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**Original Research Article**

# Clinical study of geriatric dermatoses

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## ABSTRACT

**Background:** Diagnosis of geriatric dermatoses is a challenging job for the Physician due to the involvement of many intrinsic and extrinsic ageing factors. The present study was done with the aim to determine the clinical profile and pattern of dermatological manifestations in elderly people aged 60 and above and to analyze the correlation of various geriatric dermatoses with systemic diseases.
**Methods:** This was a prospective study done on 200 elderly individuals aged 60 years and above attending the outpatient clinic of Department of Dermatology, RGGGH and the outpatient clinic of Department of Geriatrics, RGGGH during the study period from October 2015 to September 2016. Detailed history of cutaneous complaints, present and past medical complaints were taken. A complete general, physical, systemic and dermatological examination was done in all patients and the findings were noted and analysed.
**Results:** Male preponderance was observed (M:F-1.8:1). Maximum number of patients (n=166) belonged to the age group of 60-69 years. Wrinkling of the skin is the commonest physiological geriatric dermatoses. Among the pathological changes, infections and infestations were observed in 27.5% of the study population. Fungal infection was the commonest among them (20%) followed by bacterial (18%) and viral (12%). Diabetes Mellitus was the commonest associated systemic ailment and was observed in about 31.5% of the study population.
**Conclusions:** Geriatric dermatoses occur in the elders due to extrinsic and intrinsic ageing factors. Crinkles were the commonest physiological geriatric dermatoses and benign tumours were the commonest pathological ones. Educating the elders about proper skin care along with the early diagnosis and treatment of their cutaneous ailments would help them to lead a productive and healthy life.

**Keywords:** Geriatrics, Dermatoses, Intrinsic and extrinsic ageing, Physiological and pathological dermatoses

## INTRODUCTION

Ageing is a process of progressive reduction in the maximal functioning and reserve capacity of all organs in the body, including the skin.[1]This functional decline is further compounded by environmental insults such as ultraviolet and infrared irradiation. These irradiations along with the pollutants in urban air together act as environmental carcinogens.[2]

Skin, the largest and most visible organ of the body bears the brunt of being the beacon of ageing. This alteration in skin appearance may be because of intrinsic or extrinsic ageing.[3] Moreover the immune response in older individuals is poor which predisposes them to have a greater susceptibility to skin infections. Also, the incidence of cutaneous neoplasms increases manifold due to this slack immune response.Wound healing process is impaired because of reduced inflammatory and immune

response, delayed replenishment of blood vessels and diminished collagen degradation.[4]

So far only a very few studies have been done in India regarding the physiological and pathological changes occurring in geriatric skin. Of particular note is the relative paucity of studies done in South India.

A study regarding the physiological and pathological cutaneous manifestations of ageing is the need of the hour which will provide more insight into this relatively uncharted area of dermatology. Hence the present study has been undertaken to fulfill the aforementioned intents.

## METHODS

This was a hospital based prospective cross-sectional study conducted on all elderly individuals aged 60 years and above attending the outpatient clinic of Department of Dermatology, RGGGH and the outpatient clinic of Department of Geriatrics, RGGGH during the study period from October 2015 to September 2016. Patients of age less than 60 years and who are not willing to participate in the study were excluded from the study. A total of 200 individuals were participated in the study.

The study was approved by the Institutional Scientific and Ethical Committee of Government Madras Medical College, Chennai. After getting consent from the patients, detailed counseling was given regarding physical examination, blood investigations, urine analysis, skin scraping and biopsy. Using pretested proforma, the details of the patient, history, clinical findings and investigations taken were recorded. If at any point of time, if a patient was found to have parameters in the exclusion criteria he/she was excluded from the study.

Associated systemic conditions like diabetes, hypertension, tuberculosis, thyroid dysfunction, renal disease, liver disease, immunosuppressive states (HIV, steroid therapy, transplant recipients, chemotherapy, radiotherapy) were recorded. Any other significant past history was noted followed by a general and systemic examination.

Local examination of the lesion was done under bright light with a magnifying glass lens. Detailed description of the lesion - site of involvement, size of the lesion, number of lesions and morphology of the lesion was noted.

The hair of the patient was examined and the abnormalities like graying, balding were noted as per the following scoring systems.

- Grade I - < 20% gray hairs
- Grade II - 20 to 40% gray hairs
- Grade III - 40 to 60% gray hairs
- Grade IV - 60 to 80% gray hairs
- Grade V - More than 80% gray hairs

The finger and toe nails of the study subjects were examined and abnormal findings were documented. If a lesion needs a scraping or biopsy or touch smear or aspiration or dermoscopy or trichoscopy for confirmation of diagnosis, the same was communicated to the patient and after getting a proper informed consent the procedure was done. The sample taken was subjected to KOH mount, gram stain, Tzanck smear and histo-pathological examination as the lesion warrants and the results were documented.

