

The Choroidal Tuberculoma: Unusual Presentation of Ocular Tuberculosis

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Summary: Tuberculosis (*Mycobacterium tuberculosis* infection) continues to be a public health problem worldwide. Isolated ocular form is rare. Its diagnosis is a challenge because of the low sensitivity and specificity of conventional diagnostic methods and the difficulty of accessing the site to sampling. Choroidal involvement, which is even morerare, is often secondary and is seen mainly in the case of military tuberculosis.

We report the case of an immunocompetent patient with an isolated choroidal tuberculoma.

An etiological assessment including the plasma interferon assay by the QuantiFERON-TB® Gold immunoassay was carried out and was allowed to the diagnosis of primary ocular tuberculosis.

Key words: ocular tuberculosis-choroidal tuberculoma-QuantiFERON-TB

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I. Introduction

In recent years, tuberculosis has reappeared as a public health problem (2) especially in developed countries where it had virtually disappeared and continues to be a major cause of mortality and morbidity in the Third World.

Ocular tuberculosis is a rare localization of tuberculosis(5). It is called primitive when the eye is the gateway to infection; it is called secondary when the eye is reached by blood dissemination from another outbreak infected with the Koch bacillus.

We report the case of primary ocular tuberculosis revealed by choroidal tuberculoma in an asymptomatic immunocompetent patient.

A case report:

This is a 56-year-old male with a history of asthma under treatment and a mother who was treated for pulmonary tuberculosis who consulted for an annual eye correction check.

At the ophthalmological examination, the visual acuity from far away with its correction was calculated at 10/10 in both eyes and the visual acuity near P2, the photomotor reflex was positive in the both eyes, the ocular tonus was normal, the appearance of the annexes was normal, at biomicroscopic examination, the anterior segment was normal. No signs of uveitis were found. The examination in the background of the right eye objected to yellowish formation with blurred, protruding, inferior-papillary subretinal contours.

An angiography with fluorescein objectified: a deep creamy white chorioretinal focus with blurred inferior papillary contours of half a papillary diameter (Figure n°1).

The biological analysis found no inflammatory syndrome.

The search for a pulmonary TB infection was negative.

3 BK expectoration came back negative.

The immunological assay of gamma interferon for the diagnosis of TB diseases QUANTIFERON –TB Gold Plus returned positive at 0.97IU/ml (threshold positivity value >0.35 IU/ml).

The diagnosis of primary ocular tuberculosis was retained and after consultation with pneumologist doctors, the patient was placed under the following anti-tuberculosis treatment protocol: 2RHZ/4RH for 6 months.



Figure n°1: Fundus picture:infra-papillary yellow nodule.

The evolution under treatment was marked by the total disappearance of the lesion after 5 months.



Figure n° 2: Fundus picture after treatment.

II. Discussion

Tuberculosis is the leading cause of infectious mortality worldwide (3-10-14).

According to the latest WHO report in 2015, there were an estimated 10.4 million new cases of tuberculosis bacillus (*Mycobacterium tuberculosis*) in the world. 1.4 million deaths were due to tuberculosis. About 10% of patients infected with the tuberculosis bacillus develop the disease during their lifetime, however, the risk is much higher among immunocompromised individuals (HIV, malnutrition or diabetes) (1-6-13).

In Morocco, According to WHO estimates for the year 2015, the annual number of cases of tuberculosis incidents in Morocco was about 30,636 cases of tuberculosis, an incidence of 89 cases per 100,000 inhabitants. The number of tuberculosis deaths was 656 (1-8-11).

Only 1% of all people infected with *Mycobacterium tuberculosis* would develop ocular tuberculosis(6).

Thus ocular involvement is also rare because of the diagnostic, therapeutic etiopathogenic problems it involves.

The damage to the ocular tissue may be either direct via the bacillus haematogenic route, or indirectly correspond to a reaction of cellular hypersensitivity with circulating antibodies.

In fact, the primary manifestations of ocular tuberculosis most frequently encountered are an impairment of the conjunctiva and the cornea. In the present case, it is a rare and atypical condition: a pseudo-tumoral choroidal tuberculoma corresponding ophthalmoscopically to a yellowish nodule, protruding, with blurred contours sitting at the posterior pole. Primitive choroidal tuberculomas are according to an exceptional literature review (18-20-29)

In fact, choroidal tuberculoma was first recognized by Gueneau de Mussyen 1830 and proved by Cohnheim in 1867 by causing experimental intraocular tuberculosis (TIOC) by injecting an inoculum of BK in pigs (17). Choroidal foci are most often secondary to a haematogenic spread of the bacillus from other localizations, mainly pulmonary and/or meningeal. In our case, it is a primary TB infection in the right eye.

This choroidal tuber corresponds histologically to a follicle composed of epithelial cells and giant cells, with caseous necrosis, where the Koch bacillus is sometimes present(28).

Fluorescein retinal angiography shows at early times, a hyperfluorescence progressing from the periphery to the center. At late times the lesions show diffuse hyperfluorescence(9-16).

In fact, the bacteriological diagnosis of tuberculosis regardless of its location and intraocular level in particular is a challenge(24). Thus, The diagnosis of ocular tuberculosis is based on a cluster of arguments represented by a history of tuberculosis, the presence of extra-ocular lesions, the positivity of intradermoreaction to tuberculosis, the positivity of the Koch bacillus genome research by the polymerase Chain reaction (PCR) method, which unfortunately has false negatives(30).

Other authors recommend the search for Koch bacillus in the puncture fluid of the anterior chamber, the vitreal suction fluid or the chorioretinian biopsy before any suggestive lesions (2-25).

The Quantiferon-TB®-Gold test, which is based on the plasma assay of interferon produced by previously immunized T-lymphocytes, is an objective test and not affected by vaccine status, it is a valuable tool in the diagnosis of ocular tuberculosis, which is difficult to obtain because of the site's difficulty in accessing samples(4).

Our observation derives its originality from the ocular location of tuberculosis and from the pseudo-tumoral choroidal lesion that is more rare to observe during primary ocular tuberculosis

Footnotes:

The authors report no conflicts of interest in this work

III. Conclusion

Ocular tuberculosis remains a rare clinical entity. Choroidal tuberculoma may reveal primary ocular tuberculosis even though the choroidal form was long regarded as the sure precursor of acute generalized miliary tuberculosis.

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