

# Cutaneous hypopigmentary disorders - An observational study

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## ABSTRACT

**Background:** Hypopigmented skin lesions is very common among people of all age groups. There are limited studies in India about evaluation of hypopigmented skin conditions. The aim of my study is to evaluate the different etiologies of cutaneous hypopigmentation. **Aim:** The present study was undertaken to find the relative incidence of the various disorders causing a hypopigmented lesion in a random sample of 200 cases and to study site, distribution and characteristics of the lesions. **Methods:** A random sample of 200 patients presenting with one or more hypopigmented lesions to the outpatient department of Dermatology, Venereology and Leprosy in KVG Medical College and Hospital, Sullia from December 2011 to January 2013 was studied. Detailed history including address and occupation with special reference to onset and duration, preceding skin conditions, exposure to chemicals, topical application and family history was taken. Various characteristics of the lesion like site, size, number, distribution, surface and sensation were studied. After this samples were taken for relevant investigations like complete hemogram, biopsy, slit skin smear, KOH mount and assessed for the causes of hypopigmented lesions. **Results:** In our study, most common cause with cutaneous hypopigmentation was pityriasis versicolor, seen in 52%, followed by post inflammatory hypopigmentation in 32%, pre vitiligo in 6.5%, Hansen's disease, idiopathic guttate hypomelanosis, nevus anemicus each in 2%, Woronoff's ring in 1.5% and miscellaneous conditions in 2% of the cases. Commonest age group affected was 21-30 years. Males (49%) and females (51%) were almost equally affected. **Conclusion:** The study concludes that various conditions comes under hypopigmentary disorders. More common in young adults. Most common scaly condition was pityriasis versicolor and non scaly condition was pre vitiligo. Proper counseling and ruling out Hansen's disease is required to alleviate the patient's anxiety.

**Key words:** Hypopigmentary disorders; Pityriasis versicolor; Post inflammatory hypopigmentation; Pre vitiligo, Hansen's disease

## INTRODUCTION

Skin is the largest organ of the body and the only organ which is visible and is in direct contact with the environment [1]. It has been said that the greatest problems in this world are very tiny, the atom, the ovum and a touch of pigment. The largest organ of the body very commonly suffers from this touch of pigment.

Numerous skin conditions cause alteration in the normal pigmentation resulting in significant psychological morbidity due to cosmetic disfigurement.

Pigmentary disturbances may be congenital or acquired, circumscribed or generalised, hypomelanotic or hypermelanotic [2].

This study strives at the various skin conditions presenting as hypopigmentation. With attention to variability of extent of hypomelanosis, history of evolution, attention to hue and awareness of ancillary features, the differential diagnosis will be narrowed down and definite diagnosis will be arrived at with the help of relevant investigations. An attempt will also be made to find the relative incidence of each condition.

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## METHODS

A clinical study was conducted on 200 patients who presented with hypopigmented lesions were selected over a period of 2 years from out patient department of Dermatology in a tertiary care hospital. The study included patients of pediatric as well as adult age group presenting with one or more hypopigmented lesions. Both scaly and non scaly presentations were included. Cases with depigmented lesions including those of established vitiligo, chemical leukoderma and leukoderma secondary to topical applications were excluded.

Cases with lesions only over the face and/or mucosae and cases with generalised hypomelanosis were also excluded from the study.

Detailed history including address and occupation with special reference to onset and duration, preceding skin conditions, exposure to chemicals, topical application and family history was taken. Various characteristics of the lesion like site, size, number, distribution, surface and sensation were studied along with nail, hair, mucosal examination and examination of the palms and soles. Care was taken to find out any associated conditions coexisting with the primary disease.

Relevant investigations including routine hemogram, scraping for KOH mount, slit skin smear, Wood's lamp examination and skin biopsy were done. Analysis of each of the diseases was done and results compiled.

## Ethics

This study was performed on human subjects; thus, all patients were aware of the presence of the study and they were fully informed about the drug and its side-effects.

## RESULTS

A total of 200 patients were included in study. There were 98 males (49%) and 102 females (52%) with ratio of 0.96:1 (Table 1). Maximum numbers of cases were seen between 21-30 years of age group comprising 36% of the total. Of the various diseases studied, 52% of the cases were pityriasis versicolor, 32% were post inflammatory hypopigmentation, 6.5% were pre vitiligo, 2% each of leprosy, idiopathic guttate hypomelanosis, nevus anemicus, 1.5% Woronoff's ring and 0.5% each comprised of lichen sclerosus et atrophicus, halo nevus, nevus achromicus and hypomelanosis of Ito (Table 2). Regarding sites involved, many cases had more than one site that was involved. In

89 cases, trunk was the predominant site involved. Of the 64 cases of post inflammatory hypopigmentation, 33 cases (51.57%) cases were polymorphous light eruptions, 15.63% cases were psoriasis, 14.07% cases were pityriasis rosea, 6.25% were lichen striatus, 3.12% each of dermatitis herpetiformis, pemphigus vulgaris, pityriasis lichenoides et varioliformis acuta and 1.56% each of irritant contact dermatitis and pityriasis alba. Of the 104 cases of pityriasis versicolor, 93 cases (89.42%) were KOH positive, showed the presence of fungal elements. 84 cases showed yellow fluorescence under Wood's lamp. One case of borderline tuberculoid leprosy showed the presence of bacilli in slit skin smear examination. Histopathology was carried out for 9 cases. This included 4 cases of Hansen's disease, 2 cases of psoriasis, 2 cases of dermatitis herpetiformis and 1 case of pemphigus vulgaris. In all cases, histopathological findings correlated well with clinical findings.

