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Original Article

Dermatology Section

# Prevalence and Clinical Pattern of Localised Hypomelanosis in Children: An Observational Study

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## ABSTRACT

**Introduction:** Pigmentary changes in children can be a concern to parents, enabling them to seek medical opinion. Hypopigmentary lesions in the paediatric age group can be a trivial finding or may be a part of a multisystem disease. Identifying and prompt management of these lesions addresses the systemic involvement if any, and parents' concern as well.

**Aim:** To observe the prevalence and clinical pattern of localised hypomelanotic disorders in the paediatric age group (0-18 years).

**Materials and Methods:** This was a hospital-based observational study conducted for a period of two years (August 2017- August 2019), which included 204 paediatric patients with localised hypomelanotic lesion in children who attended the Dermatology Outpatient Department (OPD). Demographic data such as age, sex, history of onset and progression of skin lesions, general examination, specific cutaneous examination including the site, size, number, symmetry, distribution, etc., were recorded. Data were analysed using descriptive statistical methods.

**Results:** Out of 204 cases, the most common hypopigmentary disorder was Pityriasis versicolor (38.7%), followed by Seborrhoeic dermatitis (18.1%), Pityriasis alba (8.8%) and Polymorphic light eruption (7.8%). Among them female children were 111 (54%) and male children were 93 (46%). The most commonly involved age group was 12-18 years (35%), followed by 6-12 years (32%). Face was the most commonly involved site accounting for, followed by back. The localised hypopigmented lesions are predominantly involved in the sun exposed area (78%). History of atopy and family history of atopy were seen in 5% and 8%, respectively.

**Conclusion:** Pityriasis versicolor was the most common condition seen in this study. The sun exposed areas were frequently involved with face being the commonest. There was no underlying systemic disease involvement observed in this study. However certain conditions like hypomelanosis of Ito and Hansen's need long term follow-up and prompt treatment to prevent complications respectively.

**Keywords:** Hypopigmentation, Melanocytes, Pigmentary cutaneous changes

## INTRODUCTION

Hypopigmentary cutaneous disorders can be a consequence of different disturbances in the pigmentary system that include defects in the number or function of the melanocytes, decreased melanisation of the melanosomes or decreased transfer process from the melanocytes to the keratinocytes [1]. Any abnormality of skin colour from the usual pattern of pigmentation results in heightened concern especially to parents when it comes to their children [2]. Pigmentary disorders are common to the neonate, children and adolescent age group [3]. Certain studies by Sori T et al., and Soni B et al., have observed the frequency and patterns of hypopigmented skin lesions in children from south east Rajasthan and south India respectively [3,4]. The study participants of both these studies include generalised and localised hypopigmented and depigmented skin lesions in children whereas the present study aimed to observe the frequency and pattern of localised hypomelanosis in children in Tamil Nadu.

Pigmentary changes can be congenital or acquired, hypo or hypermelanotic. Hypopigmented lesions often pose a diagnostic challenge. These have variability in extent of hypomelanosis, history of evolution, attention to hue and awareness of associated features. A thorough general, systemic and cutaneous examination is mandatory with the necessary investigations is necessary [3].

The aim of this study was to observe the frequency and clinical pattern of localised hypomelanotic disorders in children.

## MATERIALS AND METHODS

This tertiary hospital-based observational study was conducted for a period of two years (August 2017-August 2019) in Dermatology OPD, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India. Ethical clearance was obtained from Institutional Ethics Committee (CSP-MED/15/AUG/24/39).

**Inclusion criteria:** On all the patients in the paediatric age group (0-18 years) who presented with localised hypopigmented lesions. All freshly diagnosed cases of localised diminished pigmentation of skin were included in the study.

**Exclusion criteria:** Children with history of treatment for the same; those who have used any topical medications over the hypopigmented lesions and whose parents were not willing to consent were excluded from this study.

