

# Cutaneous Manifestations In Chronic Renal Failure Patients

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## Abstract

**Introduction:** Chronic renal failure is a pathophysiologic process with multiple etiologies, resulting in the inexorable attrition of nephron number and function, and frequently leading to end stage renal disease. There are various cutaneous changes in chronic renal failure.

**Objectives:** To observe the cutaneous manifestation in chronic renal failure and find out any difference in occurrence of cutaneous manifestation with modality of treatment of CRF.

**Methods:** The study was conducted in 50 (fifty) adult patients with chronic renal failure and another 50 (fifty) patients with similar age admitted with other renal diseases but not suffering from chronic renal failure as control to facilitate comparison were considered in the Department of Dermatology and Venereology and the Department of Medicine, Shree Birendra Hospital, Chhauni from September 2008 to June 2010.

**Results:** A significant occurrence of pruritus, xerosis and pallor in CRF patients; the highest being pruritus followed by xerosis and pallor. Occurrence of pruritus was found to be more in HD patients (68%) than in IPD patients (38%). No correlation was found between ages, sex, and duration of dialysis with complaint of pruritus. Skin xerosis is considered an important factor contributing or initiating pruritus.

**Conclusion:** Pruritus is the commonest cutaneous manifestation of chronic renal failure.

## Introduction

The skin is the most visible and easily accessible organ of the body. For an astute clinician, the skin may function as an important diagnostic window to disease affecting internal organ. This is especially true for the renal system<sup>1-4</sup>.

Chronic renal failure is a pathophysiologic process with multiple etiologies, resulting in the inexorable attrition of nephron number and function, and frequently leading to end stage renal disease (ESRD)<sup>5-6</sup>.

ESRD represent a clinical state or condition in which there has been an irreversible loss of endogenous renal function, of a degree sufficient to render the patients permanently dependent upon renal replacement therapy (dialysis or transplantation) in order to avoid life threatening uremia<sup>7-10</sup>.

Uremia is the clinical and laboratory syndrome, reflecting dysfunction of all organ systems as a result of untreated acute or chronic renal failure.

For our study purpose cutaneous manifestations of chronic renal failure may be divided into 3 general categories including:

1. Cutaneous manifestations in patients on hemodialysis (HD).
2. Cutaneous manifestations in patients on intermittent peritoneal dialysis (IPD).

3. Cutaneous manifestations in patients on medical treatment.

## Cutaneous Changes Associated With CRF:

- Xerosis
- Pallor
- A sallow yellowish cast to the skin
- Diffuse hyperpigmentation
- Half and half nails
- Eextensive eccymoes
- Calcinosis cutis due to secondary hyperparathyroidism
- Uremic frost
- Lichen simplex chronicus
- Prurigo nodularis
- Xanthomas
- Uremic Neuropathy
- Cutaneous ischaemic ulceration<sup>7-13</sup>

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Cutaneous Manifestations In Patients On Dialysis (Haemodialysis And Peritoneal Dialysis):

Contact dermatitis at site of A-V fistula or peritoneal cannula

Bullous disease of dialysis

Acquired perforating disease of hemodialysis

Arterialization at A-V fistula site

Edema and postinflammatory hyperpigmentation in the arm of A-V fistula

Pruritus

Xerosis

Alteration in skin pigmentation

Half and half nails

Calcinosis cutis

Calciophylaxis

Kyrle's disease

Gynaecomastia

## Objectives

1. To observe the cutaneous manifestation in chronic renal failure.
2. To find out any difference in occurrence of

## Observation and results

**Table I:** Distribution of The CRF And Non CRF Renal Patients By Age:

Age group	CRF (n=50)		Non CRF (n=50)	
	Freq	Percent	Freq	Percent
1 < 20 year	8	16	8	16
2 21- 30 year	6	12	7	14
3 31- 40 year	16	12	7	14
4 41- 50 Year	8	16	16	32
5 > 50 Year	12	24	10	20
Total	50	100	50	100

**Table II:** Distribution Of Patients By Sex:

	Male	Female
CRF	26 (52%)	<b>24 (48%)</b>
Non CRF	27 (54%)	<b>23 (46%)</b>
<b>Total</b>	<b>49 (49%)</b>	<b>51 (51%)</b>

cutaneous manifestation with modality of treatment of CRF.

## Methods

The study was conducted in 50 (fifty) adult patients with chronic renal failure in the Department of Dermatology and Venereology and the Department of Medicine, Shree Birendra Hospital, Chhauni from September 2008 to June 2010.

