

Dermatological Manifestations of Internal Malignancies

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Abstract

Introduction: The skin is said to be the mirror of internal organs. Cutaneous manifestations may occur in many internal malignancies. It may precede, follow, or occur concurrently with the onset of internal malignancy.

Aim: This study aims to assess the frequency and significance of dermatological manifestations in patients with internal malignancies.

Methods: A total of 125 proven patients with various internal malignancies presenting to our outpatient department with skin lesions were included in the study.

Results: According to our study, males were more commonly affected than females and the common age group was 40–60 years. The most common skin manifestations observed were cutaneous infections followed by cutaneous metastasis.

Conclusion: Skin reflects the course of any internal disease. Identification of these skin manifestations may aid in both early diagnosis and treatment of internal malignancies.

Key words: Internal malignancies, Diagnosis, Skin changes

INTRODUCTION

Skin, the largest organ of our body, reflects the changes in the internal organs. Skin manifestations in internal malignancies are diverse and may be specific or non-specific.^[1]

Curth proposed criteria for the causal relationship between skin manifestations and internal malignancy.^[2]

- Both conditions should begin simultaneously
- Development of a parallel course
- The dermatoses are not a part of any genetic syndrome
- The dermatoses are uncommon in general population
- There is a high frequency of association between both conditions.

Hebra first pointed cutaneous hyperpigmentation as a part of internal malignancy in 1868.^[3] Since then, more than

50 skin conditions have been reported in association with internal malignancies.^[4]

- The underlying malignancy may produce cutaneous manifestations either by direct invasion of skin or spread through lymphatics or blood, producing metastasis in skin.
- Carcinogen exposure and certain inherited disorders with internal malignancies may be associated with skin lesions.^[3]
- Radiotherapy and chemotherapy instituted for treating malignancies may lead to cutaneous manifestations.^[4]
- Identification of cutaneous lesions in patients with internal malignancies may be helpful in assessing the extent of disease, disease progress, and its response to treatment.

MATERIALS AND METHODS

Materials

This study includes 125 patients with proven internal malignancy presenting to our outpatient department with skin lesions, observed over a period of 6 months from January 2019.

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Methodology

1. A detailed history was taken and systemic and dermatological examination were done
2. Basic laboratory investigations were done
3. In some patients, investigations pertaining to particular conditions were done which include scraping for the diagnosis fungus and acarus, and skin biopsy as done to confirm the diagnosis.

Inclusion Criteria

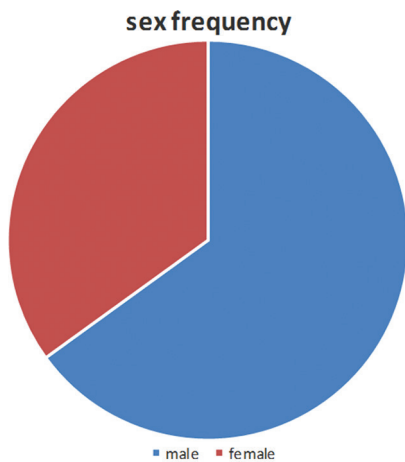
Patients with internal malignancy presenting with dermatological manifestations were included in the study.

Exclusion Criteria

Patients unwilling for our study and patents who were treated for their skin lesions were not included in the study.

RESULTS

A total of 125 patients with various types of malignancies presenting with skin manifestations were included in this study. Of this, 78 were male (62.4%) and 47 were female (33.6%).



The frequency of various internal malignancies observed in our study is as below:

Internal malignancy	Number of patients	Percentage
Carcinoma breast	26	20.8
Carcinoma buccal mucosa	24	19.2
Carcinoma tongue	3	2.4
Carcinoma cervix	8	6.4
Carcinoma oropharynx	9	7.2
Osteosarcoma	4	3.2
Malignant melanoma	2	1.6
Lymphoma	4	3.2
Gastric carcinoma	14	11.2
Squamous cell carcinoma	4	3.2
Cutaneous T-cell lymphoma	1	0.8
Bronchogenic carcinoma	7	5.6
Renal cell carcinoma	3	2.4

Basal cell epithelioma	6	4.8
Hepatocellular carcinoma	3	2.4
Carcinoma prostate	3	2.4
Secondaries neck with primary unknown	4	3.2
Total	125	100

Carcinoma breast was the most common malignancy found in 26 (20.8%) patients followed by carcinoma buccal mucosa which was present in 24 patients (19.2%). Eight patients presented with carcinoma cervix. Out of seven patients with basal cell epithelioma, three were diagnosed in our department and biopsy was done to confirm the diagnosis.

The age of the patients ranged from 10 to more than 80 years. The maximum number of patients was in the age group of 60–80 years (48%).

