

## “Cutaneous manifestations in chronic renal failure patients on haemodialysis”

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### Abstract

**Introduction:** Chronic renal failure presents with wide range of cutaneous manifestations. Many newer changes have been described since the advent of haemodialysis which prolongs the life expectancy giving time for these changes to manifest.

**Aims & Objectives:** To find the array of various dermatological conditions that can occur in patients of CRF on haemodialysis.

**Materials and Methods:** A total 100 patients with chronic renal failure on haemodialysis and having at least single cutaneous manifestation was included in the study.

**Results:** Of the total 82% of the patients complained of certain skin problems however on examination all patients had at least one skin problem attributable to chronic renal failure. The most prevalent finding among them was Xerosis (52%), Pruritus (32%), Diffuse cutaneous hyperpigmentation (22%), Kyrle’s disease (71%) of the total of acquired reactive perforating dermatosis(7%), Fungal infections (16%), Bacterial infections (10%) and Viral in (10%), Purpura (3%) and other Dermatoses (13%).The nail changes observed were Half and Half nails (20%), Koilonychia (18%), Onychomycosis (15%), Sub-ungual hyperkeratosis (8%), Beau’s lines (2%) .Hair changes were sparse body hair (10%), dry lustreless hair (4%), and sparse scalp hair (10%). Oral changes observed were Ulcerative stomatitis (29%), Angular cheilitis (12%). Other manifestations of CRF observed were like gynaecomastia, psuedokaposia sarcoma, and nephrogenic fibrosing dermopathy.

**Conclusion:** CRF is associated with a complex array of cutaneous manifestations caused either by the disease or by the treatment. The early recognition of cutaneous signs can relieve suffering and decrease morbidity.

**Keywords:** Chronic renal failure, Haemodialysis, Pruritus, Xerosis, Kyrles disease, Nephrogenic Fibrosing Dermopathy.

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### Materials and Methods

A total number of 100 patients with Chronic renal failure on haemodialysis, having at least single dermatological manifestation were selected in this present descriptive analytical study conducted at a tertiary care centre for a period of 1 year (April 2014 to April 2015) after taking the clearance of ethical committee from the institution. Following which a detailed consent was taken from the patient. For the present study, patients age, sex, primary and secondary diagnosis, medications history and current cutaneous status were noted. History included duration of chronic renal failure and haemodialysis. The effect of a single session of haemodialysis on the symptom of pruritus at that particular time was recorded as un-changed, worsened or reduced. A complete clinical and cutaneous examination was done. Data was collected and recorded in a proforma. Photographs were taken. Skin biopsy and other bed-side investigations like culture and sensitivity for bacterial infections, gram staining, KOH mount and fungal cultures were instituted wherever indicated with informed consent. Severity of xerosis was assessed by a modified version grading by MORTON, which shows:

Grade 0- Smooth skin.

Grade 1- Rough skin.

Grade 2- Rough skin with scaling was done where ever required.

### Introduction

Skin is a mirror of internal disease and the ability to diagnose systemic disease by cutaneous manifestations has always fascinated clinicians. The kidney and skin are two important organs whose blood supply far exceeds their demand, the former for maintaining the milieu interior and the latter for rendering humans homoeothermic. This fact and many others form the basis for the skin manifestations of renal disease. This study is an attempt to identify the cutaneous manifestations of chronic renal failure. Changes of the skin are frequently seen in patients with renal failure and in those who are undergoing dialysis. Chronic renal failure which results from progressive irreversible destruction of nephrons is associated with various clinical and histopathological cutaneous changes regardless of its aetiology. Long standing metabolic derangements in patients with chronic renal failure effect different systems including skin.

## Results

There were 80 males and 20 females in our present study. The analysis of prevalence as per age revealed that the youngest patient was aged about 6 years and the oldest aged 79 years. Both of whom were males.

Maximum prevalence of 26% occurred during the 6th decade followed by 20% during the 5th decade, these two decades accounted for forty six cases (46%). Hemogram, blood urea and serum creatinine were estimated in all patients. Mean ranges noted of haemoglobin, blood urea and serum creatinine were 8.46gm%, 118.77mg and 6.47mg/dl respectively. Fifty two patients (52%) suffered from hypertension; twenty six patients of them were also known cases of Type II Diabetes Mellitus. Forty (40%) patients suffered exclusively from Type II Diabetes Mellitus. Three (3%) of adult with poly-cystic kidney disease were figured in our study. Patients having SLE (1%) and one (1%) patient having renal amyloidosis secondary to lepromatous leprosy were noted in our study. We had ten (10%) patients having uremic fetor and their blood urea levels were more than 200mg, various cutaneous manifestations observed in our study were tabulated.

### RESOLVING HERPES ZOSTER WITH NECROTISING FASCITIS (L2-L3)



**Fig. 1: Herpes Zoster with Necrotising Fasciitis induced acne**

### STEROID INDUCED ACNE



**Fig. 2: Steroid induced acne (L2-L3)**

### ORAL CANDIDIASIS



**Fig. 3: Oral candidiasis**

### PITYRIASIS VERSICOLOR

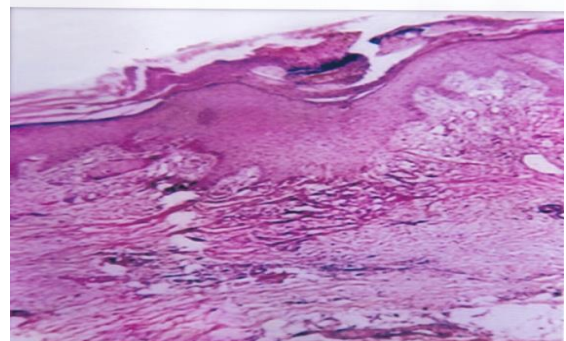


**Fig. 4: Pityriasis Versicolor**

### PERFORATING DISORDER



### PERFORATING DISORDER HPE



**Fig. 5 & 6: Perforating disorder (kylre's disease) & histopathology of kylres**

**Table 1: Mean and standard deviation of various parameters**

Parameter	Mean	S.D
Age	48.77 yrs.	13.39 yrs.
Hb - gm%	8.46 gm%	1.77 gm%
Blood urea	118.77 mg/dl	46.86 mg/dl
Serum creatinine	6.47 mg/dl	3.78 mg/dl
Duration of hypertension	6.34 yrs.	2.62 yrs.
Duration of diabetes mellitus	4.44 yrs.	2.35 yrs.
Duration of haemodialysis	14.77 months	8.4 months