Another 50 (fifty) patients with similar age admitted with other renal diseases but not suffering from chronic renal failure were considered as control to facilitate comparison.

### Inclusion criteria:

1. Patients of both sexes with CRF receiving HD, IPD and medical treatment.
2. Patients with kidney diseases but not suffering from renal failure as control.

### Exclusion criteria:

1. Patients who have recovered from CRF or who have received renal transplantation.
2. Patients with renal diseases with cutaneous manifestation as part of features of primary disease itself and not necessarily associated with CRF e.g. SLE, PSS, Amyloidosis etc.
3. Any previous history of pruritus or skin disease not relevant with the occurrence of CRF.

**Table III:** Cutaneous Manifestations In Both (CRF And Non CRF) Groups Of Patients:

	CRF (n=50)	Non CRF (n= 50)
1. Pruritus	30 (60%)	06 (12%)
2. Xerosis	20 (40%)	02 (04%)
3. Pallor	20 (40%)	16 (32%)
4. Hyperpigmentation	04 (08%)	Nil
5. Half and half nail	06 (12%)	Nil
6. Other manifestation	Nil	Nil

**Table IV:** Overall Cutaneous Manifestation in Patients Suffering From CRF:

S I No	Manifestation	HD (n=35)	IPD (n=13)	CRF (No dialysis) (n=02)
1.	Pruritus	24 (68.6%)	5 (38.5%)	1 (50%)
2.	Xerosis	15 (42.8%)	5 (38.5%)	0
3.	Pallor	14 (40%)	6 (46.2%)	0
4.	Hyper pigmentation	03 (8.6%)	1 (7.7%)	0
5.	Half & half nail	06 (17.1%)	0	0

**Table V:** Distribution of Pruritus:

	Pruritus	
	Present	Absent
<b>CRF (n=50)</b>	30 (60%)	20 (40%)
<b>Non CRF (n=50)</b>	06 (12%)	44 (88%)
<b>Total</b>	<b>36 (36%)</b>	<b>64 (64%)</b>

**Table VI:** Distribution of Xerosis:

	Xerosis	
	Present	Absent
<b>CRF (n=50)</b>	20 (40%)	30 (60%)
<b>Non CRF (n=50)</b>	02 (4%)	48 (96%)
<b>Total</b>	<b>22(22%)</b>	<b>78 (78%)</b>

**Table VII:** Distribution of Pallor:

	Pallor	
	Present	Absent
<b>CRF (n=50)</b>	20 (40%)	30 (60%)
<b>Non CRF (n=50)</b>	16 (32%)	34 (68%)
<b>Total</b>	<b>36 (36%)</b>	<b>64 (64%)</b>

**Table VIII:** Distribution of Hyperpigmentation:

	Hyperpigmentation	
	Present	Absent
<b>CRF (n=50)</b>	04(08%)	46(92%)
<b>Non CRF (n=50)</b>	0(0%)	50 (100%)
<b>Total</b>	<b>04 (04%)</b>	<b>96 (96%)</b>

**Table IX:** Distribution of Half and half nail:

	Half and half nail	
	Present	Absent
<b>CRF (n=50)</b>	6(12%)	44(88%)
<b>Non CRF (n=50)</b>	0(0%)	50 (100%)
<b>Total</b>	<b>6 (6%)</b>	<b>94 (94%)</b>

## Discussion

Among the study cases of 50 patients, a total number of 80 cutaneous manifestations were noted. The results of this showed a significant occurrence of pruritus, xerosis and pallor in CRF patients; the highest being pruritus followed by xerosis and pallor.

Pallor was noted in 30 patients (60%). Occurrence of pruritus was found to be more in HD patients (68%) than in IPD patients (38%). No correlation was found between ages, sex, and duration of dialysis with complaint of pruritus.

Skin xerosis is considered an important factor contributing or initiating pruritus. In our study it was found that, xerosis and pruritus co-existed in 17 patients (34%). Xerosis was noted in 20 patients (40%) out of

fifty CRF cases. Xerosis was not related with duration of CRF or type of dialysis.

Pallor was noted in 20 patients. All the cases were secondary to anaemia.

Hyperpigmentation was noted only in four (8%) patients. In two patients the pigmentation was generalized and in the other two it was more accentuated in exposed parts, especially on faces.

The study shows half and half nail in only six patients (12%) and this feature only noticed in finger nails not in toe nails.

Arterialization of the limb where A-V fistula was made was noted in 23 cases out of 35 HD patients.

## Conclusion

Pruritus is the commonest cutaneous manifestation of chronic renal failure.

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