XERODERMA PIGMENTOSUM: OCULAR MANIFESTATION IN MAROCCAN POPULATION

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ABSTRACT

The authors report the case of xeroderma pigmentosum 11 patients followed in our ophthalmology department B of Rabat specialty hospital between January 2010 and May 2013. All patients benefited from a complete ophthalmological examination (visual acuity, annexes, the anterior segment, as well as the fundus of the eye). A pathology study (anatomical pathology) was performed in 8 patients with conjunctival tumor. Scaner orbito brain performed in 5 patients.

KEYWORDS: *xeroderma pigmentosu, epitheliomas*

INTRODUCTION

Xeroderma pigmentosum (XP) is a rare genetic disease, transmitted in an autosomal recessive way and clinically characterized by extreme cutaneous photosensitivity, pigmentary abnormalities of the sun-exposed skin, an increased risk of developing skin cancers as well as ophthalmologic abnormalities and neurological disorders (4).

Pakosi (1863), first described this condition and gave it a name in connection with the identified symptoms such as dry (xero) skin (dermo) and abnormal pigmentation of the sun-exposed skin (pigmentosum).

The estimated prevalence of xeroderma pigmentosum in the United States and Europe is 1/300.000 compared to the 1/100.000 in Japan. However, in the Middle East and Maghreb , XP is more frequent in some regions where the existence of large families is characterized by high rate of consanguinity(2).

The aim of the study is to analyse the ophthalmological, diagnostic and therapeutic phenomena in patients with xeroderma pigmentosum.

MATERIELS AND METHOD

This is a retrospective study of 11 patients that have been treated, from January 2010 to May 2013, in the ophthalmology department of the hospital specialties of Rabat.

All patients benefited from a complete ophthalmological examination (visual acuity, annexes, the anterior segment, as well as the fundus of the eye).

A pathology study (anatomical pathology) was performed in 8 patients with conjunctival tumor. Scaner orbito brain performed in 5 patients.

RESULT

The average age of our patient was 14, in which 63.3% of females. The initial visual acuity in 4 patients was less than or equal to 4/10 (36.36%).

The histological variable of the type: Carcinoma in situ “conjunctiva of the eye” was found in 5 patients (45.5% of cases), squamous cell carcinoma was found in 2 patients (18.18% of cases) , Carpillary hemangioma was found in 1 patient (o 9.00% of cases), VogtKoyanagi harada disease was found in 1 patient (9.09% of cases), Bowenoid keratosis was found in 1 patient (9.09% of cases), Keratitis was found in 1 patient (9.09% of cases).

Cases of consanguinity were found in 7 patients (63.63% of cases). The excision of the tumor was performed in 6 patients (54.54% of cases) as well as the enucleation in 1 patient (or 9.09% of cases). Recurrence was observed/found in 1 patient (9.09%) after the excision.

DISCUSSION

Xeroderma pigmentosum is a serious hereditary disease, causing loss of strength, and manifested by photo-induced skin changes often associated with ocular lesions and sometimes neurological (1).

The diagnosis of xeroderma pigmentosum is easily noticeable at its later stage in clinical environments. On the other hand, in a family environment or elsewhere, the diagnosis is difficult at start. The first signs may be interpreted as single sunburn or photosensitivity or as atopic dermatitis.

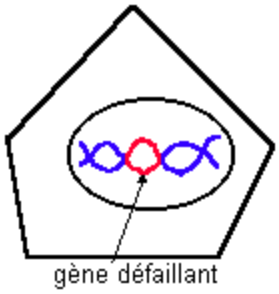
The repetition of erythema in photo exposed areas; its persistent and intense abnormal characteristic relative to the sunlight should bring our attention and consider an abnormal hypersensitivity to sunlight. The test undergone to repair the DNA after being exposed to UV (unscheduled DNA synthesis) (UDS**)** will allow to confirm the diagnosis of xeroderma pigmentosum (2).

