

## Skin Manifestation in Patients with Hypothyroidism in Kolhan Area of Jharkhand.

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**Abstract:** Hypothyroidism and hyperthyroidism both are known to have cutaneous manifestations. The cutaneous manifestations associated with hypothyroidism are protean as well as varied in nature. Whatever its cause— iodine deficiency, autoimmune disease, treatment of hyperthyroidism or medications—the skin signs of inadequate thyroid hormone are similar. Fifty eight cases of hypothyroidism constituted the subject material for the study and the skin lesions have been recorded after a detailed history and clinical examination. Out of 58 patients 53 were females and 5 were males. Xerosis (acquired ichthyosis) and diffuse hair loss were the common skin manifestations which were seen in 56.90% and 36.21% of patients respectively. Puffy Oedema (34.48%), melasma(8.62%), chronic urticaria(10.34%) and generalised pruritus(12.07%) were the other common manifestations. Tinea corporis, vitiligo, alopecia areata, lichen planus and xanthelasma palpebrarum were the other skin disorders associated with hypothyroidism.

**Keywords:** cutaneous manifestations, hypothyroidism, puffy oedema, xerosis.

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### I. Introduction:

Thyroid hormones are instrumental in regulating the health and appearance of skin and when the thyroid gland becomes underactive or overactive, a variety of skin problems may result<sup>1</sup>. Thyroid disorders are known to involve all organ systems of the body including the skin. Cutaneous manifestations of hypothyroidism are protean in nature and affect all age groups. These dermatologic manifestations may occur secondary to the decreased thyroid hormone levels or due to the presence of thyroid autoantibodies that interact with skin components. Most of these cutaneous manifestations are nonspecific and many individuals without a definite thyroid problem may exhibit them. So, these do not allow diagnosis without the estimation of endocrine function<sup>2</sup>.

The skin in hypothyroidism becomes cool, xerotic, pale and is covered with fine scales resembling ichthyosis.<sup>3</sup> Hypohidrosis, possibly accompanied by diminished epidermal sterol biosynthesis, may lead to acquired palmoplantar keratoderma<sup>4,5,6</sup>. A yellowish hue may be imparted to the skin, particularly on the palms, soles, and nasolabial folds, as a result of carotenemia observed in hypothyroidism<sup>7</sup>.

Hair changes manifest as dry, coarse, brittle hair, with a tendency to fall out, resulting in diffuse, partial alopecia<sup>8</sup>. The eyebrows frequently disappear with loss usually originating laterally (madarosis)<sup>9,10</sup>.

Nails are thin, striated, brittle and grow slowly. Onycholysis has also been reported<sup>3</sup>.

Hypothyroidism may be associated with a number of different cutaneous and/or systemic diseases. The other cutaneous diseases associated with hypothyroidism include alopecia areata, chronic urticaria, and vitiligo.<sup>11-17</sup>

### II. Materials And Methods:

This study was a hospital based descriptive clinical study conducted in joint collaboration of medicine and skin department of Sadar Hospital Chaibasa, West Singhbhum, Jharkhand. 58 cases of hypothyroidism constituted the subject material for the study. These patients were evaluated for the presence of any cutaneous manifestation. Children and pregnant females were excluded in the disease. A detailed history regarding socio demographic profile and clinical history was taken after obtaining written consent from all the participants who were included in the study, after which a general physical examination, systemic examination and a detailed dermatological examination was carried out and the relevant details recorded and tabulated. Apart from routine laboratory investigations, thyroid function tests (TSH, T3 and T4) were also done by electrochemiluminescence assay (ECLIA).

### III. Results:

A total of 58 hypothyroid patients were included in this study. Out of 58 patients 53 were females and 5 were males (Table 1). A female predominance was seen in our study with a males were 8.62% and females 91.38% (table 1). Common cutaneous findings seen xerosis in 56.90%, diffuse hair loss in 36.21%, puffy oedema 34.48%, urticaria 10.34%, pruritus 12.07%, Tinea corporis 8.62%, vitiligo 5.17%, alopecia areata 6.90%, melasma 8.62% ,lichen planus 3.45% and xanthelasma palpebrarum 1.72% were the other skin disorders associated with hypothyroidism. No cutaneous symptoms were noticed by 4 (6.9%) patients.