### Study Procedure

A detailed clinical history was elicited with regard to age (categorised into less than one year, 1-3, 4-6, 7-12, 13-18 years), gender, site, familial involvement, associated skin and systemic conditions. Detailed examination of the hypopigmentary lesion/lesions was done and findings were noted in terms of site, size, morphology of lesions, etc.

Examination under Wood's lamp in conditions like pityriasis versicolor, Naevi was documented. Other investigations like potassium hydroxide mount to rule out pityriasis versicolor, slit skin smear and skin biopsy in certain conditions like Hansen's, lichen sclerosus et atrophicus (LsetA) etc., were done, if necessary.

## STATISTICAL ANALYSIS

Data were analysed using SPSS version 17.0 software. Categorical data were represented in the form of frequencies and proportions. Continuous data were represented as mean and standard deviation.

MS Excel and MS Word were used to obtain various types of graphs such as bar diagram and pie diagram.

## RESULTS

A total of 204 children, with localised hypomelanotic lesions, were included in this study, out of which 111 (54%) were girls and 93 (46%) were boys. The most commonly involved age group was 12-18 years (35%), followed by 6-12 years (32%). The mean age of the study population was 8.7 years. Only 8 (4%) infants had localised hypomelanotic lesions at birth.

The most common hypopigmentary disorder was pityriasis versicolor (38.7%), followed by seborrheic dermatitis (18.1%), pityriasis alba (8.8%) and polymorphic light eruption (7.8%) [Table/Fig-1].

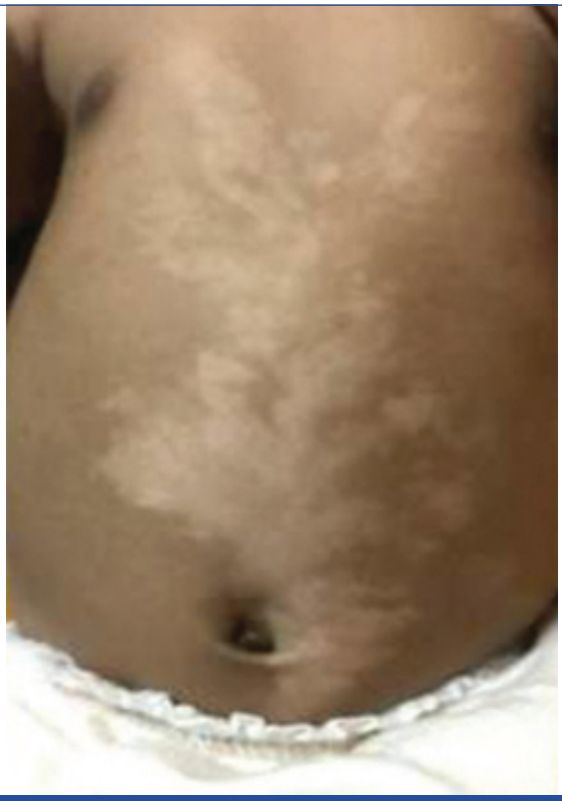
| Localised hypomelanotic lesion | Frequency (204) | Percentage (%) |
|---|---|---|
| Pityriasis versicolor | 79 | 38.7 |
| Seborrheic dermatitis | 37 | 18.1 |
| Pityriasis alba | 18 | 8.8 |
| Polymorphic light eruption | 16 | 7.8 |
| Atopic dermatitis | 13 | 6.3 |
| Lichen striatus | 13 | 6.3 |
| Nevus depigemtosus | 5 | 2.45 |
| Nevus anemicus | 4 | 2 |
| Post inflammatory hypopigmentation | 4 | 2 |
| Hypomelanosis of ito | 4 | 2 |
| Lichen nitidus | 4 | 2 |
| Discoid dermatitis | 2 | 1 |
| Hansen's disease | 2 | 1 |
| Lichen sclerosus et atrophicus | 2 | 1 |
| Irritant contact dermatitis | 1 | 0.5 |

