

## Evaluation of Pruritus in 100 Patients

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### Abstract

**Introduction:** Pruritus is a subjective symptom of multifactorial nature, its assessment may be challenging. Generalized pruritus can often be a manifestation of underlying systemic disease. So, patients with generalised itch must be thoroughly investigated.

**Materials and Methods:** Patients with pruritus who attended dermatology department were evaluated for associated systemic causes. Both males and females of all age groups were included. Patients having itching with primary skin lesions were excluded. Detailed history, complete clinical examination, hemogram including peripheral smear, liver function tests (LFT) and renal function tests, viral markers (HIV, HBsAg and HCV) and complete urine analysis were done in all cases. Endoscopy, Ultrasound, Computer tomography and Magnetic resonance imaging were done in necessary cases.

**Results:** Of the 100 cases, 69 were males and 31 females. Associated cause was found in 62%, Diabetes Mellitus (15), Hypothyroidism (12), Chronic renal failure (8), HIV disease (7), Viral hepatitis (6), Iron deficiency anemia (4), Hepatocellular carcinoma (2), Hyperthyroidism (2), Non-Hodgkin's lymphoma (2), Cholangiocarcinoma (1), Cholecystitis (1), Pancreatic carcinoma (1), and Polycythemia Vera (1). Despite all the above investigations, no cause could be found in the rest of 38% of pruritus patients.

**Conclusion:** Pruritus is not uncommon presentation. Proper evaluation can lead to finding a systemic cause in majority of cases and will help in the management.

**Keywords:** Pruritus, Malignancy, Diabetes mellitus, HIV, Hepatitis, Iron deficiency.

### Introduction

Pruritus refers to an uncomfortable sensation that provokes the desire to scratch.<sup>1</sup> The prevalence of pruritus in general population ranges from 8-38% world wide. But an obvious systemic disease was identified in 14-50% of pruritus patients.<sup>2-4</sup> Chronic generalised pruritus can be manifested due to systemic disease like chronic renal insufficiency, hepatic disorders, haematological diseases, iron deficiency and malignancies.<sup>4</sup> Recent clinical data concerning etiology of forementioned conditions causing pruritus are few but with controversial results. We present this study evaluating various underlying debilitating systemic causes of generalised pruritus with no primary skin lesions.

### Materials and Methods

A cross sectional study was conducted in our dermatology department. Ethics committee approval was obtained. All the patients suffering from pruritus with no dermatological cause were included. A written and informed consent was taken. A detailed demographic data was recorded and clinical examination was done. Hemogram including peripheral smear, liver function tests, renal function tests, thyroid profile, viral markers (HIV, HBsAg and HCV) and

complete urine analysis were done in all cases. Endoscopy, ultrasound, computer tomography and magnetic resonance imaging were done in necessary cases. We excluded patients suffering from pruritus due to cutaneous disease, pregnancy, drugs and psychological origin.

### Results

A total of 100 patients with generalised pruritus were evaluated. Among analysed subjects 69 were males and 31 were females. The age ranged between 22-73 years. Majority of the patients were above 50 years. Out of 100 patients, 62% had systemic cause of pruritus and in 38% of patients, no cause could be found despite of thorough workup. The underlying systemic diseases detected were endocrine disorders (diabetes mellitus, hypothyroid & hyperthyroid), chronic renal insufficiency, hepatic diseases (viral hepatitis), cholecystitis, malignancy (non hodgkins lymphoma, hepatocellular carcinoma, pancreatic carcinoma and cholangiocarcinoma), HIV, polycythemia vera and iron deficiency anemia (Table 1). Majority of the pruritus patients (43.3%) had endocrinal and renal etiology.

**Table 1:** Various systemic causes of pruritus in the study population

Cause	Number of patients N=62	Percentage
Diabetes mellitus	15	24%
Hypothyroidism	12	19.3%
Hyperthyroidism	2	3.2%
Hiv disease	7	11.2%
Viral hepatitis	6	9.6%
Iron deficiency	4	6.4%

Chronic renal failure	8	12.9%
Non-hodgkin's lymphoma	2	3.2%
Hepatocellular carcinoma	2	3.2%
Cholangiocarcinoma	1	1.6%
Pancreatic carcinoma	1	1.6%
Cholecystitis	1	1.6%
Polycythemia vera	1	1.6%