The medical care of xeroderma pigmentosom is very complex and there seem to be no curative treatment. The treatment is based the prevention of ultraviolet rays, intensive use of sunscreen, glasses with lenses made of polycarbonate (materials that are resistant to ultra-violet). The use of hats, masks, gloves and protective clothing to ultra-violet rays are also included.

Currently the medical care benefits from the contribution of the gene therapy, which consists of introducing a gene of therapeutic interest into a target cell for the production of the missing protein (deficient cell) or a signal that will kill the infected or cancerous cells.

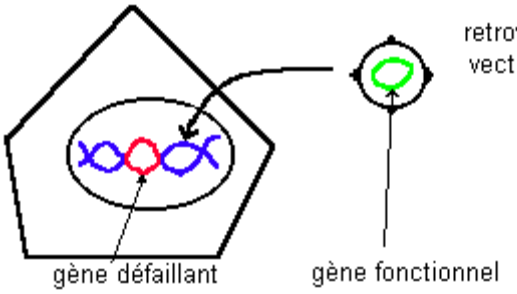
Strategic diagram of gene therapy for the xeroderma pigmentosum

Step 1 :

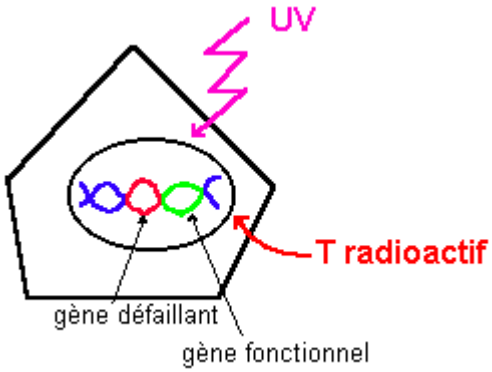


Skin cells (fibroblasts and keratinocytes) are taken, from xerodermiques patients (XP), from areas that are not exposed to the light.

Cells are being grown



Functional gene (XPA, XPB, XPC ouXpD) is introduced into the cells by a retrovirus vector.

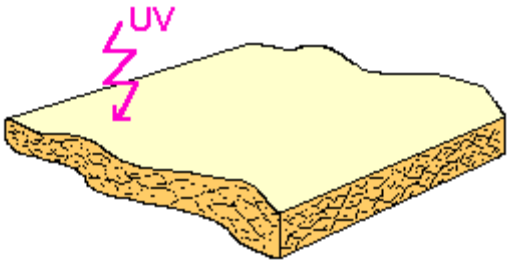


The new introduced gene (transgene) is controlled at the cellular phenotype:

- Living cells after UV exposure
- Running of the system repair by means of UDS technique

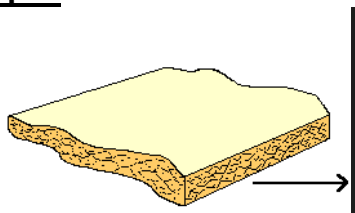
Step 2:

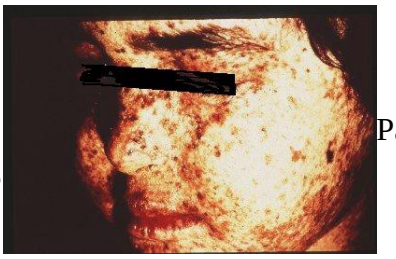
The epithelium is rebuilt from the treated cells (transgenic).



