

## CLINICO-DERMOSCOPIC STUDY OF IDIOPATHIC GUTTATE HYPOMELANOSIS IN A TERTIARY CARE HOSPITAL OF WESTERN ODISHA, INDIA

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### Abstract

**Background:** Idiopathic guttate hypo melanosis (IGH) is a leukodermic dermatosis of benign nature that predominantly affecting the exposed part of the body particularly over extremities. Worldwide prevalence of IGH among people aged over 40 years is 87% but in India it is about 80% over the age of 70 years. Over the last few years, several studies have shown that dermoscopy may come in handy for assisting noninvasive diagnosis of various dermatological disorders. That helps the dermatologists to differentiate between two or more conditions accurately. Although clinic- epidemiological & histopathological studies of IGH are there in literature, studies on dermoscopic evaluation are rare. There is no systemic study regarding demographic details, clinical profile & dermoscopic findings of IGH. Therefore, the study was carried out among the patients of IGH who were attended the tertiary care center of Western Odisha. **Materials and Methods:** The present study is a cross-sectional descriptive study of 987 patients of IGH who reported to the tertiary care hospital. Demographic details, clinical profile & dermoscopic findings were taken for a period of 2 years from November 2016 to October 2018. **Result:** Out of 987 patients of IGH 41.7% was male & 58.3% were female with female & male ratio 1.41: 1. The most common age group affected was greater than 60 years with rural background. Lower extremities were the most common (56.63%) site involved. Average number of IGH spots was highest in age group greater than 60 years (12.7) who has also the highest average diameter of IGH spots (5.37mm). Highest number of patients had sun exposure duration 3-4 hours. Family history was present in 56.74% of cases. Amoeboid pattern was most common (53.34%) dermoscopic findings. **Conclusion:** The present study showed that the lower extremities were most common (56.63%) site involved. Average number of IGH spots was highest in age group greater than 60 years (12.7). Amoeboid pattern was most common (53.34%) dermoscopic findings. Larger multicentric studies of IGH incorporating dermoscopic comparison with vitiligo may be recommended so far cosmetic; anxiety & apprehension with depigmenting diseases are concerned.

## INTRODUCTION

Idiopathic Guttate Hypomelanosis (IGH) is a benign, asymptomatic, leukodermic dermatosis predominantly affecting the exposed areas of the upper and lower extremities & less commonly, the lower abdomen of elderly in dark-skinned

individuals.<sup>[1]</sup> The disease is also known as Disseminate lenticular leukoderma. Often the disease goes unrecognized or undiagnosed.<sup>[2]</sup> Both sexes are mostly likely equally affected, but IGH may be more reported by women because of the subjective perception of cosmetic disfigurement. Worldwide prevalence of IGH among people aged over 40 years was 87%.<sup>[3]</sup> Its incidence in India is

about 20% in patients below the age of 30 years, and rises up to 80% of patients over the age of 70 years [4]. Other Indian studies of geriatric population have shown IGH to occur in between 43% and 76.5% of patients.<sup>[5,6]</sup>

The clinical picture consists of small hypopigmented, achromic macules, sometimes porcelain white in color, with irregular borders, measuring 2 to 5 mm in diameter, but smaller or punctiform elements and larger lesions of 1 to 1.5 cm are commonly seen.<sup>[7,8]</sup> The condition is more frequently observed in mature individuals of both sexes and the number of lesions increases with advancing age; although asymptomatic, they gradually turn into noticeable spots, provoking an aesthetic concern that is a common cause for dermatologic consultation. Over the last few years, several studies have shown that dermoscopy may come in very handy for assisting the non-invasive diagnosis of various general dermatological disorders. This technique provides additional information at a sub-macroscopic level that may help the dermatologist differentiate between two or more conditions that are hardly distinguishable with the naked eye.<sup>[9,10]</sup>

Obviously, dermoscopic findings must be interpreted within the overall clinical context of the patient (personal/family history, number, location, morphology and distribution of the lesions, etc.) because only the combination between such data can really enhance the diagnostic accuracy in the field of general dermatological disorders. In spite of being a common disease, very few studies on dermoscopy of IGH lesions are reported in the literature. Hence, a study on dermoscopic finding of IGH lesions is needed to find specific dermoscopic patterns that are consistently seen in IGH.

