

# Imatinib mesylate induced pityriasis rubra pilaris like rash

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**Abstract** Pityriasis Rubra Pilaris (PRP) is an inflammatory keratinisation disorder with unknown etiology characterized by orange-red erythema, circumscribed keratosis and branny scales and palmoplantar keratoderma. There have been very few case reports which suggest drugs as an inciting or triggering factor for PRP. Imatinib is a Tyrosine Kinase inhibitor that is being used in several diseases notably chronic myeloid leukaemia (CML) and Gastrointestinal stromal tumours (GIST). In this case report, we described a diagnosed case of CML with ABL-BCR positivity on oral Imatinib 400mg who developed generalized erythema with orange hue and follicular keratosis with islands of normal skin. She was diagnosed as a case of PRP clinically and dermoscopically. Imatinib was stopped and she was started on 40 mg steroids which were tapered and stopped. The rash subsided in 1 week subsequently and did not recur in 6 months.

**Key words**

Imatinib mesylate, pityriasis rubra pilaris, rash.

## Introduction

Pityriasis Rubra Pilaris (PRP) is an inflammatory keratinisation disorder with unknown etiology characterised by orange-red erythema, circumscribed keratosis and branny scales and palmoplantar keratoderma. It typically spreads in a cranio-caudal distribution with areas of sparing of skin known as 'Islands of sparing'. There are six forms that has been described (Type I-VI)—adult onset typical and atypical, juvenile onset typical, circumscribed, atypical and PRP associated with HIV.<sup>1</sup> There have been very few case reports which suggest drugs as an inciting or triggering factor for PRP. Rash resembling with PRP has been reported with Imatinib in a case report earlier.<sup>2</sup>

Imatinib is a Tyrosine Kinase inhibitor that is being used in several diseases notably chronic

myeloid leukaemia (CML) and Gastrointestinal stromal tumours (GIST). It specifically targets the ABL-BCR complex and inhibits leukaemogenesis and thereby used in CML. Common cutaneous side effects include maculopapular rash, eczematous dermatitis and onychodystrophy melanonychia.<sup>3</sup> However, there is so far a single case report suggesting PRP like rash with Imatinib.

## Case report

A forty three year old female, a known case of CML came to outpatient clinic of skin department with complaint of generalised rash associated with mild to moderate itching for a period of 1 week. She was diagnosed as a case of CML with ABL-BCR positivity and started on oral Imatinib 400mg daily 2 months prior to the onset of rash. There was history of itchy plaques present over groins and abdomen for which she was applying some topical medication for past 6 months. She denied history of any drug allergies or any other concomitant disease

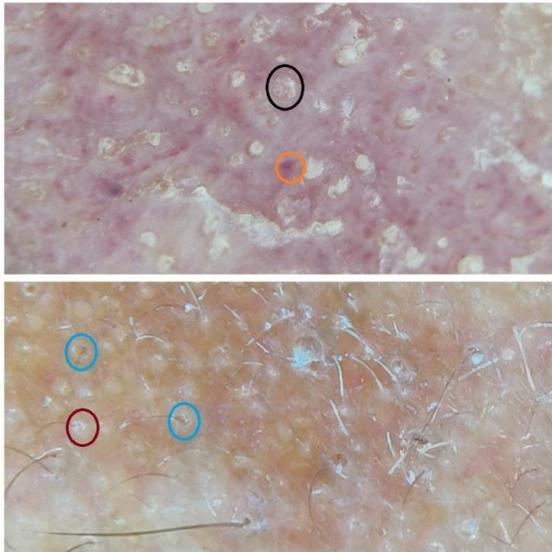
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**Figure 1** Clinical photographs of patient showing generalised perifollicular erythematous papules with orange hue. There are islands of normal skin in between.



**Figure 2** Dermoscopy ( Illuco IDS1100 dermoscope, 10X magnification in polarised mode) showing keratotic plugging surrounded by yellowish areas as shown in black circles. Hair shaft arising within the keratotic plugs in blue circles and peripheral erythema in orange circles.

other than CML. She had not received any vaccine for past 2 decades. There was no past or family history of papulosquamous disorder.

On examination there was generalised erythema with orange hue and follicular keratosis with islands of normal skin (**Figure 1**). There were circular to annular plaques covered with fine whitish scales over chest, abdomen and groins clinically suggestive of tinea corporis. Palms and soles were spared, nails and mucosae showed no abnormality. Her routine investigations were

within normal limits except for raised WBC count and Ultrasound abdomen revealing Splenomegaly. Dermoscopy of the lesions was done which revealed multiple yellowish areas surrounding follicular openings with peripheral erythema and occasional follicular plugging with central hair shaft appearing from follicle (**Figure 2**). These findings were consistent with dermoscopy of Pityriasis rubra pilaris.<sup>4</sup> Patient denied biopsy. Subsequently imatinib was stopped and patient was started on steroid 40 mg which was gradually tapered and stopped including other supportive therapy. Terbinafine at a dose of 250mg daily was given later for dermatophytic infection.

## Discussion

Pityriasis rubra pilaris is a rare chronic keratinising follicular disorder characterised by erythematous plaques with islands of normal skin. The prevalence varies from 1:5000 to 50,000 in various populations. Patient may present with scaly plaques resembling seborrhoea capitis or over face which may extend to trunk and thence to the extremities. Palmoplantar keratoderma is usually associated with the rash. The rash may coalesce resulting in erythroderma. In juvenile population the lower half of the body is involved. Severe cases are associated with human immunodeficiency virus (HIV). Arthropathy and osteoporosis is seen in some cases. The presentation may mimic

psoriasis vulgaris at times and nail changes in psoriasis and biopsy may be helpful in diagnosing and differentiating the two entities.

PRP is reported to be familial in some cases and association with malignancies have been reported too.<sup>5</sup> The resemblance of lesions with phrynoderma have been linked to the deficiency of Vitamin A in its etiopathogenesis. Drugs are rarely a causative factor in development of rash in PRP.

Imatinib mesylate, a tyrosine kinase inhibitor is a first line treatment in treatment of certain malignancies notably chronic myeloid leukaemia and gastrointestinal stromal tumours (GIST). Common side effects include nausea, vomiting, muscular cramps and cutaneous adverse effects. Most common adverse effects include swelling and oedema. Alongside patient may develop macula-papular rash associated with pruritus. Other skin events can be eczematous dermatitis such as stasis dermatitis and seborrhoeic dermatitis, onychodystrophy melanonychia, basal cell carcinoma, periorbital oedema, mycosis and Pityriasis rosea like rash. PRP like rash has been previously reported once. Imatinib has shown to interfere with T regulatory cells via tyrosine kinase pathway and it has been linked to the pathogenesis of PRP like rash. Several other drugs which cause PRP like Rash include Insulin, Bevacizumab, Sorafenib And Telaprevir.<sup>6-9</sup> Treatment given in all the cases was short course of steroids and all of them responded well and did not recur as seen

in chronic persistent PRP. Therefore a patient on Imatinib mesylate should carefully be observed for cutaneous side effects and among them PRP like rash can be a possible presentation.

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