A Case of Xeroderma Pigmentosum Resulting in Cutaneous Malignancy.

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SUMMARY

ABSTRACT

Xeroderma Pigmentosum (XP), a rare group of inherited disorder of DNA repairs in which the ability to repair damage caused by ultra-violet radiation is deficient. It is transmitted in an autosomal recessive manner and the skin is affected majorly. A case of XP with cutaneous malignancy in a female is reported here.

KEYWORDS: Xeroderma Pigmentosum, Uncommon disorder, cutaneous malignancy.

INTRODUCTION

It is a group of rare skin disorder transmitted in an autosomal recessive manner. A genetic disorder of DNA repair characterized by photosensitivity, pigmentary skin changes, premature skin aging and development of malignant tumor due to an extreme sensitivity to ultra-violet (UV) radiation. Usually the skin and eyes are affected and associated with several forms of cancer, dwarfism and mental retardation. Presentation could be at birth, early or late childhood, or during adulthood.

CASE REPORT

A 21 year old female undergraduate presented to the Dermatology clinic with generalized body rashes of 15 years duration and an ulcer on her nose of 2 years duration. The rashes are flat and dark in color; initially pin-head sized but gradually increasing in size. Rashes initially noticed on the face but later spread gradually to involve other parts of the body. The rashes are more on sun exposed areas of the body, face, neck and arms. There was no associated itching. She developed an ulcer on the bridge of nose 2 years before presentation, it started as a boil and later ruptured, ulcerated and gradually increased in size. There was associated pain. Associated history of blurring of vision. No hearing impairment. There were no other systemic symptoms. No abnormalities of the hair, nails or teeth. No history suggestive of cardiac or renal disease. No history of similar symptoms in other family members. She had excision of bilateral ocular melanoma by the ophthalmology unit on account of growths in both eyes and blurring of vision at the age of 13 years. Not a known hypertensive, diabetic, asthmatic patient.

Examination of the skin revealed generalized xerosis with mottled hyperpigmented and hypopigmented macules – Figures 1. The ulcer is located across the bridge of the nose –figure 2a, 2b, measuring about 6 cm by 4 cm, irregularly shaped with hyperpigmented and raised well defined edge; necrotic floor, hard and tender base; no discharge. Other systems were essentially normal and an assessment of Xeroderma Pigmentosum with suspected basal cell carcinoma was made. Full blood count was requested done and patient was worked up for a skin biopsy. An excision biopsy of the ulcer was done and histology report confirmed squamous cell carcinoma. She was counseled about disease condition, sun protection and sun avoidance. Was subsequently referred to the plastic surgery unit for surgical excision however she declined.

DISCUSSION

XP, a rare and uncommon inherited disorder characterized by failure of DNA repair after sun-induced damage by ultra-violet B (UVB. It was first described in 1874 by Hebra and Kaposi, while in 1882; Kaposi coined the term Xeroderma Pigmentosum for the condition referring to its characteristic dry, pigmented skin. Nearly 100 years later, James Cleaver in San Francisco reported defective DNA repair in XP cells. It affects males and females equally. Occurs worldwide, incidence is highest in Japan where it occurs in 1 in 40,000 populations. A few cases have been reported in Nigeria.

The basic defect in XP is in NER leading to deficient repair of DNA damaged by UV radiation. Disease-causing mutations have been identified in 8 different genes in patients with XP; 7 of these genes are involved in NER and they include XPA, XPB, XPC, XPD, XPE, XPF and XPG. The eighth gene, a polymerase-eta, is involved in the replication of damaged DNA. The defect in the gene leads to inability to repair the damaged DNA and thus there is recurrence of sunburn that does not heal following minimal sun exposure.

The earliest symptom in XP includes excessive freckling and an extremely heightened photosensitivity with skin blistering and associated pain occasionally, following sun exposure. Skin abnormalities including hyper pigmentation, hypo pigmentation, excessive scarring, telengectasias, skin