**Table 2: Prevalence of cutaneous manifestations encountered in our study**

Cutaneous Status	Number	Percentage
Xerosis	52	52%
Pallor	30	30%
Pruritus	32	32%
Nail Changes	63	63%
Infections	36	36%
Dyspigmentation	43	43%
Hair Changes	24	24%
Acquired Perforating Disorders	7	7%

## Discussion

**Xerosis:** Xerosis was the commonest finding seen in fifty two (52%) patients, predominantly involved extensor surfaces of legs, thighs and forearms. Data from various studies recorded prevalence of xerosis ranging from 46% to 90%. Twenty (20%) of our xerotic patients were known cases of Diabetes Mellitus and the Ichthyosis involving large areas of the body as compared to other CRF patients.<sup>(1,2,5,10)</sup>

**Pruritus:** Pruritus was the next commonest and most troublesome symptom observed in our study, affecting thirty two (32%) patients. Its prevalence in other previous studies has ranged from 19% to 90%. A recent Indian study quoted its prevalence as 53%. In our study pruritus remained unchanged in 53.125% (i.e. 17 out of 32), worsened in 15.62% (i.e. 5 out of 32) and diminished in 31.25% (i.e. 10 out of 32) patients on haemodialysis. Some other studies conducted by Jamal and Subramanian have also found similar results in their study.<sup>(1)</sup>

**Pallor:** Pallor, the commonest finding after xerosis and pruritus was found in fifty (50%) in our patients. The mean haemoglobin in these fifty patients (8.25 gm %) was lower than the mean of the entire sample population (8.47 gm %). Uday kumar et al also detected pallor in 60% of their cases.<sup>(2)</sup>

**Dyspigmentation:** 22% of our patients had diffuse brown pigmentation over the face and sun-exposed parts of upper and lower limbs. Uday kumar et al reported this prevalence as 43% in their study.<sup>(2)</sup>

**Hair Changes:** Hair changes were observed in twenty four (24%) patients, among which ten (10%) showed sparse body hair, four (4%) dry lustreless hair and ten (10%) showed sparse scalp hair, which is postulated to occur as a result of decreased secretion of sebum in CRF patients which was similar to previous study done by Sanad EM et al.<sup>(3)</sup>

**Nail Changes:** Nail changes are seen in sixty three (63%) of our patients. The commonest was half and half nails in twenty (20%), koilonychias in eighteen (18%), onychomycosis in fifteen (15%), sub-ungual hyperkeratosis in eight (8%) and beaus lines in two (2%) of our patients. We found that mean duration of patients having nail changes during haemodialysis was 25.3 months. The prevalence of half and half nails, characteristic findings of CRF, ranging from 16% to 50.6% as compared to 1.4% of the general population. Dyachenko et al<sup>(4)</sup> in their exclusive study of nail changes in patients of CRF found half and half nails (16.9%) as the commonest finding followed by absent lunulae (13%) and onychomycosis (10.4%).

**Acquired Perforating Dermatitis:** Seven (7%) cases in our study had acquired perforating dermatitis (APD), many of them had lesions predominantly over the extensor aspects of legs. All the affected patients complained of severe itching. The lesions were hyperkeratotic papules ranging in size from 2-10mm in diameter. Most of these patients were diabetic. Uday kumar et al, Sultan et al recorded the prevalence of APD in their study as 21% and 10% respectively.<sup>(2)</sup>

**Cutaneous Infections:** Cutaneous infections were being seen in thirty six (36%) of patients. Among which 16 of whom had dermatophytosis, 10 had pyoderma and 10 had viral infections, mostly of herpes zoster.<sup>(6)</sup> The percentages of cutaneous infections in an Indian study and an Egyptian study were 55% and 40% respectively.

**Nephrogenic Fibrosing Dermopathy:** Nephrogenic fibrosing dermopathy was seen in one (1%) patient in our study, which happens to be a rare case. This is seen in a 10 year old male child with CRF who had an exposure to gadolinium contrast in the past.<sup>(7)</sup>

**Other Dermatitis:** Dermatitis such as Psoriasis, Lichen planus, Seborrheic dermatosis, Stasis, Phytophotodermatitis, Irritant contact dermatitis, Erythema nodosum, LSC, Chronic lichenified eczema, Ichthyosis vulgaris were seen in 13 (13%) patients.<sup>(1,2,5,9,10)</sup>

**Mucosal Changes:** Mucosal changes like Ulcerative stomatitis, Angular cheilitis were observed in 41 (41%) patients.<sup>(1,2,10)</sup>

## Conclusions

In our study Xerosis, Pallor, Pigmentation and Pruritus were the commonest manifestations observed in patients of CRF on haemodialysis. Of note xerosis was extensive in diabetes mellitus patients. Uremic fetor affected patients having blood urea levels more

than 200mg/dl. Nail changes were more prevalent in patients who received haemodialysis for longer period of time. Haemodialysis after a single session failed to ameliorate the intensity of pruritus in majority of our patients.

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