International Journal of Biomedical and Advance Research
ISSN: 2229-3809 (Online); 2455-0558 (Print)
Journal DOI: https://doi.org/10.7439/ijbar
CODEN: IJBABN **Original Research Article**

Clinical study of post-inflammatory hypopigmented macular skin lesions

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***Article History:**
Received: 14/09/2017
Revised: 25/09/2017
Accepted: 25/09/2017
DOI: https://doi.org/10.7439/ijbar.v8i9.4389

Abstract

Hypopigmented lesions of the skin constitute one of the important problems in dermatologic practice. Study was conducted with objective to study different clinical presentations of post-inflammatory hypopigmented macules, age and sex distribution, socioeconomic status, natural course, seasonal incidence, commonest to rarest variant amongst all etiologies and to do a detailed histopathological study of such lesions. 100 patients presenting with post-inflammatory hypopigmented macules were considered and detailed history and general examination was done. Certain specific Lab investigations and histopathological study was done in selected cases. The study showed amongst all varied etiologies of post-inflammatory hypopigmentation, commonly observed in dermatologic practice were Tinea Versicolor, Leprosy, Pityriasis Alba, Mechanical and thermal injuries, Allergic contact dermatitis, Morphoea, Discoid lupus erythematosus, Steven's Johnson syndrome and Psoriasis. Commonest age group affected was in 21-30 years of age. Males (62%) outnumbered females (38%) grossly. People of lower socioeconomic status (57%) presented with post-inflammatory hypopigmentation, commonly. Upper limbs and face and neck region were the commonest sites involved. Commonest etiology amongst all cases was Tinea Versicolor, followed by Leprosy, Pityriasis Alba and thermal burns. The study concludes that post-inflammatory hypopigmentation is a self limiting disease, presenting with varied clinical manifestations, more common in young adults with male preponderance, commonly seen in people of lower socioeconomic group with a family history of similar disease in not more than 30%. Upper limbs and face and neck is the commonest sites of involvement and histopathological diagnosis correlates well with clinical study in most of the cases.

Keywords: Post-inflammatory hypopigmentation; Tinea Versicolor; Leprosy; Pityriasis Alba; Psoriasis.

1. Introduction

Hypopigmented lesions of the skin constitute one of the important problems in dermatologic practice. Because of the growing awareness of leprosy in India, the patients usually become quite anxious about these lesions. Because of the various modes of presentation and multitudes of etiopathological factors, it poses a real challenge to the dermatologists. Insight into the pathogenesis of these hypomelanoses requires a working knowledge of pigment cell biology. We still do not know the exact etiopathogenesis of some hypopigmented lesions, even though various studies are conducted by many workers.

Even with all exciting advances in the area of molecular genetics, there are still several major categories of dyspigmentation that remain difficult to master via algorithms, some because the entities are so rare and others because the etiologies are so varied.[1] An endeavour has therefore been made in the present study to consolidate its various aspects to focus attention on this relatively neglected entity. Hence this study was aimed to know the various etiologies of post-inflammatory hypopigmented macular lesions, to find out and ascertain different clinical presentations and to find out the commonest to rarest

variant of hypopigmented lesions amongst such inflammatory lesions.

2. Methodology

A prospective study was conducted during period of September 2006 to August 2008, at the Department of Skin, Basaveshwar Teaching & General Hospital and Sangameshwar Hospital, attached to M.R. Medical College, Gulbarga. The patients included in this study were amongst those attending the outpatient department of the above mentioned hospitals. The patients from all age groups were included. A thorough history was recorded in particular, regarding the socioeconomic status, living conditions, occupation, habits, whether any other family member is suffering from similar illness, and the cause of the disease in relation to season. Details of the present illness, past history of any diseases, and a complete family history were recorded as per proforma given in the annexure. In each case, the complaint and its duration and the time of onset of the lesion were recorded. Clinical examination was done to find out the exact distribution and morphology of the cutaneous lesions and to detect any systemic disease or any associated dermatoses. Various investigations like direct examination of scrapings, from the involved sites in Pityriasis Alba and Tinea versicolor and others mounted with 10% KOH for fungal elements, Slit skin smear examination in cases of Leprosy, for demonstration of M.leprae, after staining the Ziehl-Neilson stain, Wood's lamp examination for Tinea versicolor and other hypopigmented lesions where the lesions were not clearly made out with ordinary light, biopsy of skin lesions from involved sites were done in all cases, VDRL test was done in selected cases, and, routine examinations like blood for Hb%, total count, differential count and ESR, urine for albumin, sugar and microscopy, stools for ova and cyst were done in all the cases.