In patients with pre-existing systemic diseases or those with lesions signaling underlying systemic illness, requisite blood investigations like complete blood count, renal function test, blood sugar level, liver function test, thyroid function test, serum electrolytes and ELISA test for HIV infection were taken and the results were noted.

### *Statistical analysis*

The data collected were collated by using SPSS software version 17.1 for Windows (SPSS Inc., New york) and analysis was done.

## RESULTS

A total of 200 individuals were enrolled in this study out of which there were 129 (64.5%) males and 71 (35.5%) females. The male:female ratio was 1.8:1. The maximum number of study population was in the age between 60 to 69 years totaling 166 out of the 200 patients. 31 were in between 70 and 79 years and only 3 were aged more than 80 years (Table 1).

**Table 1: Demographic characteristics of the study population (n=200).**

| Characteristics | Number | Percentage (%) |
|---|---|---|
| **Sex** | | |
| Males | 129 | 64.5 |
| Females | 71 | 35.5 |
| **Age group (in years)** | | |
| 60-69 | 166 | 83 |
| 70-79 | 31 | 15.5 |
| 80-89 | 3 | 1.5 |

In the study, majority of the diagnosis in the study participants (88.5%) was made by clinical examination alone, 6% by dermoscopy, 5 cases were confirmed by biopsy and 3 cases were diagnosed by KOH mount and scrapping (Figure 1).

Table 2 presents the physiological geriatric dermatoses in males and females. In males the common dermatoses were crinkles seen in about 68.9% of the study population. Glyphic wrinkles were seen in 27 persons, linear furrows were seen in 13 and senile pruritus was noted in 19 individuals. Xerosis was seen in 35 individuals, idiopathic guttate hypomelanosis was seen

in 25, cutis rhomboidalis nuchae and Favre Racouchot syndrome in 2 persons. Senile lentigenes was seen in 4 and senile purpura was seen in 1 person. In females crinkles were seen in 57, glyphic wrinkles in 12 and linear furrows in 2 making wrinkling the commonest physiological geriatric dermatoses. Xerosis was seen in 14 individuals, senile pruritus in 9 and senile comedones in 1 person.

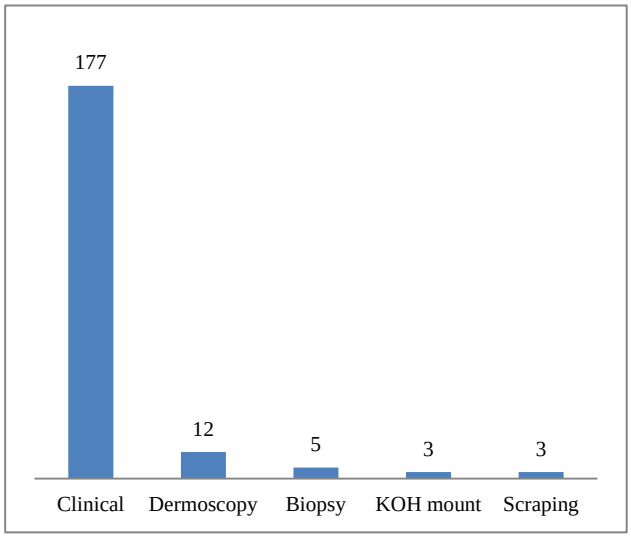


**Figure 1: Mode of diagnosis of geriatric dermatoses among study population.**

**Table 2: Physiological dermatoses in males and females.**

| Diseases | Number of males | Number of females |
|---|---|---|
| **Crinkles** | 89 | 57 |
| **Cutis rhomboidalis nuchae** | 2 | - |
| **Idiopathic guttate hypomelanosis** | 25 | 18 |
| **Favre Racouchot syndrome** | 2 | - |
| **Glyphic wrinkles** | 27 | 12 |
| **Linear furrows** | 13 | 2 |
| **Senile lentigenes** | 4 | - |
| **Senile pruritus** | 19 | 9 |
| **Senile purpura** | 1 | - |
| **Xerosis** | 35 | 14 |
| **Senile comedones** | - | 1 |

Prevalence of pathological geriatric dermatoses in both males and females were described in Table 3. Infections and infestations were the common pathological dermatoses noticed in males. Psoriasis was the commonest papulosquamous disorder seen in 4 individuals. Bullous pemphigoid was present in 4 persons. Eczema was noted in 28 individuals. Vitiligo was seen in 6 individuals. Benign tumours were seen in 66 individuals. Pellagra was noted in 3 persons due to vitamin B3 deficiency. In females, most of the observed infections were fungal (n=10). Viral infections were seen in 4 individuals. Bacterial infection was seen in 5 individuals. Eczema was seen in 13 persons. 8 persons had pigmentary disorders and benign tumours were seen in 30 patients.