**[Table/Fig-1]:** Incidence of localised hypomelanotic lesion.

Face was the most commonly involved site accounting for (n=100) [Table/Fig-2]. The localised hypopigmented lesions were predominantly seen in the sun exposed area. There were no genital lesions in cases of LsetA. In Hypomelanosis of Ito [Table/Fig-3] and Naevus depigmentosus screening for systemic involvement like developmental delay, seizures and scoliosis were done and no systemic involvement was found. Few other lesions are presented in [Table/Fig-4-6].

| Condition | Sex distribution | Site involved | Associations/ Symptoms |
|---|---|---|---|
| Pityriasis versicolor | M- 35 (44.3%)<br>F- 44 (55.7%) | Face- 53 (67%)<br>Nape of neck- 20 (25.3%)<br>Upper limb- 6 (7.7%) | Itching- 10 (12.6%) |
| Seborrhoeic dermatitis | M- 17 (46%)<br>F- 20 (54%) | Malar Region- 13 (35.2%)<br>Nasolabial Fold- 15 (40.5%)<br>Eyelids- 9 (24.3%) | Pityriasis Capitis- 10 (27%) |
| Pityriasis alba | M- 7 (39%)<br>F -11 (61%) | Face -18 (100%) | Atopy- 5 (27.77%) |
| Polymorphous light eruption | M- 7 (43.8%)<br>F- 9 (56.2%) | Face-10 (62.5%) Upper Limbs-5 (31.25%)<br>Nape of the Back- 1 (6.25%) | |
| Lichen striatus | M- 6 (46%)<br>F -7 (54%) | Face-2 (15.4%)<br>Trunk- 11 (84.6%) | Atopy- 1 (8%) |
| Atopic dermatitis | M- 6 (46%)<br>F- 7 (54%) | Face- 11 (85%) | Itching- 7 (54%)<br>Atopy- 6 (46%) |
| Naevus depigmentosus | M- 2 (40%)<br>F- 3 (60%) | Face- 1 (20%)<br>Trunk- 3 (60%)<br>Upperlimbs 1 (20%) | |
| Naevus anaemicus | M- 2 (50%)<br>F- 2 (50%) | Face- 2 (50%)<br>Trunk- 1 (25%)<br>Lower limbs- 1 (25%) | |
| Post inflammatory hypopigmentation | M- 2 (50%)<br>F- 2 (50%) | Face- 1 (25%)<br>Upperlimbs- 1 (25%)<br>Lowerlimbs- 2 (50%) | |
| Hypomelanosis of Ito | M- 2 (50%)<br>F- 2 (50%) | Neck- 1 (25%)<br>Abdomen- 2 (50%)<br>Thigh- 1 (25%) | |
| Lichen nitidus | M- 3 (75%)<br>F- 1 (25%) | Upper Limbs- 2 (50%)<br>Trunk- 1 (25%)<br>Nape of the Back- 1 (25%) | |
| Hansen's disease | M- 1 (50%)<br>F- 1 (50%) | Face- 2 (100%) | |
| Discoid dermatitis | M- 1 (50%)<br>F- 1 (50%) | Upperlimbs- 1 (50%)<br>Lowerlimbs- 1 (50%) | |
| Lichen sclerosus Et atrophicus | M- 1 (50%)<br>F- 1 (50%) | Trunk- 1 (50%)<br>Back- 1 (50%) | |
| Post inflammatory hypopigmentation (secondary to irritant contact dermatitis) | M- 1 (100%)<br>F- 0 | Dorsa of the Hand- 1 (100%) | |

