International Journal of Research in Dermatology
Kambil SM. Int J Res Dermatol. 2018 Aug;4(3):298-300
http://www.ijord.com

DOI: http://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20182018

Original Research Article

Clinical study of skin manifestations of hypothyroidism at a tertiary hospital in North Kerala

Srirath Madappally Kambil*

Department of Dermatology, Kannur Medical College, Anjarakandy, Kannur, Kerala, India

Received: 16 April 2018
Accepted: 04 May 2018

***Correspondence:**
Dr. Srirath Madappally Kambil,
E-mail: srirathkambil@gmail.com

ABSTRACT

Background: The effect of thyroid function on skin is very complex. Skin, hair and nail changes are not infrequent in hypothyroidism. There are only a few studies on the effect of hypothyroidism on skin in North Kerala.
Methods: 100 patients with hypothyroidism attending the outpatient departments of Dermatology and General Medicine were evaluated. The study was conducted at Kannur Medical College, Anjarakandy from September 2016 to August 2017. The various changes in skin, hair and nails are recorded in the study.
Results: Hypothyroidism was much more common in females and manly affected the 21-40 years age group. The common skin changes seen were xerosis, myxoedema and keratoderma. Hair loss, brittle nails and onycholysis were the main hair and nail manifestations. The conditions commonly associated with hypothyroidism were melasma, urticaria, alopecia areata and vitiligo.
Conclusions: Thyroid and skin are closely related and so any abnormality in the functioning of thyroid commonly reflects on the skin, hair and nails. Proper knowledge about the various skin manifestations helps in avoiding the various systemic complications of hypothyroidism by arriving at an early diagnosis.

Keywords: Hypothyroidism, Skin, Hair, Nails

INTRODUCTION

Thyroid disorders affect multiple organs in the human body including the skin. Dermatological manifestations are common in both hyperthyroidism and hypothyroidism. Hypothyroidism is characterised by TSH levels <4.2 IU/ml, T3 <3.95 pmol/lt and T4 <12pmol/lt and the common skin findings include dry coarse skin, myxoedema, palmoplantar keratoderma, diffuse/localised hair loss, carotenemia, brittle hair and nails with reduced rate of growth and purpura.[1] The present study was conducted to understand the prevalence and pattern of various skin manifestations of hypothyroidism in this part of Kerala.

METHODS

A prospective descriptive clinical study of skin manifestations of hypothyroidism was done over a period of 1 year from September 2016 to August 2017 after getting institutional ethical clearance. The study sample consisted of 100 diagnosed cases of hypothyroidism who attended the Dermatology and General Medicine outpatient departments of Kannur Medical College, Anjarakandy.

Inclusion criteria

All patients with hypothyroidism willing for the study were included.

Exclusion criteria

Unwilling patients, patients who have undergone thyroid ablation or thyroidectomy, patients with other systemic illnesses like diabetes mellitus, hepatic, renal and cardiac disease, pregnant women and those already on thyroid hormone replacement therapy were excluded.

A detailed history was taken regarding the age of onset, site of involvement, type of skin lesions after taking written consent from the patients included in the study. A detailed systemic and cutaneous examination was done and the findings were recorded. Investigations done included complete blood count, urine examination, random blood sugar, liver and renal function tests, lipid profile, thyroid function test and skin biopsy.

RESULTS

Out of 100 patients 82 were females and 18 were males. The male to female ratio was 1:4.6. The age of patients ranges from 18 to 64 years with maximum number of patients in 21-40 years age group (Table 1). Out of the total study population, 68 patients had skin manifestations which included 56 females and 12 males. The common skin changes seen in the study were xerosis, myxoedema and palmoplantar keratoderma (Table 2). The main hair changes were hair loss and brittle lustreless hair (Table 3).

Table 1: Age and sex distribution.

Age group	Male	Female	Total	%
0-20	4	7	11	11
21-40	7	35	42	42
41-60	5	28	33	33
>60	2	12	14	14
Total	18	82	100	100

Table 2: Skin changes in hypothyroidism.

Skin changes	Male	Female	Total	%
Xerosis	10	44	54	54
Palmoplantar keratoderma	5	11	16	16
Myxoedema	9	11	20	20
Carotenemia	3	2	5	5
Purpura	0	3	3	3

Table 3: Hair changes in hypothyroidism.