Table 4 shows the presence of co-morbid conditions related to the disease among study population. Diabetes mellitus was the commonest comorbid condition seen in males (n=38). Seven individuals had hypertension. Varicose vein and ischaemic heart disease was seen in 3 individuals each. COPD, CRF and schizophrenia were the other comorbid conditions seen. Out of 71 females, 25 of them had diabetes mellitus. Hypertension and hypothyroidism was noted in 3 patients each. One individual was suffering from COPD.

Graying of hair among study population was presented in Table 5. 55% of the male population had grade 3 graying of hair, 21% had grade 5 graying and 19% had grade 4 graying. 37% of females in the study population had grade III graying of hair, 27% had grade IV graying, 23% had grade V graying and 11% had grade II graying. Only 2 individuals had grade I graying.

Nail changes in both males and females among study population was given in Table 6. Maximum number of patients in both the sexes had loss of lustre. The incidence of nail changes exceeds the number of cases since some cases showed more than one nail change due to ageing.

As much of 44% of the study population had the dermatoses for more than one year, 38.5% had it for months ranging from 1 month and 12 months. Only 17.5% of the study population had it for less than one month (Figure 2).

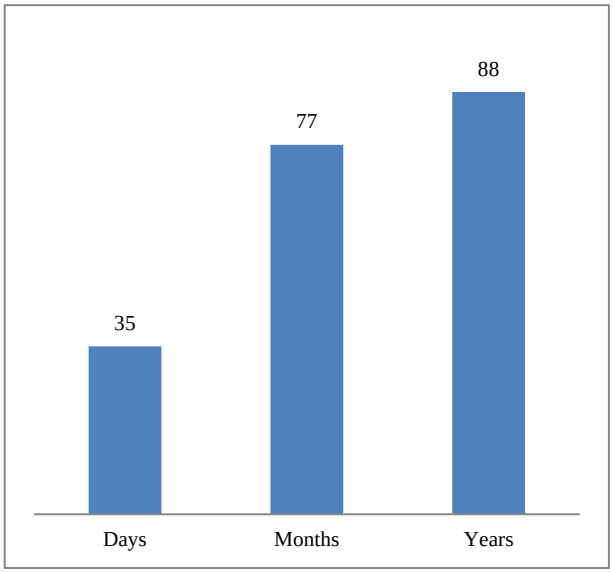


**Figure 2: Duration of geriatric dermatoses.**

**Table 3: Pathological geriatric dermatoses in males and females.**

| Pathological conditions | No. of males | No. of females |
|---|---|---|
| **Infections and infestations** | 33 | 22 |
| a. Fungal | 10 | 10 |
| Dermatophytosis | 8 | 5 |
| Onychomycosis | 2 | 1 |
| Candidiasis | - | 4 |
| b. Viral | 8 | 4 |
| Herpes zoster | 5 | 3 |
| Herpes simplex | 1 | - |
| Wart | 2 | 1 |
| c. Bacterial | 13 | 5 |
| Pyoderma | 3 | |
| Furunculosis | 2 | 1 |
| Folliculitis | 1 | |
| Erythrasma | 1 | |
| Pitted keratolysis | 1 | 3 |
| Lupus vulgaris | 1 | |
| Leprosy | 4 | 1 |
| Parasitic | 1 | 3 |
| Scabies | 1 | 3 |
| Mixed | 1 | |
| Intertrigo | 1 | |
| **Papulosquamous disorders** | 6 | 3 |
| Psoriasis | 3 | 2 |
| Pustular psoriasis | 1 | |
| Lichen planus | 1 | 1 |
| Corn foot | 1 | |
| **Bullous disorder** | 4 | 3 |
| Bullous pemphigoid | 4 | 1 |
| Pemphigus Vulgaris | - | 2 |
| **Eczema** | 28 | 13 |
| Airborne contact dermatitis | 2 | |
| Contact dermatitis to cement | 2 | |
| Contact dermatitis to paint | 1 | |
| Contact dermatitis to turmeric | - | 1 |
| Stasis eczema | 5 | |
| Asteatotic eczema | 5 | |
| Stasis ulcer | 2 | |
| Atopic dermatitis | 1 | |
| Phytophotodermatitis | 1 | 1 |
| Lichen simplex chronicus | 3 | 6 |
| Nummular eczema | 1 | |
| Chronic eczema | 2 | 1 |
| Hand eczema | 2 | 4 |
| Prurigo nodularis | 1 | |
| Pigmentarydisorders | 6 | 8 |
| Vitiligo | 6 | 2 |
| Melasma | - | 6 |
| **Benign tumours** | 66 | 30 |
| Seborrheic keratosis | 16 | 7 |
| Dermatosis papulosa nigra | 19 | 14 |
| Cherry angioma | 15 | 4 |
| Acrochordon | 16 | 5 |
| **Nutritional deficiency disorder** | 3 | - |
| Pellagra | 3 | |