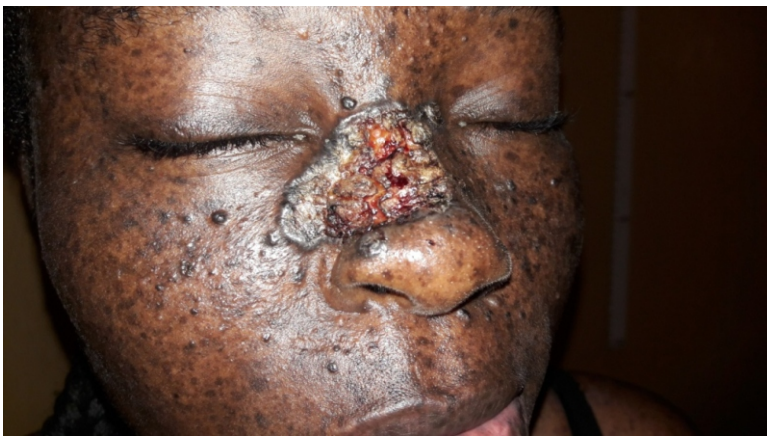

Figure 2a. Ulcer in the bridge of the nose

atrophy, xerosis, solar keratoses, often develop. Most affected patients also have abnormalities of the eyes such as photophobia, keratitis, conjunctivitis, ectropion, entropion. Usually slow development, dwarfism, mental retardation, and neurological impairments may also be associated with XP. These neurological abnormalities include areflexia/hyporeflexia, microcephaly, sensorineural deafness and ataxia. About 25% of patients with XP have progressive neurological degeneration. Patients with neurological degeneration have a high mortality.

Most commonly encountered complication in these patients is development of skin and ocular cancers. All three common types of skin cancers (basal cell carcinoma, squamous cell carcinoma, and melanoma) often occur. In patients with XP, they have a higher frequency of occurrence than in the normal population. Ocular tumors particularly affect the eyelid, conjunctiva, and cornea.

This disease has many long term physical, emotional, social and economic consequences for both the patients and caregivers.

XP in many cases is diagnosed or confirmed during infancy or childhood (usually between the ages of 1 and 2 years), based on characteristic physical findings, detailed patient and family history and certain laboratory tests. No consistent routine laboratory abnormalities are present in XP. However, investigations such as cellular hypersensitivity to UV radiation and chromosomal breakage studies, complementation studies, and gene sequencing to identify the specific gene complementation group can be done although they are not available in our environment. Prenatal diagnosis can be made by amniocentesis and chorionic villi sampling.

The goal or mainstay of treatment is to protect the patient from sun exposure. Patients should try as much as possible to avoid sun exposure. While sun protection by clothing is most effective, any part of the skin not covered by clothing should be protected by sun blocks such as zinc oxide, titanium dioxide, sun-blocking make-ups, or sunscreens. Sunscreens with a sun protection factor, SPF of 15 and above should be used, and applied at least 30 minutes before sun exposure. Ultra-violet protected glasses should also be worn. Early surgical removal of and/or other appropriate treatment measures for skin tumors are essential for individuals with XP. Routine skin and eye examinations by a dermatologist and ophthalmologist respectively should be carried out every 3-6 months. Genetic counseling will be of benefit for affected individuals and their families. Other treatment is symptomatic and supportive.

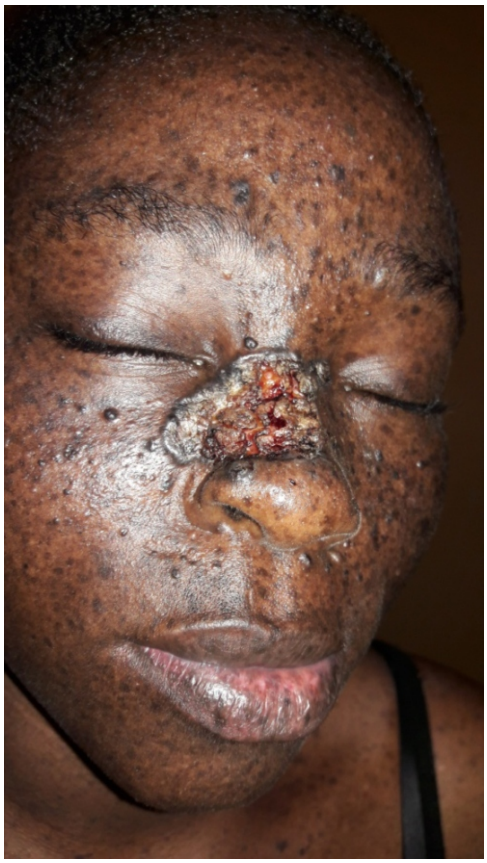

Figure 2b. Ulcer in the bridge of the nose. Hyperpigmented macules

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