Of the various diseases studied, 163 (81.5%) cases were classified as scaly and 37 (18.5%) cases were nonscaly (Table 3).

## DISCUSSION

Numerous skin conditions cause alteration in the normal pigmentation resulting in significant psychological morbidity due to cosmetic disfigurement. Pigmentary disturbances may be congenital or

**Table 1:** Age and sex wise distribution

Age in years	Male		Female		Total	
	No	%	No	%	No	%
<1	-	-	1	0.5	1	0.5
1 to 10	10	5	6	3	16	8
11 to 20	23	11.5	24	12	47	23.5
21 to 30	33	16.5	39	19.5	72	36
31 to 40	19	9.5	19	9.5	38	19
41 to 50	10	5	8	4	18	9
>50	3	1.5	5	2.5	8	4
Total	98	49	102	51	200	100

**Table 2:** Relative incidence of hypopigmented skin conditions

Diagnosis	n	Percentage
Pityriasis versicolor	104	52
Post inflammatory hypopigmentation	64	32
Pre vitiligo	13	6.5
Leprosy	4	2
Idiopathic guttate hypomelanosis	4	2
Nevus anemicus	4	2
Woronoff's ring	3	1.5
Lichen sclerosus et atrophicus	1	0.5
Hypomelanosis of Ito	1	0.5
Nevus achromicus	1	0.5
Halo nevus	1	0.5
Total	200	100

**Table 3:** Scaly and nonscaly lesions

Nonscaly conditions	Scaly conditions
Leprosy	Pityriasis versicolor
Pre vitiligo	Resolving psoriasis
Lichen sclerosus et atrophicus	Polymorphous light eruption
Idiopathic guttate hypomelanosis	Resolving Pityriasis rosea
Nevus anemicus	Pityriasis lichenoides et varioliformis acuta
Nevus achromicus	Pityriasis alba
Hypomelanosis of ITO	Lichen striatus
Woronoff's ring	
Dermatitis herpetiformis	
Irritant contact dermatitis	
Pemphigus vulgaris	
Halo nevus	

acquired, circumscribed or generalised, hypomelanotic or hypermelanotic.

In this study, tinea versicolor formed the majority of cases (104). The male predominance with 60 cases and commonest age group 21-30 years seen in this study correlates with previous studies [3,4]. The commonest distribution was over upper chest, back and neck and lesions were hypopigmented, well defined with pencil line border and branny scaling as documented in literature (Fig. 1) [5]. Positive scraping for the fungus with spaghetti and meatball appearance on KOH mount was found in 93 cases out of 104 (89.42%). A previous study had reported 98% positivity [5].

13 cases of pre vitiligo showed male preponderance not consistent with previous reports [6]. The commonest site was upper back and age group affected 11-20 years also not coincides with recent studies [7,8]. Associated diabetes seen in this study has been documented [9]. Lesions were ill defined, non scaly with associated mucosal involvement and leucotrichosis seen in few cases.

4 cases of Hansen's disease were seen and the female predominance was not consistent with previous studies [10]. The predominance in age group 21-30 was against the reported bimodal distribution. The commonest type seen was borderline tuberculoid which was also reported by Indian studies [11]. Lesions of BT Hansen were non scaly, well defined at some and ill defined at other areas with definite impairment of sensation associated with asymmetrical nerve thickening as cited in literature (Fig. 2). Patient with TT type of leprosy had solitary well defined non scaly hypopigmented patch with loss of sensation and nerve thickening. One case of BT Hansen had positive slit skin smear. Skin biopsy findings were consistent with literature.



**Figure 1:** Multiple hypopigmented patches with branny scales in pityriasis versicolor



**Figure 2:** Hypopigmented patch in borderline tuberculoid leprosy

Post inflammatory hypopigmentation formed the second major group in this study. Hypopigmentation following the commonest causes seen in this study i.e. polymorphous light eruption, psoriasis, pityriasis rosea and pityriasis lichenoides et varioliformis acuta has been documented [12]. Polymorphous light eruption was the commonest cause and the predominance of young females (21-30year age group) seen in this study as well as the commonest sites of dorsa of forearms and nape of neck correlates with the description in literature [13]. Polymorphous light eruption was the commonest cause and the predominance of young females (21-30year age group) seen in this study. Psoriasis (Fig. 3), pityriasis rosea, parapsoriasis forms the other conditions leaves behind hypopigmentation.

Idiopathic guttate hypomelanosis is seen in 2 females and 2 males in our study.

The low incidence seen in this study could be due to the fact that the asymptomatic nature and





**Figure 3:** Post-inflammatory hypopigmentation seen around a psoriatic plaque.

occurrence over cosmetically unimportant sites of this condition prompts patients to ignore it and not seek treatment [14].

A case of nevus achromicus was noted in our study. Lesions were hypopigmented, non scaly, well defined stable since birth and were asymptomatic as described in literature. A study of 20 cases of nevus achromicus showed similar clinical presentation but extracutaneous features like mental retardation and seizures reported in the study were not seen in this study [15].

Hypopigmented atrophic lesions of extragenital lichen sclerosus et atrophicus were seen. The findings of atrophic epidermis with glassy dermal collagen were consistent with literature.

A case with characteristic whorled hypopigmented lesions along lines of Blaschko was seen (Fig. 4). No associated extracutaneous manifestations were seen in this case. Though according to literature 75% cases have extracutaneous manifestations, cases without any such abnormalities have been reported [16].

The study concludes that various conditions comes under hypopigmentary disorders. More common in young adults. Most common scaly condition was pityriasis versicolor and non scaly condition was pre vitiligo. Proper counseling and ruling out Hansen's disease is required to alleviate the patient's anxiety.

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**Figure 4:** Nevus achromicus

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