**[Table/Fig-2]:** Distribution of sex, site involved and associated symptoms.



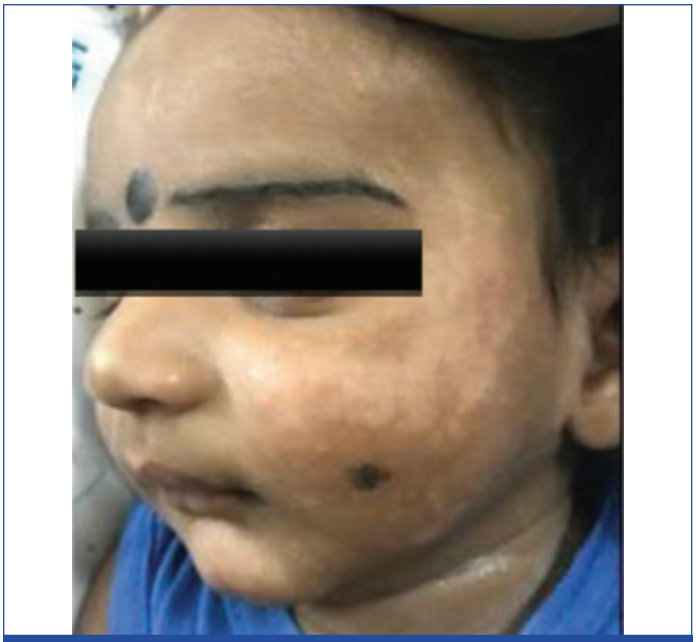
**[Table/Fig-3]:** Hypomelanosis of Ito.

## DISCUSSION

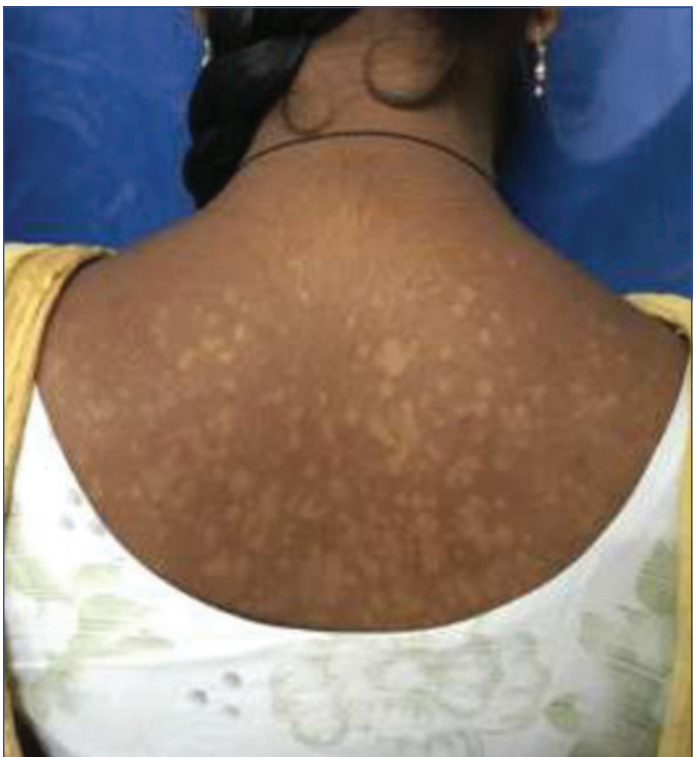
In present study, out of 204 cases of localised hypopigmented lesions, the mean age of the patients observed was 8.7 years and majority of the children belonged to the age group of 12-18 years (35%) followed by 6-12 years (32%). The study by Sori T et al., observed that the most common age group reported was 6-10 years (30%) followed by 11-14 years (28.1%) and Soni B et al., reported 0-6 years (41%) as the most common age group followed by 7-12 years (35.67%) respectively [3,4].

The most common site involved was face which was consistent with other studies by Sori T et al., and Soni B et al., 28.6% and 50.33%, respectively [3,4].

In this study, the most common disorder was Pityriasis versicolor (39%) followed by Pityriasis alba (8%) as in accordance with the study by Pinto FJ and Bolognia JL, whereas in Soni B et al., reported that the most common disorder was Pityriasis alba (27.33%) followed by Pityriasis versicolor (21%) [1,4]. The lowest incidence of the localised hypomelanosis in this study was biopsy proven Hansen's disease (1%) and similar observations were seen in the study by Sori T et al., [3].