**Table 4: Co morbid conditions in males and females.**

| Diseases | Number of males | Number of females |
|---|---|---|
| **Diabetes mellitus** | 38 | 25 |
| **Hypertension** | 7 | 3 |
| **Chronic obstructive pulmonarydisease** | 3 | 1 |
| **Hypothyroidism** | 3 | 3 |
| **Carcinoma cervix** | 1 | 1 |

**Table 5: Graying of hair in males and females.**

| Grade of graying | Number of males | Number of females |
|---|---|---|
| **Grade I** | 3 | 2 |
| **Grade II** | 4 | 16 |
| **Grade III** | 71 | 26 |
| **Grade IV** | 24 | 19 |
| **Grade V** | 27 | 8 |

**Table 6: Nail changes in males and females.**

| Condition | Number of males | Number of females |
|---|---|---|
| **Beau's lines** | 8 | 2 |
| **Dystrophy** | 2 | 1 |
| **Ridging** | 4 | 1 |
| **Loss of lustre** | 30 | 10 |
| **Onycholysis** | 1 | 2 |
| **Onychomycosis** | 2 | 1 |
| **Paronychia** | 1 | 7 |
| **Pitting** | 4 | 2 |
| **Subungual hyperkeratosis** | 7 | 1 |
| **Splinter haemorrhage** | 1 | 5 |

## DISCUSSION

In this study a total of 200 patients with geriatric dermatosis attended to the outpatient clinics of Department of Dermatology and Department of Geriatrics at Rajiv Gandhi Government General Hospital, Chennai were included in the study. Males contributed to 64.5% of the study population and females accounted for 35.5%. This observation was in accordance with the findings of Pavithra et al.[5] Maximum number of the patients were under the age group of 60-65 years (n=166; 83%). This was similar to the findings of Raveendra et al.[6]

Among the physiological dermatoses in the study population, wrinkling of skin was the commonest geriatric dermatoses observed in one or the other form. This was in accordance with the study by Pavithra et al and Tindall et al who reported 99.3 % and94% of wrinkles respectively.[5,7] Most of the wrinkling seen in the

study was due to crinkles (73%) followed by glyphic wrinkles (19.5%) and linear furrows (7.5%).

In this study, xerosis was present in 24.5% of the study population. The incidence of xerosis quoted in other studies was widely variable ranging from 6% to as high as 93%.[6] This incidence is comparable to the study done by Sahoo et al.[8]

Idiopathic guttate hypomelanosis was present in 21.5% of the study population and the finding was similar to the studies done by Patange et al and Beauregard who had reported a similar incidence of around 25%.[7,9] Senile pruritus was seen in 14 % of our study population. This might be due to the effect of multiple drugs taken for the comorbid conditions and the manifestations of comorbid conditions per se. The incidence of pruritus in various studies ranged from 7% to 49.6%. Favre Racouchot syndrome was found in 1.5% of the study population that was in accordance with the the results obtained by Raveendra et al (2%) and Patangeet al (3%).[6,9] Cutis rhomboidalis nuchae was found in 1% of the study population and senile lentigenes was seen in 2% of the study population. The decreased incidence of senile lentigenes when compared to other studies such as Beauregard et al (36%) might be because of the fact that senile lentigenes occur in a lesser frequency in dark skinned individuals compared to light skinned individuals.[10]

Among the pathological geriatric dermatoses, benign cutaneous tumours were the commonest ones noted in this study (n=96; 48%). The commonest benign tumour noticed was dermatosis papulosa nigra found in 16.5% of the study group followed by seborrheic kerstoses (11.5%), acrochordon (10.5%) and cherry angioma (9.5%). The study done by Darjani et al in Northern Iran had documented benign neoplasms to be the commonest dermatological disease among elderly patients with an incidence rate of 65% which might be attributable to the study location being a desert with a very hot climate and abundant sun exposure.[11]No malignant cutaneous tumours were reported in our study. This correlates with majority of the other studies.[6,9,11] This might be because of the low incidence of cutaneous malignancies in dark pigmented skin.

