13.3

**[Table/Fig-5]:** The three most common dermatoses referred from the respective speciality to the dermatologist is listed.

Majority of the studies report that the most common dermatoses diagnosed during in patient consultations are mainly infections, drug reactions and eczemas [1,5-7]. In this study, eczemas topped the list at 12.9% followed by superficial dermatophytosis (12.3%), drug reactions (8.9%) and viral skin infections (8.5%). The other less frequently diagnosed conditions were finding normal

skin on examination (4.7%), intertrigo (3.9%), scabies infestations (3.4%), generalised pruritus and oral candidiasis (2.7%), frictional blisters and psoriasis (2.1%) and generalised xerosis in (2%) of all consultations.

The most common reasons for consultations from Medicine were for the treatment of cutaneous fungal infections and eczematous dermatitis [Table/Fig-5]. The most common fungal infection was oral candidiasis followed by superficial dermatophytosis. Drug rash including Steven Johnson Syndrome comprised 20% of the Paediatric referrals followed by acute urticaria and atopic dermatitis (13.3%) each respectively.

In this study, nephrologists sought a dermatological consult for perforating folliculitis, dermatophytosis, frictional blisters, generalised pruritus etc. This study further corroborates the existing knowledge that perforating folliculitis and generalised pruritus are commonly associated with renal disorders.

In the ICU setting, Purpura fulminans (26.7%) was the commonest reason for consulting a dermatologist followed by viral (20%) and fungal (13.3%) skin infections of various body sites. Drug rash and intertrigo (6.7%) followed next and frictional blisters (3.3%) were also consulted from ICU. This spectrum of consultations is similar to that reported by Emre S et al., [8]. Wollina U et al., found viral infections to be most prevalent in an ICU setting [9]. They also reported similar dermatoses like skin irritation, intertrigo and drug reactions.

There was a significant group of patients in whom no skin lesions were found by the dermatologist (4.7%). Of them 2% consults were for the dermatologist's clearance prior to Bone Marrow Transplantation (BMT) (2%).

Amongst surgical specialities, the common dermatoses prompting a dermatologist's consultation were generalised xerosis, intertrigo, eczematous dermatitis and cutaneous fungal infections unlike sexually transmitted diseases and infections as reported by Walia NS et al., [1]. Amongst the eczematous dermatitis group, majority of the consults were for Irritant contact dermatitis to adhesive material (2.1%).

Amongst neurosurgery, 18.8% of the consultations were for drug rash, eczematous dermatitis, fungal skin infections. Acneiform lesions were consulted in 12.5% inpatients. This is similar to the study reported by Lee J et al., [10]. The higher frequency of drug reactions could be due to anti-epileptic drugs being prescribed to this group of patients.

In this study, among the gynaecology patients, infections were the most common dermatological diagnoses followed by urticaria (18.8%). Viral infections like genital warts, *molluscum contagiosum* were 25% and bacterial folliculitis was 6.3%. There were no referrals for vaginal discharge and pruritus vulvae in our study. Our findings were different from that of Walia NS et al., who reported vaginal discharge and pruritus vulvae as their most frequent consultation from gynaecology [1].

It was interesting to note, the pattern of skin lesions in the various age groups in relation to their primary illness. In this study majority of the patients belonged to age group 51-60 years (25.9%). Over all, there was a significantly higher frequency of patients >60 years of age (24%).

In medicine, the dermatoses were spread out almost evenly amongst the various age groups while in Haematology, the majority of the consultations fell in the age group of 11-20 years and 60-70 years. In Neurology, Orthopaedics, Cardiology and Urology departments, the maximum consults were from the elderly (61-70years).

The majority of the General surgery and Nephrology consults were from patients in the age group of 51-60 years. Amongst all the in-patient consultations, the dermatoses common in the elderly (>60 years) were generalised xerosis, intertrigo, asteototic dermatitis, psoriasis, generalised pruritus, acquired ichthyosis, herpes zoster and drug rash. In the opposite end of the spectrum

(children <10years), the most common reasons for dermatology consultations were for Bone Marrow Transplant (BMT) clearance, viral exanthems and infections like dermatophytosis, pyoderma and candida intertrigo.

The primary diagnosis in the patients from Neurology was stroke and fungal skin infections and blisters over the friction prone areas were the major reasons for requesting dermatology consultations. Moreover, the dermatology consultations were primarily from the age group of 50-70years corresponding with the age group which is at high risk for stroke. Consults from neurosurgery were mainly in the age group of 50-60years and were mainly for management of drug rash, traumatic erosions and dermatophytic infections. This is similar to the study done by Lee J et al., where the maximum no of patients were in the age group of 60-69years [10].

From Haematology, apart from clearance before BMT, next in the category were drug rash (19.4%), fungal skin infections (16.7%), acquired ichthyosis and generalised xerosis (5.6%). Our findings do not match with the study done in haematology patients elsewhere [11]. Amongst the Haematological disorders, Thalassaemia Major, acute and chronic leukaemias were the important factors for the request for clearance from dermatology prior to BMT. On analysing the relation of these consults with the corresponding age groups it was found to correspond to the age groups with high prevalence of these haematological disorders mainly 11-20years and 61-70 years.

The majority of the patients who were consulted by the urologists were elderly (61-70years) and the most common dermatoses seen in these patients were intertrigo and generalised xerosis. The elderly population is more prone to developing xerosis. This could be the reason for its higher prevalence in this study.

In this study, 4.7% of the consultations sought did not have any dermatological problem even though the clinician sought dermatology opinion. This brings out an observation that inter-disciplinary departmental meetings and frequent interactions are required so that the primary clinician can identify and prioritize the condition where urgent dermatology consultation is required. Training the clinicians regarding the commonly occurring dermatoses in their specialty will help in early intervention, decrease the burden of insignificant consultations and improving the quality of the patient's hospital stay.

## LIMITATION

The study was conducted in a tertiary care centre, in a major city with highly specialised consultants. The result of the study cannot be applied to a secondary or a primary care facility.

## CONCLUSION

The most common dermatological diagnosis seen in admitted patients from non-dermatological specialties are eczematous dermatitis, cutaneous fungal infections and drug reactions. Internal Medicine department contributes the maximum load of dermatological consultations followed by Neurology and Cardiology specialties. Urology requests for dermatological consultations most frequently amongst the surgical specialties. Majority of these dermatoses though common, are specific and it is prudent to consult a dermatologist if an inpatient develops skin lesions for hastening the dermatological diagnosis, giving specific treatment and decreasing morbidity of the patient in the hospital.

This study provides further evidence to the significant need of inter departmental consultations and meetings to sensitize the clinicians and to train them to recognize the common dermatoses frequently seen in their field of expertise. The timely intervention would ensure that the dermatologist is called at the earliest for the diagnosis and management of the significant dermatoses and decrease the burden of insignificant dermatology consultations.

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