# A YOUNG AFRICAN LADY WITH A DEBILITATING SKIN DISEASE (ONCHODERMATITIS)

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## INTRODUCTION

Onchocercosis or riverblindness, caused by the filaria ochnocerca volvulus, is endemic in many countries of central and Western Africa. Symptoms of the disease can occur years after the infection, chronic itching dermatitis is the first sign, and without treatment blindness may develop after years. Onchocerca volvulus is transmitted by the species Simulium or black fly (fig. 1) whose breeding habitat is near fast flowing rivers or streams. Life cycle of the parasite is shown in (fig. 2). Larvae enters host when black fly takes blood meal (A). Adult worms live in the dermis and connective tissue and secrete microfilariae (B). These microfilariae (MF) migrate mainly though upper dermis (C). Black fly ingests MF during blood meal (D). Infective larvae develop in black fly (E). The whitish adult worm lies coiled within capsules in the fibrous tissue. The female can measure up to 50 cm while the males are shorter measuring up to 5 cm. The MF of Onchocerca volvulus are unsheathed and are usually found in the dermis. They measure between 221 – 287 μm long [1-3].

Onchodermatitis is a hyperreactive course of onchocercosis with massive eosinophilia and elevated IgE, which suppresses a MF spread through the body. Clinical manifestations are due to MF in the epidermis. Light infections may be asymptomatic or cause mild to severe pruritis. Lyphadenopathy may also be a feature of early infection. After months or years, onchodermatitis results in secondary stage of thickening due to intradermal oedema and pachydermis. There is a loss of elastic fibers resulting in hanging groin, hernias and elephantiasis of the scrotum. Finally, skin becomes atrophic resulting in loss of elasticity. Mottled depigmentation of the skin can also be seen in some cases. Ocular lesions are related to the intensity of the microfilariae in the skin. Ocular lesions include sclerosing keratitis, secondary glaucoma and cataract, coroidoretinitis and fluffy corneal opacities. If untreated, blindness may occur [3-6]. Detection of MF from skin snips or nodule biopsies can be highly diagnostic. When high numbers of MF are present, they can occasionally be found in the blood and urine. Small amounts of skin are collected by using a needle to raise the skin and then to slice about 1 mg of skin to a depth of 0.5 mm. Snips are collected from several sites, usually the shoulders or the buttocks and sometimes the chest and calves. The snips are placed immediately in 0.5 ml normal saline and seen under microscope. MF is then counted. Biopsies of tissue nodules can be dabbed on to a slide to produce impression smears and then stained with Giemsa stain for the presence of MF [4,7]. Ivermectin is the drug of choice and has revolutionized the treatment of onchocerciasis. Suramin may be indicated for use only if ivermectin cannot adequately control the disease. The prognosis for onchocerciasis is good in patients who receive proper therapy [3,5,8,9].

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## CASE REPORT

A 23 years old black lady presented in dermatology outdoor of Pakistan Field Hospital, Kenema, Sierra Leone (West Africa) with history of severe generalized itching, generalized laxity of the skin, myalgias, and easy fatigability. She started having itching about 3 years ago. It was mild and occasional

initially but later it became more frequent and moderate in intensity and for last about one year it has become severe and episodic along with feeling of lax skin all over the body, except her face. For last about three months, she developed easy fatigability and generalized muscle aches. There was no history of any significant weight loss, any urinary or bowel complaints. She was unmarried and didn't have any evidence of such illness in her family. On physical examination, she looked older than her age. There were numerous pruritic, indurated excoriated papules with pigmentary changes and atrophic scars all over her body. The lesions were more marked over abdomen, buttocks and extremities. Skin was lax and folds were inelastic and hanging down, especially in abdominal region and buttocks, when patient stood up (fig. 3-5). Her face and neck was spared and eye examination was unremarkable. Blood complete picture showed hypereosinophilia [6000/µl (30%) eosinophils]. Rest of laboratory investigations including liver function tests, renal function tests, chest x-ray, and ultrasosnography abdomen didn't reveal any abnormality. Clinically, she was diagnosed as a case of onchodermatitis. Skin snip examination revealed a large number of microfilaria under microscope (fig. 6) and it confirmed the clinical diagnosis of cutaneous onchocercal disease. She was given, a single dose of Ivermectin along with daily antihistamine and emollient for topical application. The dermatitis started improving with in a week.. She was advised to have second dose of Ivermectin after three months and to have regular follow up.

## DISCUSSION

Skin disease occurring as a result of infection with the Onchocerca volvulus is a major public health problem throughout west and central Africa, and has been an important factor in establishing the African Program for Onchocerciasis Control [9,10]. Due to the long livespan of filaria in humans, the disease occurs years after infection in endemic areas.

**Fig-1: Adult black fly (simulium damnosum).**

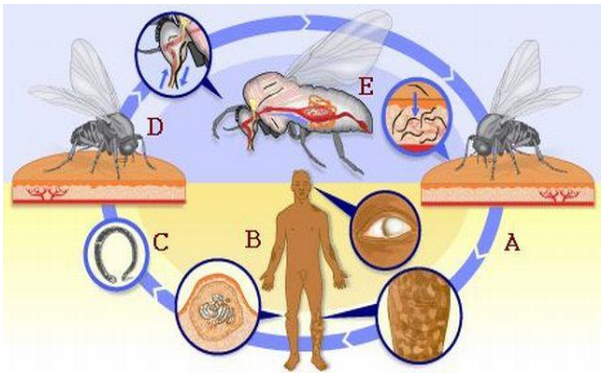


**Fig-2: Life cycle showing different stages of parasite (onchocerca volvulus).**

**Fig-3: Chronic papular onchodermatitis in a young female involving almost whole of the body (sparing head and neck region).**

It affects the skin far more frequently than the eye and can be very disabling for the patient. Pruritis is the most common presenting symptom. The lady presented here was one of the poor sufferers of the disease, who presented with severe pruritis along with skin texture and elasticity changes, which made her to appear much older than her actual age.

**Fig-4: Chronic onchodermatitis leading to inelastic skin and producing hanging buttocks.**

**Fig-5: Chronic onchodermatitis giving rise to multiple atrophic striae over abdomen.**

**Fig-6: Impression smear of skin snip showing microfilariae of onchocerca volvulus (Gimsa stain).**

These changes are attributed to hyperactive skin response secondary to release of MF in the skin and connective tissue. The subepidermal lymphatics and the anterior chamber of the eye are the most common migration sites. The central pathogenic event in the development of clinical disease in onchocerciasis is thought to be the destruction of MF and the associated inflammatory events, such as local tissue damage and degradation of host structures (constitutive collagen fibers, pigmentary cells). Other phenomena, such as immune complex pathology, autoimmune disease and secondary infections, should be considered as possible factors in this disease complex. Ocular lesions are also related to the MF load in the skin. If the skin in the vicinity of eye is infected, MF can easily traverse the cornea and can cause variable degree of eye damage. Absent eye involvement in our case could be due to the fact that her face was almost spared of any disease symptom. In an endemic area, onchodermatitis should be the number one differential diagnosis in case of any chronic pruritic disorder.

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