Morphologically, IGH looks similar to other depigmented skin lesions including vitiligo, thereby making it difficult to diagnose and differentiate from other conditions on clinical grounds alone. Therefore, there is a need for standardized criteria or patterns to differentiate these conditions. Although clinico-epidemiological and histopathological studies of IGH abound in the literature, studies on dermoscopic evaluation are rare. There is no systematic study regarding IGH with reference to its prevalence, demographic details, clinical profile & dermoscopic finding. Hence the study was carried out among the patients of IGH who were attended the tertiary care center of Western Odisha. This will not only help us to diagnose the disease more accurately but also to dispel the stigma associated with hypopigmented diseases of the skin.

## MATERIALS AND METHODS

The present study was a cross-sectional descriptive study undertaken by the department of Dermatology & Venerology of V.S.S. Medical College & Hospital, Burla, Sambalpur, Odisha. The study was

conducted after receiving approval from the institutional ethical committee. (ECR – 861 Dt-15/09/2016).

A total of 987 patients were included in the study using the following criteria:

### Inclusion Criteria

Patients diagnosed with Idiopathic Guttate Hypomelanosis within time period from Nov 2016 to Oct 2018 with no prior treatment in last 6 months were included in the study.

### Exclusion Criteria

Patients diagnosed with other depigmentary disorder with IGH lesions were excluded from the study.

**Study Tools:** In all patients, history was taken followed by clinical examination (both general & systemic), dermatological examination was done to rule out any other depigmentary disease, then digital dermoscopic photographs were taken with iPhone 7 with Dermlite 3 dermo scope (3Gen, LLC, 31521 Rancho Veijo Road Suite104, San Jaun Capistran, CA 92675, USA) with polarized light ( $\times 10$  magnification). Clinical images were taken with Sony Cybershot camera DSC-W800 (Sony Electronics Inc., San Diego, California, USA). Initially, ultrasound gel was applied either on the faceplate of the dermoscope or on the skin lesions and then lesions were observed through the eyepiece of dermoscopy. Although polarized dermoscopy was employed, ultrasound gel was applied for clarity of images and to lessen distortions associated with light. Histopathology was done in conflicting cases after taking consent.

**Analysis of Data:** After data collection, it was cleaned and all required data were compiled and tabulated. It was analyzed with the IBM statistical package for the social sciences (SPSS) statistics for windows, version 21.0 (Developed by IBM corps, Armonk New York). Descriptive data were presented with frequency & percentage.

## RESULTS

Among the 54,607 patients attended Dermatology outdoor patient department (OPD) from the period Nov 2016 to Oct 2018, only 987 patients of IGH were enrolled for the study.

Most of the patients were in the age group  $>60$  years. Mean and median age was found to be  $53.46 \pm 12.41$  years and 54.5 years [Table 1].