## Discussion

Till date generalised pruritus arising due to systemic causes has been less documented and varies from 13-50%.<sup>5</sup> Our study results revealed systemic disorders as a cause of generalised pruritus in 62% of cases. In a study by Weisshaar et al. on pruritus, 47 of 132 German patients (36%) had pruritus due to a systemic disease and ten patients (8%) had pruritus of unknown origin. Of the systemic causes, renal diseases (35) and systemic lymphoma (7) were most commonly responsible.<sup>6</sup> In another study by Polat et al., out of the 55 patients with generalized pruritus, 12(21.8%) were found to have likely systemic etiologies for their pruritus, most common being iron deficiency anaemia.<sup>2</sup> Alizadeh, Rajka and Weisshaar et al studies, also found a systemic disease in correlation to pruritus in 44%, 50%, and 36% of the patients respectively.<sup>6-8</sup> Majority of our patients had endocrinal (46%) as a cause of pruritus and similar findings was seen in Alizadeh study showing 30% patients with endocrinal problem.<sup>7</sup> Few studies revealed systemic disease as a cause of generalised itch in lower prevalence.<sup>2,5,9</sup> The difference between the findings and systemic involvement in pruritus could be due to ethical and regional variations, leading to racial disparities.<sup>10</sup>

Conventional reviews and previous studies states that both hypo and hyperthyroid are associated with itch, but pruritus is more prevalent in hyperthyroidism. The increased body temperature in hyperthyroidism and xerosis in hypothyroidism contribute to itch.<sup>1,11</sup> Diabetes mellitus related pruritus was identified in 24% of our study population. Similarly in Turkish study diabetes was seen in 29% of patients.<sup>7</sup> Higher prevalences of diabetes mellitus in India (12.4%) may reflect coincidence of diabetes mellitus and generalised pruritus in general population.<sup>12</sup> Pathogenesis behind pruritus due to diabetes could be due to xerosis, metabolic abnormalities and anatomic dysfunction.<sup>1,7</sup> According to literature pruritus in diabetes is mainly localised to genital region, but in present study the diabetic patient had generalised itching.<sup>1,4</sup> In Polat et al study only few patients with diabetes mellitus had pruritus.<sup>2</sup> The reason could be a small sample size and low prevalence of diabetes mellitus in their population.

World wide prevalence of uremic pruritus varies between 21-90% depending upon regional variation and health system availabilities.<sup>1,6</sup> Prior to modern hemodialysis pruritus was as high as 85%.<sup>13</sup> Chronic renal insufficiency was seen in 12% of systemic pruritus patients in the current study. Pruritus starts within 6 months of dialysis and some improves on hemodialysis. Pruritus seen mainly over back, face and around AV fistula arm could be due to antigen

stimulation. End stage renal disease leading to hyperparathyroidism which contributes to itch.<sup>15</sup>

Paraneoplastic pruritus due to clinical evidence of malignancy is described in generalised pruritus patients, of which lymphoma and leukemia are the most commonest.<sup>1,4</sup> A prospective study of 125 patients showed development of neoplasm in 6.4% patients.<sup>5</sup> Among our patients, 8% were identified with malignancy like Non hodgkins kymphoma, Hepatocellular carcinoma and Cholangiocarcinoma and pancreatic carcinoma. This finding was in accordance with Alizadeh study who described carcinoma in 8% of their patients.<sup>7</sup> Zirwas study of 50 pruritus patients, malignancy was noted in 6% patients.<sup>9</sup> Neoplasms of lung and chronic lymphoid luekimia (CLL) were seen in Polat study.<sup>2</sup> All studies showed carcinoma prevalence related to systemic pruritus. However relationship between visceral and haematological tumours is still controversial and the prevalence is still unknown.<sup>1</sup> Such patients need thorough investigations to rule out malignancy. Paraneoplastic itch mostly diminishes after tumour resection and relapses correlates with reactivation which is evident in many clinical studies.<sup>6</sup> In present study also pruritus was reduced after the treatment of non Hodgkin's lymphoma, pancreatic and cholangiocarcinoma.

Cholestasis and elevated serum levels of bile salts in hepatic disorders is the potential cause of pruritus.<sup>1</sup> Current study found that viral hepatitis was responsible for 9.6% of the systemic pruritus. In contrast to our study Zirwas, Alizadeh, Rajka et al. Studies revealed low prevalence pruritus due to hepatitis.<sup>7-9</sup> In a community like India, where there is high prevalence of viral hepatitis, proper workup regarding viral markers and LFT must be included.<sup>16</sup>

In our study 7 out of 62 systemic pruritus patients had HIV which is comparable to other studies.<sup>6,7</sup> Itch in HIV often correlates directly to viral load and eosinophils.<sup>1</sup> But few studies showed no association of itch to HIV.<sup>2,9</sup> Various reasons for pruritus in HIV includes xerosis, HAART therapy and eosinophilic folliculitis.

Association of iron deficiency and itching has been long recognised.<sup>6</sup> Four out of sixty two present study patients has itch related to iron deficiency. But in Polat et al study, 4 out of 12 patients of pruritus had iron deficiency and these findings were statistically significant compared to control group.<sup>2</sup>

## Limitations

Present study included small sample size so, further studies with large sample size are required for higher precision.

## Conclusion

Current study points toward possible underlying systemic causes of pruritus which are sometimes multifactorial. Our study showed higher prevalence of systemic cause because of thorough investigations. A holistic approach and step wise multidisciplinary assessment is needed to explore etiology of systemic pruritus and treatment.

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