3. Results

One hundred cases of Post-inflammatory hypopigmented macular lesions in all age groups were studied. The outpatient attendance during this period was 73410. Among them the number of patients presenting with hypopigmented lesions were 14210 forming about 19.35% of the cases. Of the 100 cases studied, 52 cases were from rural areas and 48 cases were from urban areas. The youngest patient was one year old and the oldest was 73 years old. Maximum numbers (36 %) of patients were in the age group of 21-30 years.(Table 1) Males (63%) were more involved than females (37 %). There are more male patients in T. Versicolor, Leprosy, Pityriasis Alba and Mechanical trauma group as compared to DLE and allergic contact dermatitis group, where more females had been seen. (Table 2) T. Versicolor was the most common lesion involved. (Table 3) Students (67 %) were most commonly affected, followed by business persons (12 %).(Table 4) Maximum (57 %) cases belonged to the low income group, followed by those from middle income group (31 %).(Table 5) The most common site of skin lesions was on upper limb (53%), followed by face and neck (48%). (Table 6) Majority of the patients (96 %) presented with history of skin lesions, Xerosis/ drying/ scaling of the skin lesion was the next predominant symptom in 48% of cases.(Table 7) Majority of patients had presented with macule (55 %), followed by those who had patches (32 %).(Table 8) 24% of patients presented with a single skin lesion and 31% had up to 5 lesions. (Table 9) Surface was dry in 64 % cases, smooth in 23 % cases and irregular in 10 % cases. (Table 10) 20 cases of leprosy were diagnosed; Borderline Tuberculoid was the most common type of leprosy observed. (Table 11)

Table 1: Age wise distribution

Age group in years	Number of cases	Percentage
1 – 10	22	22.00
11 – 20	25	25.00
21 – 30	36	36.00
31 – 40	9	9.00
41 – 50	3	3.00
51 – 60	3	3.00
61 – 70	--	--
71 – 80	3	3.00

Table 2: Sex Distribution

Disease	No. of cases	Sex	
		Males	Females
T.Versicolor	30	21	9
Leprosy	20	16	4
P.Alba	10	7	3
Burns – Electrical & Thermal	10	6	4
Mechanical trauma/ abrasion	8	6	2
Allergic contact dermatitis	7	2	5
Morphoea	5	3	2
DLE	5	1	4
Steven's Johnson syndrome	3	1	2
Psoriasis	2	--	2
Total	**100**	**63 (63%)**	**37 (37%)**

Table 3: Distribution of cases according to lesions

Disease	Total No. of Cases
T.Versicolor	30
Leprosy	20
P.Alba	10
Burns – Electrical & Thermal	10
Mechanical trauma/ abrasion	8
Allergic contact dermatitis	7
Morphoea	5
DLE	5
Steven's Johnson syndrome	3
Psoriasis	2

Table 4: Distribution of cases according to occupation

Occupation	Number of cases	Percentage
Agriculturist	7	7.00
Students	67	67.00
Housewives	8	8.00
Business persons	12	12.00
Others	6	6.00
Total	100	100.00

Table 5: Socioeconomic Status of cases

Disease	Socioeconomic status (Monthly income Rs.)		
	Lower (<1100)	Middle (1100 to 2199)	Upper class (>2200)
T.Versicolor	19	7	4
Leprosy	18	2	--
P.Alba	6	2	2
Burns – Electrical & Thermal	4	4	2
Mechanical trauma/ abrasion	2	4	2
Allergic contact dermatitis	3	3	1
Morphoea	2	2	1
DLE	1	4	--
Steven's Johnson syndrome	2	1	1
Psoriasis	--	2	--
Total	**57**	**31**	**12**

Table 6: Site of skin lesions

Disease	Face and neck	Trunk	Upper limbs	Lower limbs
T.Versicolor	12	22	20	--
Leprosy	8	2	11	4
P.Alba	10	1	1	--
Burns	4	1	6	2
Abrasion	2	--	6	5
Allergic contact dermatitis	5	--	3	1
Morphoea	--	5	1	1
DLE	5	--	1	--
Steven's Johnson syndrome	2	2	2	--
Psoriasis	--	2	2	--
Total	**48**	**35**	**53**	**13**
Percent	**48.00**	**35.00**	**53.00**	**13.00**

Table 7: Presenting Complaints

Presenting complaints	Number of cases	Percentage
Hypopigmented skin lesions	96	96.00
Sensory impairment or loss	24	24.00
Hair loss	12	12.00
Xerosis	48	48.00
Photosensitivity	8	8.00
Other	4	4.00