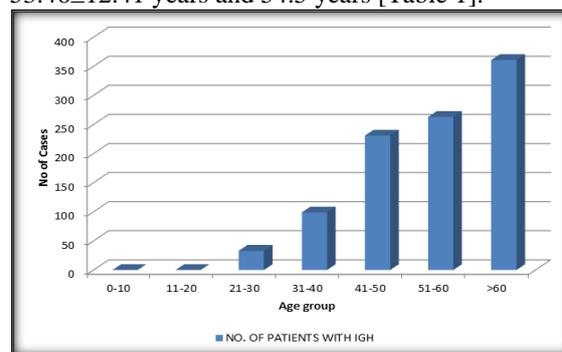


Figure 1: Age distribution of cases

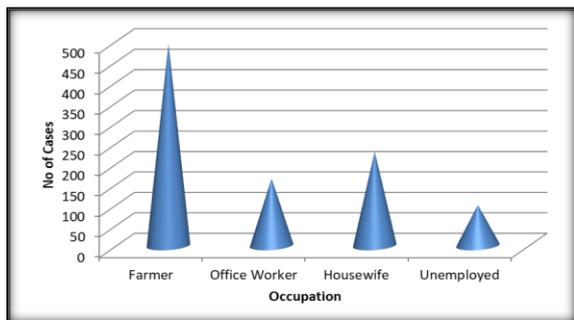


Figure 2: Occupational Status

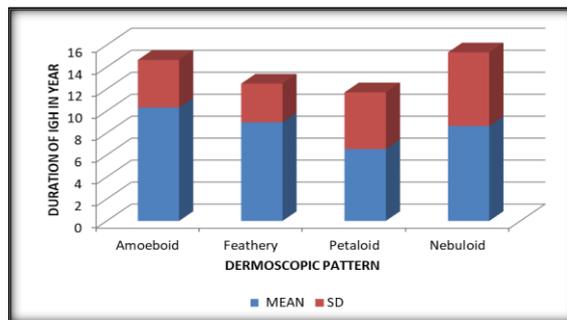


Figure 7: Duration of IGH Lesions

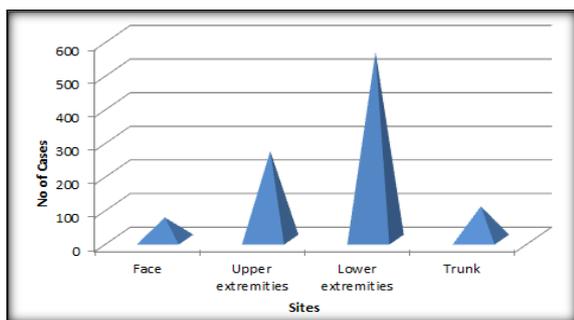


Figure 3: Distribution of IGH



Image 1: Idiopathic Guttate Hypomelanosis of back in 62-year Male

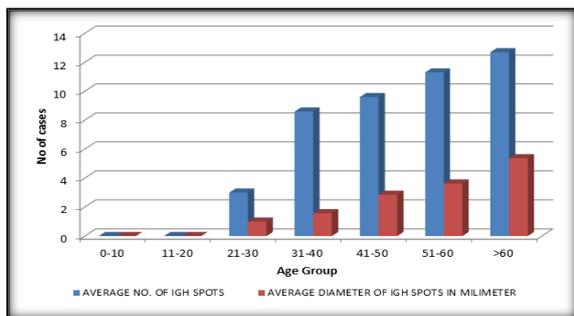


Figure 4: Correlation of Age, Number & Size of Skin Lesion



Image 2: Idiopathic Guttate Hypomelanosis of leg in 43-year Male

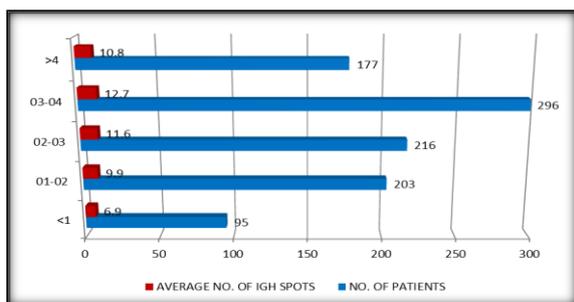


Figure 5: Correlation between Sun Exposure and IGH



Image 3: Idiopathic Guttate Hypomelanosis of chest in 74-year Male

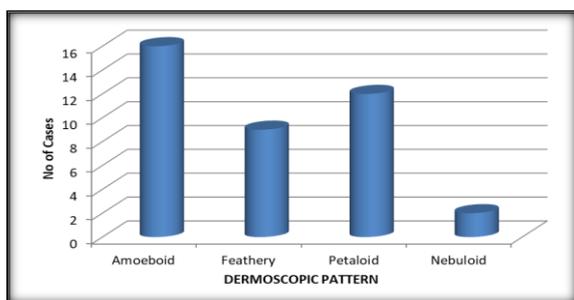


Figure 6: Dermoscopic patterns of IGH



Image 4: Idiopathic Guttate Hypomelanosis of chest in 35-year Male



**Image 5: Dermoscopy showing amoeboid pattern with peripheries resembling pseudopods (yellow arrow) of amoeba**



**Image 7: Dermoscopy showing the petaloid pattern with well-defined petal-like (yellow arrow) borders**



**Image 6: Dermoscopy showing feathery pattern with feather-like (yellow arrow) margins and white areas (yellow diamond)**



