

Co-occurrence of psoriasis and occlusive vascular disease

Sir,

Psoriasis is a chronic, immune-mediated disease that has

a serious impact on the quality of life in affected patients.^[1] Psoriasis patients are also prone to develop various systemic diseases such as diabetes, hypertension and thromboembolism, which might further impair their quality of life. Here, we describe a patient who presented to us with concomitant development of psoriasis and acute limb ischemia.

A 33 year-old male, chronic smoker (since 17 year, approximately half pack of beedis per day) presented with a generalized, scaly rash of one month's duration and painful, blackish discoloration on the left leg of 25 days' duration. The lesions started initially on the elbows as scaly plaques. Within a short span, similar lesions appeared on the trunk and the right leg. Almost simultaneously, the patient noticed a painful discoloration on the left leg. There was no history of intermittent claudication. Cutaneous examination revealed the presence of erythematous, scaly papules and plaques distributed on the trunk, upper extremities, the right leg and the left thigh. The lower 1/3rd of the leg was distinctly spared and this part was cold to touch. A blackish discoloration with peeling of the skin was seen on the first two toes of the left foot, extending proximally up to the ankle [Figure 1]. Peripheral pulsations could not be felt below the left knee; systemic examination was normal. A diagnosis of psoriasis vulgaris with acute limb ischemia was made. The patient's routine hemogram showed marked polymorphonuclear leukocytosis and elevated erythrocyte sedimentation rate (ESR). Lipid profile, serum electrolytes, renal and liver function tests were normal. Arterial doppler study showed complete occlusion at the level of the proximal popliteal artery on the left side with no evidence of reformation in the distal arteries. Skin biopsy from the scaly plaque was consistent with a diagnosis of psoriasis. An attempt was made to manage the lesions with a 20 mL/hour heparin infusion 25,000 units in 500 mL of normal saline,



Figure 1: Gangrene of the left foot and scaly plaques on the dorsum of the right foot

but did not help; hence, the left leg was amputated below the knee.

There is mounting evidence to support the hypothesis that psoriatic patients are more prone to develop cardiovascular complications than nonpsoriatic patients. In 1961, Reed *et al*, proposed an association between psoriatic arthritis and occlusive vascular disease.^[2] In a prospective study, Gelfand *et al*, found that psoriasis confers an independent risk factor for the development of myocardial infarction; the relative risk being the greatest in young patients with severe psoriasis.^[3] In their retrospective study, McDonald *et al*, have found that vascular occlusion (both arterial and venous) was more common among psoriatic than non-psoriatic dermatological patients.^[4] They have also observed that such occlusive episodes were more common (37.5%) in patients with definite cardiovascular risk factors such as smoking, than in patients without these risk factors (3.3%). Our patient too was a chronic smoker, which facilitated our diagnosis of vascular disease and its association with the observed psoriasis in our patient, as smoking predisposes the patient to a high risk for thrombus formation.

The exact mechanism by which psoriasis predisposes patients to vascular occlusion is unknown although many theories have been proposed. McDonald hypothesized that vascular occlusion could be related to the increased leukotriene (LTB₄) levels in psoriasis. LTB₄ is known to mediate neutrophil chemotaxis, endothelial damage and platelet aggregation, which leads to thrombus formation.^[5] Genetic studies have demonstrated that psoriasis and cardiovascular diseases share common pathogenic features in which for example, inflammatory cytokines such as tumor necrosis factor- α (TNF- α) and interleukin-1 (IL-1) play critical roles.^[6] Yet another study postulated that the severity of psoriasis (as measured by the psoriatic area severity index) correlated strongly with P-selectin, which is expressed in activated platelets. This has been implicated in the pathogenesis of occlusive vascular diseases in animal models.^[7] A recent study has shown that plasma homocysteine levels are raised in psoriasis.^[8] Hyperhomocysteinemia is also found in chronic smokers and is an independent risk factor for the development of peripheral vascular disease. Elevated levels of homocysteine are associated with endothelial injury and thrombus formation.

To conclude, psoriatics may have an inherent risk of developing cardiovascular diseases. The problem may be compounded if there are associated risk factors such as smoking. Hence, counseling with the aim of behavioral modification of such

risks should be considered as an adjuvant to any therapeutic protocol for patients with psoriasis

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