Hair changes	Male	Female	Total	%
Dry brittle hair	2	7	9	9
Diffuse hair loss	5	20	25	25
Madarosis	1	5	6	6
Total	8	32	40	40

Table 4: Nail changes in hypothyroidism.

Nail changes	Male	Female	Total	%
Slow nail growth	1	3	4	4
Dry brittle nails	3	9	12	12
Onycholysis	2	6	8	8
Total	6	18	24	24

Table 5: Associated conditions.

Conditions	Male	Female	Total	%
Vitiligo	1	2	3	3
Alopecia areata	2	2	4	4
Melasma	2	9	11	11
Urticaria	3	9	12	12
Xanthelasma	0	2	2	2

Nail involvement was seen in 24% of cases and the most common nail findings were brittle nails and onycholysis (Table 4). Alopecia areata, urticaria, vitiligo and melasma were seen in a significant number of cases (Table 5).

DISCUSSION

Thyroid disorders are commonly associated with various changes in the skin, hair and nails. In hypothyroidism, the hypometabolic state along with reflex peripheral vasoconstriction and reduced activity of sweat and sebaceous glands lead to cold pale coarse dry skin, palmoplantar keratoderma, brittle dry hair and nails.

In the present study hypothyroidism was more common in females with a male to female ratio of 1:4.6. This is similar to study by Srujana et al.[2]

The most common age group affected was 21-40 years. Srujana et al and Philip et al have noted similar findings.[2,3] Skin involvement was seen in 68% of cases. This is akin to findings by Haritha et al.[4]

The most common skin change noted was xerosis followed by myxoedema and keratoderma. Muhammed et al and Kumar et al have noted comparable findings.[5,6]

Diffuse hair loss and brittle nails were the commonest hair and nail changes noted respectively. This is similar to findings by Philip et al and Kumar et al.[3,6]

Associated conditions commonly seen were melasma, urticaria, alopecia areata and vitiligo. Similar observations were made by Haritha et al and Muhammed et al.[4,5] Purpura was noted in 3% of cases. Razi et al have recorded purpura in 8% of cases.[7]

The various signs and symptoms related to skin, hair and nails help in early diagnosis and treatment of hypothyroidism.

CONCLUSION

Skin, hair and nail problems are not rare in hypothyroidism. It is much more common in females and mainly affects the 21-40 years age group. The main skin changes are xerosis, keratoderma and myxoedema. Hair loss, dry brittle hair and nails and onycholysis are also commonly seen in hypothyroidism. A detailed knowledge of the various dermatological manifestations of hypothyroidism is must for an early diagnosis and will help to avoid complications in future.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Dogra A, Dua A, Singh P. Thyroid and skin. Indian J Dermatol. 2006;51:96-9.
2. Srujana B, Reddy BN, Prasad GK. Clinical spectrum of cutaneous manifestations of thyroid disorders in patients attending MediCiti Institute of Medical Sciences. Indian J Clin Experimental Dermatol. 2016;2(4):146-52.
3. Nicely Philip, Banavasi S Girisha, Tonita M Noronha, Akshata C Alva, Carol Christy. Cutaneous manifestations of hashimoto's thyroiditis: a cross-sectional study. Int J Contemporary Med Res. 2016;3(10):2910-4.
4. Haritha S, Sampath K. Skin manifestations of hypothyroidism – A clinical study. IOSR-JDMS. 2013;7:58-60.
5. Keen MA, Hassan I, Bhat MH. A Clinical Study of the Cutaneous Manifestations of Hypothyroidism in Kashmir Valley. Indian J Dermatol. 2013;58(4):326
6. Kumar D, Aslami AN. Evaluation of general and cutaneous manifestations of hypothyroidism: a single center experience in Odisha. Int J Res Dermatol. 2016;2:64-8.
7. Razi A, Golforoushan F, Nejad A, Goldust M. Evaluation of dermal symptoms in hypothyroidism and hyperthyroidism. Pak J Biol Sci. 2013;16:541-4.

Cite this article as: Kambil SM. Clinical study of skin manifestations of hypothyroidism at a tertiary hospital in North Kerala. Int J Res Dermatol 2018;4:298-300.