**Image 8: Dermoscopy showing nebuloid pattern with indistinct borders**

**Table 1: Age distribution of cases (n=987)**

Sl. No.	Age (in years)	No. of patients with IGH	Percentage of patients
1	≤10	0	0
2	11-20	0	0
3	21-30	33	3.34
4	31-40	99	10.0
5	41-50	231	23.41
6	51-60	263	26.65
7	≥60	361	36.58

In our study, female 576(58.3%) were more than male 411(41.7%) patients, with female to male ratio 1.41. [Table 2]

**Table 2: Sex distribution of cases**

Sl. No.	Gender	No. of Patients With IGH
1	Male	411
2	Female	576

Out of 987 patients, 73.3% patients were from rural area and 26.7% patients from urban area. [Table 3]

**Table 3: Rural / Urban locality distribution of cases**

Sl. No.	Area	Number of cases	Percentage
1	Rural	724	73.3
2	Urban	263	26.6

About 296(30.0%) patients were illiterate, 230(23.30%) patients studied up to primary level, while 264(26.7%) patients had studied up to secondary level. [Table 4]

Sl. No	Educational Status	Number of Cases	Percentage
1	Illiterate	296	30.0
2	Primary	230	23.30
3	Secondary	264	26.70

4	Higher	197	20.0
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**Table 4: Educational Status**

Sl. No	Educational Status	Number of cases	Percentage
1	Illiterate	296	30.0
2	Primary	230	23.30
3	Secondary	264	26.70
4	Higher	197	20.0

Majority of patients were farmers 494(50.09%) followed by housewife 230(23.30%) followed by office workers 164(16.61%) and unemployed 99(10.0%). [Table 5]

**Table 5: Occupational status**

Sl. No	Occupation	Number of cases	Percentage
1	Farmer	494	50.09
2	Office Worker	164	16.61
3	Housewife	230	23.30
4	Unemployed	99	10.0

Most of the patients had lesions over lower extremities 559(56.63%) followed by lesions over upper extremities 263(26.68%), trunk 99(10.0%) and face 66(6.69%). [Table-6]

**Table 6: Distribution of IGH**

Sl No.	Sites	No. of Cases	Percentage
1	Face	66	6.69
2	Upper extremities	263	26.68
3	Lower extremities	559	56.63
4	Trunk	99	10.0

Average number of IGH spots were highest in age group  $\geq 60$  years (12.7) who has also the highest average diameter of IGH spots (5.37mm), followed by 51-60 age group (11.3), average diameter of IGH spots (3.63mm). [Table 7]

**Table 7: Correlation of Age, Number & Size of Skin Lesion**

Sl. No.	Age (In Years)	Average No. of IGH Spots	Average Diameter of IGH Spots (In Millimeter)
1	$\leq 10$	0	0
2	11-20	0	0
3	21-30	3	1
4	31-40	8.6	1.57
5	41-50	9.6	2.85
6	51-60	11.3	3.63
7	$\geq 60$	12.7	5.37

In the present study, 560(56.74%) patients had family history of IGH. [Table 8]

**Table 8: Family History of IGH**

Sl No.	Family History of IGH	No of Cases	Percentage
1	Present	560	56.74
2	Absent	427	43.26

Average number of IGH spots were highest in patients with 3-to-4-hour sun exposure in last 10 years, followed by 2-3 hours of sun exposure and lowest was in patients with  $< 1$  hours of sun exposure. [Table-9]

**Table 9: Correlation between Sun exposure & IGH**

Sl. No.	Sun Exposure (In Hours) In Last 10 Years	No. of Patients	Average No. of IGH Spots
1	$< 1$	95	6.9
2	1-2	203	9.9
3	2-3	216	11.6
4	3-4	296	12.7
5	$> 4$	177	10.8

Most of the patients had different types of dermoscopic pattern of which amoeboid was the most common (53.34%) followed by petaloid (40%), feathery (30%) & nebuloid (6.67%). [Table-10]

**Table 10: Dermoscopic Patterns of IGH**

Sl No.	Dermoscopic Pattern	No. of Cases	Percentage
1	Amoeboid	527	53.34
2	Feathery	296	30.0
3	Petaloid	394	40.0
4	Nebuloid	65	6.67

## DISCUSSION

Idiopathic guttate hypomelanosis is an acquired leukoderma, characterized by multiple, discrete, round or oval porcelain white macules of approximately 2–5 mm in diameter, presents mostly on sun-exposed areas, especially on the extensor surface of forearms and pretibial areas, which increase in number with aging. Males and females are probably equally affected, as reported by Arguelles- Casalsx and Gonzalezx.<sup>[11]</sup> However, in both sexes this prevalence became more common with advancing age.