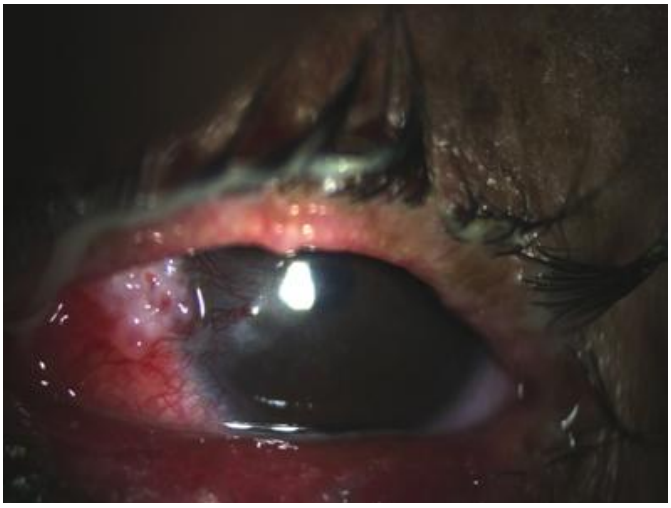
The running of the system repair is controlled at the tissue level.

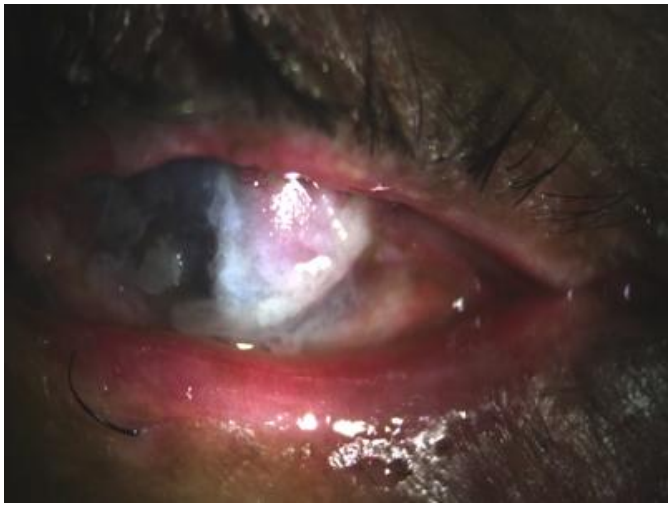
Step 3:





Patients skin graft





The ocular manifestations such as photophobia, lacrimation, and conjunctivitis are the earliest signs. Eyelids and cornea (often) follow next: atrophy, scleroderma, ectropion, ulceration, neoplasms as well as sclero-corneal limbus. Eyelids are the most affected (80% of cases), with blepharitis signs, athropy developing towards entropion and ectopion retractable (1). Whereas conjonctival affection represents 25 to 35% of cases (1) though in our study, the affection represents 81.81% of cases. The epitheliomas (In situ carcinoma, squamous cell) carcinomas represent the most frequent ocular affection, like in our study, 7 patients (63.63%) have been affected by epitheliomas. If we compare our results, sampling 11 cases, with the ones found by EL BERDAOUI. N in 2009, sampling 22 cases, we would therefore say that sample was less representative than his.

Uvea affection is rare, the xeroderma pigmentation together with Vogt Koyanagi Harada disease have never been described in literature reviews, but in our study, due to a high rate of consanguineous marriage in the Moroccan population and the muslim culture, and the presence of the disease in the Mediterranean region, 1 patient was affected by Vogt Koyanagi Harada. The excision of the tumour remains the first choice of therapy for patients suffering from xeroderma pigmentosum. However, the risk of recurrence is more frequent, in our case; the recurrence of the tumour was observed in 1 out of 8 patients (12.5%) who benefited from the excision of the tumour. Our result is lower than the one found by YAKOUBI S in 2011, 5 out of 13 patients (38.4%).

CONCLUSION

The xeroderma pigmentation is a genetic and hereditary rare disease. The ocular manifestations are present and dominated by the epitheliomas (in situ caricinoma, squamous cell). The only means to prevent ourselves from ultra-violet rays which are the causes for ocular manifestations are, among others, non-exposure to the sun and the wearing of sun-glasses.

The diagnosis is based on clinical data and genetic testing.

The medical care relies on preventive measures and symptomatic treatment. Specific treatments are still under investigation, thanks to the gene therapy.

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