**[Table/Fig-4]:** Atopic dermatitis.

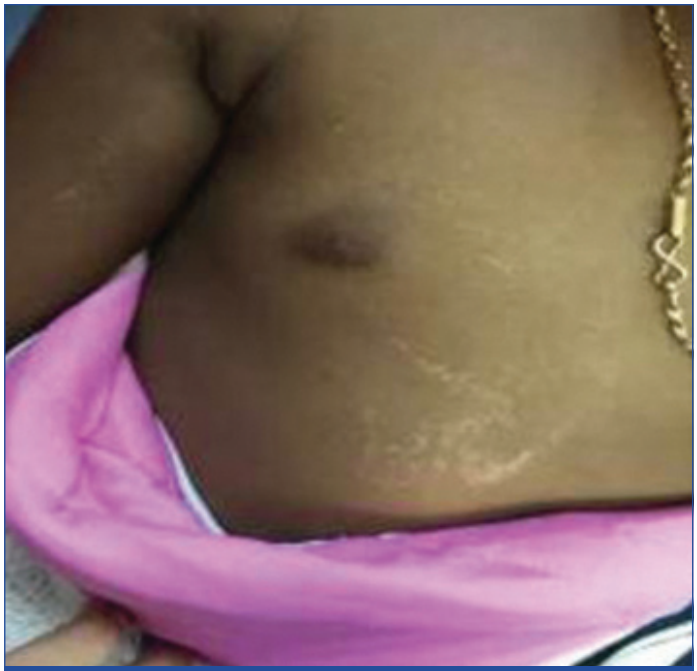


**[Table/Fig-5]:** Pityriasis versicolor.

In the present study, majority of the children with pitryasis versicolor belonged to 12-18 years of age group which was in accordance with study by Soni B et al., [4], whereas Sori T et al., and Jena DK et al., observed the condition to be common in the age group of 1-5 years and 8-12 years, respectively [3,5]. The most commonly involved site was the face which were consistent with the study by Jena DK et al., and Bouassida S et al., [5,6].

Out of 37 cases of seborrhoeic dermatitis in this study, 24% have association with pityriasis capitis and the most common region was the face which is similar to the study by Borda LJ et al., study. Male predominance was seen in Borda LJ et al., study whereas it was female predominance observed in this study (54%) [7].

History of atopy and itching were seen in 5 out of 18 cases of pityriasis alba (38%) in this study whereas Soni B et al., and Vinod S et al., observed 58.36% and 17% association with atopy respectively [4,8]. In addition, association of atopy was also seen



**[Table/Fig-6]:** Lichen striatus.

with lichen striatus (8%) while study by Ganesan L et al., observed a higher incidence of lichen striatus occurring in children with atopy (30%) [9].

In the present study the common site of presentation of atopic dermatitis was the face, which compared favourably with study by Kanwar AJ and De D [10]. The mean age for infants and children with atopic dermatitis in this study were five months and 2.3 years, respectively whereas it was 4.2 months and 4.1 years in study by Kanwar AJ and De D [10].

In the present study, only two cases of Hansen's disease were reported. Both were biopsy proven borderline tuberculoid Hansen. It was also the most common type of leprosy observed among the study population in other studies [3,4,11].

### Limitation(s)

Not all conditions were histopathologically confirmed, only cases of Hansen's disease and LsetA were confirmed by histopathology. Also, the results of this study cannot be extrapolated to the whole community due to limited sample size.

## CONCLUSION(S)

The study concluded that pitryasis versicolor was the most common localised hypopigmented lesion in children, followed by pitryasis alba and the most common age group was 12-18 years. A clinical approach to hypopigmented disorders based on age of onset of the disease, distribution of the lesion and early assessment is warranted to address the parental concerns and also to ensure good quality of life to the children. Accurate diagnosis and screening of associated systemic involvement in certain conditions like Hansen's disease and hypomelanosis of Ito etc., is of elementary importance to prevent complications.

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