In our study, frequency in women was slightly higher than men (58.3% in women vs. 41.7% in men). Prior studies conducted by Shin MK et al reported a higher frequency in women compared to men (56 and 54 %, respectively).<sup>[3]</sup> An Indian study conducted by Ankad BS et al also validates the same female dominance (54% in women vs 46% in men).<sup>[12]</sup> This difference may be owing to the fact that women are more concerned with their looks than men and more likely to seek consultation from cosmetic doctors than men.

IGH is regarded as a disorder of adulthood and senescence and is probably more common with increasing age.<sup>[7]</sup> Most patients develop the initial lesion at a later age; 36.67% of our patients noted the IGH after the fifth decade of life. Therefore, the aging process may influence the pathogenesis of IGH. However, compared to the study reported by Fallabella et al,<sup>[7]</sup> where 7.0% of patients presented with IGH before the age of 20 years, 29.8% of our patients had initial lesions before the age of 20 years. This may be because of the fact that younger patients, and their parents, are more willing to have skin biopsies to determine the diagnosis; we found a patient with onset at 23 years of age. Therefore, aging is likely not the only factor causing IGH. The youngest patient was 23 years and the oldest was 76 years.

In this study, out of 987 cases, in 559 (56.63%) patients lesions were present on lower extremities followed by 263 (26.68%) patients on upper extremities followed by 99 (10.0%) cases over trunk. Face was the least common site involved only in 66 (6.69%) cases. The findings are comparable to findings of the study done by Kim SK et al in which arm was the most common site, followed by the distal part of the lower extremity & only 6 % of subjects had lesions on their face.<sup>[13]</sup> As photo protected part the leg was the most common site for IGH lesions in our study. It could have been due to aging as most of our patients were in age group of >60 years.

Our study results shows that there is no correlation between average hours of sun exposure and number of IGH lesions as most our patients had 3-4 hours of sun exposure on daily basis and number of lesions decreases on extreme of sun exposure (>6 hours). It may be due to fact that sample was small & UVB is not the sole cause of IGH but may be an inducer of it. Dermoscopy visualizes the colour patterns in the epidermis, dermoepidermal junction and papillary dermis; when these patterns are observed consistently in a given disease, they could aid in its diagnosis. Bambrro et al. appreciated four patterns dermoscopy of IGH namely nebuloid, petaloid, feathery and amoeboid. Similar patterns were observed in our study.<sup>[13]</sup> Among all patterns amoeboid (53.34%) was the most common pattern followed by petaloid (40.0%), feathery (30.0%) & nebuloid (6.67%). Petaloid pattern of IGH was observed in lesions of recent onset and Nebuloid pattern among older patients. Feathery, amoeboid, and nebuloid patterns were more commonly seen in older lesions of IGH.

Therefore, chronic sun exposure may contribute to IGH but may not be the definitive cause. However, one young patient, diagnosed prior to 30 years of age, had lesions only on sun-exposed areas such as the face and arm. Therefore, in young patients, different from adults, sun exposure may play a central role in the development of IGH lesions.

## CONCLUSION

Out of 987 patients, 411(41.7%) were males and 576(58.3%) were females, with female: male ratio of 1.41:1. The most common age group affected was >60years and median age was 54.5 year. Most of the patients were from rural areas. Highest number of patients had sun exposure duration 3-4 hour. Family history was present in 560(56.74%) of cases. Amoeboid pattern was the most common dermoscopic picture. A study of dermoscopic patterns in IGH will aid the clinician in making a correct diagnosis in today's time with constrained clinic hours and ever-increasing cosmetic concern, thus ameliorating anxiety and apprehension associated with depigmented lesions. Larger studies of IGH incorporating dermoscopic comparison with the dermoscopic appearances in vitiligo are recommended.

### Limitations

This was a single center descriptive cross-sectional study. Multicentric studies with regular follow up may be carried out to establish better outcome.

### No Conflict of Interest

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