Age group	Frequency	Percentage
<20	5	4
20–40	6	4.8
40–60	45	36
60–80	60	48
>80	9	7.2
Total	125	100

There were six patients in 20–40 years age group. Forty-five patients in 40–60 years age group and nine patients in 40–60 years age group and nine patients were above 80 years of age.

The incidence of cutaneous manifestations in various internal malignancies is listed below:

Skin manifestations	Frequency	Percentage
Herpes zoster	20	16
Dermatophytosis	15	12
Scabies	5	4
Pyoderma	8	6.4
Mucosal pigmentation	7	5.6
Acanthosis nigricans	2	1.6
Seborrheic keratosis	7	5.6
Acquired ichthyosis	10	8
Pruritus	11	8.8
Erythroderma	1	0.8
Secondary lymphedema	3	2.4
Lymphangioma	2	1.6
Vasculitis	2	1.6
Cutaneous metastasis	15	12

Patients presented with cutaneous manifestations either due to disease *per se* or as a consequence to therapy or both.

The most common skin lesions were herpes zoster. It was observed in 20 patients (16%) followed by dermatophytosis (12%). The increased incidence may be attributed to immunosuppression in these patients.

Cutaneous metastasis was observed in 15 patients (12%). The most common site of cutaneous metastasis was chest followed by head and neck. The most common cause of cutaneous metastasis was carcinoma breast in females and carcinoma buccal mucosa in males.

Cutaneous Manifestations Due to Therapy

Drug reaction	6	4.8
Alopecia	5	4
Nail changes	3	2.4
Radiation dermatitis	3	2.4

The most common chemotherapeutic agents attributing to drug reaction were capecitabine, sorafenib, cisplatin, and 5-fluorouracil. Hand-foot syndrome was observed in a patient related with capecitabine for carcinoma breast and in another patient on sorafenib for hepatocellular carcinoma.

Pigmentation of lips was noted in seven patients. Of five patients with alopecia, three had diffuse hair loss and two had alopecia totalis.

Three patients presented with nail changes including onychodystrophy and koilonychia.

DISCUSSION

As there is a rising trend in the occurrence of internal malignancies, early recognition is possible by identification of the cutaneous lesions which may precede or occur concurrently with the onset of malignancy.

- The skin lesions occurring in internal malignancy are called dermadromes of internal malignancy.^[5] According to Rajagopal *et al.*, dermatological manifestations occur in 237.35 patients.^[6]
- In malignancies, metastasis skin is rare.^[7] Cutaneous metastasis usually occur after the fifth decade.^[8] In our study, cutaneous metastasis was observed in 12% of patients. In a study by Browstein *et al.*, the most common malignancy producing cutaneous metastasis was carcinoma lungs followed by carcinoma colon in males and carcinoma breast in females.^[9] In our study, carcinoma lungs in males and carcinoma breast in females similar to a study by Tharakram *et al.*^[10]
- Most frequent cutaneous infection encountered was herpes zoster which was mostly multidermatomal in contrast to the study conducted by Kiliç *et al.* which reported fungal infections to be the most common.^[11] The occurrence of herpes zoster in patients on remission may indicate recurrence of malignancy.^[12]
- There is an increased incidence of infections in patients with internal malignancies which may be attributed to immunocompromised status of the patient due to

disease *per se* or chemotherapy.^[13]

- According to our study, middle-aged (40–60 years) people were most commonly affected. Similar observation was reported by Gül *et al.*^[14]
- In our study, drug reaction was observed to be the most common chemotherapy-induced dermatoses, whereas Kanti *et al.* reported hair loss to be the common dermatoses due to chemotherapeutic agents.^[15]

Pruritus was found to be associated with lymphoma and is seen only in later stages of disease.^[16] As per the study by Hassan *et al.*, 2.4% of patients presented with ichthyosis but in our study 8% presented with ichthyosis.

- Radiation dermatitis was found in three patients of 68 patients on radiotherapy. It may take weeks to months for the occurrence of skin manifestations following completion of radiotherapy.^[17]

Vasculitis was observed in two patients. One patient with renal cell carcinoma presented with necrotizing ulcer and another patient with gastric carcinoma had purpuric lesions both lower limbs. Hematological malignancies are more commonly reported to be associated with cutaneous vasculitis.^[18]

- In addition, cutaneous manifestations such as scabies, pyoderma, acanthosis nigricans, lymphedema, and lymphangioma were also noted in our study.

CONCLUSION

Skin is the mirror of internal organs. Cutaneous manifestations may precede, occur concurrently, or may follow after the occurrence of internal malignancies. Any patient with unusual cutaneous manifestations who do not respond to therapy should be thoroughly investigated for underlying immunosuppression including internal malignancies. Prompt identification of these cutaneous manifestations will help in early diagnosis and treatment of internal malignancies.

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