Table 8: Type of skin lesions

Disease	No. of cases	Type of skin lesion			
		Macule	Patch	Plaque	Scars
T. Versicolor	30	25	10	--	--
Leprosy	20	2	15	3	--
P.Alba	10	8	2	--	--
Burns	10	--	3	3	4
Abrasion	8	6	1	--	1
Allergic contact dermatitis	7	4	1	--	2
Morphoea	5	3	--	2	--
DLE	5	3	--	1	1
EMF/ Steven's Johnson syndrome	3	2	1	--	--
Psoriasis	2	2	--	--	--
Total	**100**	**55**	**32**	**8**	**8**

Table 9: Number of skin lesions

Disease	No. of cases	Number of skin lesions		
		Single lesion	Up to 5	More than 5
T.Versicolor	30	--	2	28
Leprosy	20	3	11	6
P.Alba	10	5	4	1
Burns	10	2	6	2
Abrasion / mechanical trauma	8	5	3	--
Allergic contact dermatitis	7	4	1	2
Morphoea	5	3	1	1
DLE	5	2	3	--
Steven's Johnson syndrome	3	--	--	3
Psoriasis	2	--	--	2
Total	**100**	**24**	**31**	**45**

Table 10: Surface and margins of skin lesions

Surface of skin lesion			Margins of skin lesion		
Surface	No. of patients	%	Margins	No. of patients	%
Smooth	23	23.00	Well defined	52	52.00
Dry	64	64.00	Ill-defined	16	16.00
Irregular	10	10.00	Well to ill-defined	30	30.00
Hair loss	27	27.00			

Table 11: Types of leprosy cases

Type	Cases
Indeterminate Leprosy	4
Tuberculoid Tuberculoid	1
Borderline Tuberculoid	14
Borderline Borderline	1
Borderline Lepromatous	0
Lepromatous Lepromatous	0
Total cases	20

4. Discussion

Hypopigmented skin lesions are frequently seen in dermatologic practice and often call for diagnostic interpretation. Proper assessment of the condition depends upon history and physical examination often aided by established and newer auxiliary investigational techniques. In this most common age group was 21-30 years (36 %), with male predominance (63%). Deepadarshan K, *et al*.[2] also observed maximum cases in same age group, however female predominance (52 %) was noted in the study. Males (70 %) were more commonly involved with T.Versicolor; this is consistent with other studies.(2,3,4) Tinea Versicolor was also common in young men and women, all ages may be affected including infants.[5] Sex distribution in leprosy shows that, in most parts of the world, males are affected more frequently than females often in the ratio of 2:1.[5] In present study 80% people were males and only 20% were females. This disparity may be due to the various factors in detecting the incidence of infection in the population.

Though, Tinea Versicolor is not a contagious disease, the predisposing factors like high humidity, high temperature, greasy skin, excessive sweating, immunosuppression due to disease and drugs, malnutrition and defective cell mediated immunity, may influence the fungus from yeast to mycelial form and then become pathogenic.[5] This could be reason for higher cases (63%) which belonged to very low income group in the present study. Regarding Leprosy, although the portal of entry of Lepra bacilli is controversial, their penetration through abrasions, ulcers, or excoriations on the skin is regarded as a major portal of entry. This fact is significant since in majority of endemic areas the people live in low socioeconomic and unhygienic conditions.[5] In present study 90% of the patients belonged to low socioeconomic group and only 10% belonged to middle income group.

Regarding distribution of lesions, studies[6,7,8] observed face as most commonly involved area. The lesions were confined to the face in 50-60% of cases and were commonest around the mouth, and chin and on the cheeks and forehead in another study.[9] The present study substantiates the above observations; all of the patients had lesions on their face, especially cheek, nose, around the mouth, chin and forehead. The number of lesions varied from 1 to 5.

As regards to leprosy, it constituted 20 % of cases. Borderline Tuberculoid is the most common type of leprosy observed in present study. This is consistent with other studies.[8,10,11] Early signs of leprosy in children may be misleading. It is recorded that a significant number of cases of hypopigmented patches who remained undiagnosed developed Indeterminate leprosy during the follow-up period.[12] The significance of hypopigmentation per se in leprosy is minimal. It does not result in further pathological damage. However, its clinical significance in relation to early diagnosis of leprosy is extremely important. It is a consistent symptom of leprosy and is also one of the first clues to the occurrence of the disease. The hypopigmented skin lesion of leprosy has therefore a very important place in tropical medicine.

This study concludes that post-inflammatory hypopigmentation is a self limiting disease, presenting with varied clinical manifestations, more common in young adults with male preponderance, commonly seen in people of lower socioeconomic group with a family history of similar disease in not more than 30%. Upper limbs and face and neck is the commonest sites of involvement and histopathological diagnosis correlates well with clinical study in most of the cases.

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