**TABLE 1**

SEX	NUMBER
MALES	5
FEMALES	53

**TABLE 2**

S.NO.	SKIN CHANGES	NUMBER	%
1.	Xerosis	33	56.90
2.	Diffuse Hair Loss	21	36.21
3.	Melasma	5	8.62
4.	Urticaria	6	10.34
5.	Pruritus	7	12.07
6.	T. Corporis	5	8.62
7.	Decreased Sweating	5	8.62
9.	Purpura	2	3.45
10.	Alopecia Areata	4	6.90
11.	Lichen Planus	2	3.45
12.	Vitiligo	3	5.17
13.	Xanthelasma Palpebrarum	1	1.72
14.	Ivory Skin	3	5.17
15.	Brittle Nails	4	6.90
16.	Puffy Oedema	20	34.48

### IV. Discussion:

A total of 58 hypothyroid patients were included in this study. Out of 58 patients 53 were females and 5 were males. A female predominance was seen in our study with a males were 8.62% and females 91.38% which corresponds to the study conducted by Indra *et al.*<sup>18</sup>, and Keen *et al.*<sup>19</sup> who observed 87% & 90.43% female patients respectively.

In our study the predominant cutaneous finding was xerosis being 56.90% patients, which was similar to other studies made by Keen *et al.*<sup>19</sup>, Jabbour *et al.*,<sup>20</sup> and Hueston, *et al.*<sup>21</sup>

In our study second common finding was diffuse hair loss which was 36.21%. This finding shared similarity with the study conducted by Haritha *et al.*<sup>22</sup> in which diffuse hair loss was noted in 34.8% and Dogra, *et al.*<sup>23</sup>, 40.62% of patients.

Puffy oedema was present in 34.48% in our study. Whereas in other studies Puffiness of face ranged from 28.69%<sup>19</sup>(Keen *et al.*) to 63.3% as reported by Khurram *et al.*<sup>24</sup>

Melasma was observed in 8.62% of patients in our study which was less as documented by Haritha *et al.*<sup>22</sup>. The association has been well documented by Lufti, *et al.*<sup>25</sup>, and Neipomniszce *et al.*<sup>26</sup> in their study.

Urticaria was reported as a cutaneous complaint by 10.34%, of our patients, which was slightly less than the other studies conducted in by Keen *et al.* (13.04%)<sup>19</sup> Haritha *et al.*( 14.28%)<sup>22</sup> and Dogra *et al.*, (15%).<sup>23</sup>

In our study pruritus 12.07% similar to Haritha *et al.*<sup>22</sup> (11.1%) and Keen *et al.*<sup>19</sup> (17.17%).

Decreased sweating was noticed by 8.62% patients, similar observations were made by Keen *et al.* & Jabbour *et al.*<sup>19,20</sup>

Tinea corporis was seen in 8.62% of the patients, Moreno *et al.*<sup>27</sup> and Haritha *et al.*<sup>22</sup> reported patients with tinea cruris and tinea corporis in their study.

The most common nail change in our patients was brittle nails, seen in 6.90% comparable to the study by Dogra *et al.*, who noticed nail changes in 6% of their patients.<sup>23</sup>

Alopecia areata was seen in 6.90% of our patients. It is a known association which has been established in various studies, such as those conducted by Tosti, *et al.*,<sup>11</sup> and Thomas, *et al.*<sup>28</sup>

Ivory yellow skin was a cutaneous complaint in 5.17% cases, which is in concordance with the result of the study by Rai *et al.*,<sup>29</sup> and Keen *et al.*,<sup>19</sup> who reported it to be present in 5.12% & 6.52% respectively.

Vitiligo was seen in 5.17%, of our patients. Studies by Moradi *et al.*<sup>30</sup>, and Gopal *et al.*,<sup>17</sup> have found an association between hypothyroidism and vitiligo. In our study, xanthelasma palpebrarum was the least

common cutaneous sign, seen in 1.72% similar to Keen et al.,<sup>19</sup> (1.52%) & Haritha et al.,<sup>22</sup> (1.58%) whereas in a study by Dogra, et al.,<sup>23</sup> it was noticed in 3.1% of their patients.

## V. Conclusion

We conclude from our study that skin, hair and nail disorders are common finding in thyroid gland dysfunction. Hence both dermatologist and physician should be aware of the interrelationship of both skin and thyroid gland, so that the patients are investigated promptly to rule out thyroid dysfunctions if any such signs and symptoms are present.

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