Dermatosis papulosa nigra (DPN) was present in 16.5% persons and it was the commonest benign tumour present in our study group. The incidence of DPN in males was 14.7% and females was 19.7%. Seborrheic keratoses occurred in 11.5% of the study group. In males it was seen in 12.4% and in females 9.9%. Pavithra et al reported 27.5% incidence of the same.[5] Acrochordon was found in 10.5% of our study population which was similar to the incidence noted by Raveendra et al (19.5%).[6]

Infections and infestations were the second most common pathological dermatoses in our study population and as much as 27.5% of them were suffering from it. Fungal infections were by far the commonest infections and were present in 10% of the subjects. This could be attributable to the fact that our study area being a coastal location is hot and humid which favours excessive sweating and this in turn predisposes to fungal infection. It was more common in patients who were wearing tight occlusive clothing which lead to maceration of the skin due to the warm environment. Raveendra et al had found an incidence of 11% and Thapa et al had documented an incidence of 11.5% which were similar to our findings.[6,13]

Bacterial infections were the next most common and they were present in 9% of the study subjects. Leprosy was the commonest among them(2.5%) followed by pitted keratolysis (2%).The incidence of leprosy was in similar lines to the results of Raveendra et al who reported an incidence of 6%. It might be because of overcrowding, migrant population and poverty prevalent in our study population most of which is composed of daily wage labourers.

Viral infections were found in 6% of our study population and Herpes zoster was the commonest viral infection encountered in our patients. Pavithra et al had found a similar incidence of viral infection (3.4%).[5]

Papulosquamous disorders were noted 4.5% of the study population. Among them psoriasis was the commonest disorder noted (3%).This incidence of papulosquamous disorders in accordance with the study by Thapa (3.3%).[13] Bullous disorders and eczema were seen in 3.5% and 20.5% of the study subjects respectively and it was in accordance with Raveendra et al (1.5% and 31% respectively).[6]

Pigmentary disorders were seen in 7% of the study subjects and vitiligo was the commonest of them (4%) followed by melasma (3%). Weismann et al had reported a similar incidence of vitligo (1.2%).[14] Melasma was reported at 5% incidence by Raveendra.[6] Pellagra was noted exclusively in males in our study and 1% had this disease. Thapa et al, had reported a similar incidence (1.9%).[13]

Overall, 43.5% of the study population was suffering from comorbid conditions. 7 subjects had more than 1 comorbid condition. Diabetes mellitus was the commonest (31.5%) comorbid disease affecting both male and female study subjects followed by hypertension (5%). Varicose vein, hypothyroidism and ischaemic heart disease were seen in 1.5% of the study population. Chronic obstructive pulmonary disease was found in 1% of the patients. Carcinoma cervix, schizophrenia and chronic renal failure were noted in 1 patient each. This was in similar with the observations of Patange et al.[9]

In the present study, grade III graying of hair was prevalent among 48.5% of the study population. 21.5% of the study population had grade IV graying and 17.5% had

grade V. In the study done by Pavithra et al 96.8% of study population had reported the incidence of graying of hair.[5]

On checking for nail changes, loss of lustre was found to be most common lesion which was present in as much as 20% of individuals included in the study followed by subungual hyperkeratosis which was present in 6%. Beau's lines were noted in 5%, paronychia in 4%, pitting of nails in 3%, ridging in 2.5% and splinter haemorrhage in 1%. Dystrophy of nails was also noted in 2 individuals.These nail changes correlates with the results of Leena et al.[6]

Majority of the study population had dermatoses which were present for more than a year indicating chronicity. The reason for this high proportion of chronic nature of the disease could be due to the fact that majority of the geriatricdermatoses usually don't contribute to morbidity and mortality. So they were neglected for quite some time before seeking medical help. Also, most of these elderly people were dependent someone else to avail professional medical help which might not be in the offing easily.

## CONCLUSION

In conclusion, Crinkles was the commonest physiological geriatric dermatoses and benign tumours were the commonest pathological geriatric dermatoses as per our study. Grade III graying of hair was the commonest hair change and loss of lustre was the commonest nail change. Education regarding proper skin care along with early detection and treatment of geriatric dermatoses will help the elderly to lead a productive and healthy life.

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