Myxoedema Pellagra — A Report of Two Cases

The world ‘pellagra’ means rough skin. The disease is caused by a cellular deficiency of niacin, resulting from an inadequate dietary supply of niacin and tryptophan. It is manifested in patients living on an unbalanced diet such as chronic alcoholics and patients with gastrointestinal diseases or severe psychiatric disturbances. Carcinoid tumours and Hartnup disease may cause pellagra rarely. Therapy with isoniazid, 6-mercaptopurine and 5-fluorouracil may provoke pellagra.\(^1\) The cutaneous changes are characteristic and pathognomonic, and their distribution is determined by exposure to sun and by local pressure. The dermatosis begins as an erythema on the dorsum of hands with pruritus and burning. It is characteristically symmetrical. In later stages the skin becomes progressively harder, drier, more cracked covered with scales and with blackish crusts that are due to hemorrhages. The lesions may start on the dorsa of the hands and may extend up to arm to form the ‘glove’, or ‘gauntlet’ of pellagra. The front and back of the leg may be involved to form a ‘boot’. Specific therapy consists of oral administration of 100 to 300 mg of niacinamide daily in divided doses. Myxoedema may rarely produce pellagra through the deficiency of flavoprotein system,\(^2\) however the exact mechanism in case of hyperthyroidism is not known.

A 34 year old male patient attended out-patient department with complaints of erythema, peeling of skin associated with burning sensation for six months. He also complained of hoarseness of voice, lethargy and diffuse hair loss for the same duration. On examination there was extensive dermatosis in a glove and stocking distribution with fissuring and scaling (Fig. 1). There was mild erythema on the face, but no evidence of ‘Casal’s necklace’. He also had angular stomatitis and glossitis. Scalp showed diffuse thinning of hair. Examination of deep tendon reflexes revealed slow relaxation of reflexes. Patient had hoarse voice with slurred speech. Investigations revealed hypercholesterolemia, and low voltage ECG complexes. Thyroid function test was as follows: T\(_3\) - 0.055 ng/ml (normal value 0.7-2.0 ng/ml); T\(_4\) - 32 ng/ml (normal value 57-127 ng/ml); and serum TSH - 12.28 mIU/ml (normal value 0.2-5.0 mIU/ml).

The second patient a 50 year old housewife also presented with similar complaints. On examination the clinical features were similar to the previous patient, excepting that she had puffiness of face with periorbital edema (Fig. 2). Investigations confirmed hypothyroidism. T\(_3\) - 0.58 ng/ml (normal value 0.7-2.0 ng/ml); T\(_4\) - 29 ng/ml (normal value 57-127 ng/ml); TSH - 10.57 mIU/ml (normal value 0.2-5.0 mIU/ml). Histopathology in this patient revealed a mild non-specific dermatitis.

Both patients were treated with 300 mg of niacinamide per day with oral thyroxine 0.1 mg/day. The cutaneous lesions resolved within three weeks. Hair regrowth was noticed after three months of treatment. The patients are advised to take adequate nutrition, the nicotinic acid was discontinued after three months and oral thyroxine is being continued in both patients.

Nicotinic acid is stored in the liver adequately and clinical features of pellagra sets in only if there is a chronic and prolonged depletion. All the routine causes which could induce pellagra were ruled out in our patients. On the contrary both patients had the classical features of myxoedema. The onset of pellagra coincided with the onset of myxoedema in our patients. The diagnosis of myxoedema was confirmed by the laboratory investigations. Hypothyroidism may rarely produce pellagra through the flavo-protein system.\(^2\) This pathogenesis is associated with riboflavin deficiency for the rare association and for the prompt response to treatment. There was only one previous report on this interesting
association.3

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