Short communication

Anterior tuberculous scleritis: A diagnostic challenge

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Case report: We present the case of a 26-year-old Pakistani male, who after the presumptive diagnosis of anterior tuberculous scleritis (by an atypical clinical appearance and positive epidemiological link), was diagnosed with pulmonary tuberculosis. Discussion: Nodular anterior scleritis is an uncommon presentation of tuberculosis (TB). It is considered a diagnostic challenge because of the difficulty to extract bacilli from the ocular tissue. However, a detailed medical history and eye examination can be the key to an accurate diagnosis and appropriate treatment of the TB.

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Escleritis anterior tuberculosa: un reto diagnóstico

Caso clínico: Presentamos el caso de un varón de 26 años de origen pakistaní que, posteriormente al diagnóstico presuntivo de escleritis anterior tuberculosa (por un aspecto biomicroscópico atípico y un nexo epidemiológico positivo), fue diagnosticado de enfermedad tuberculosa pulmonar.

Discusión: La escleritis anterior nodular es una forma infrecuente de presentación de tuberculosis (TB). Se considera un reto diagnóstico por la dificultad para extraer bacilos del tejido ocular. Sin embargo, una historia clínica y una exploración oftalmológica detalladas pueden ser claves para un diagnóstico certero y un adecuado tratamiento de TB.

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Introduction

Tuberculosis (TB) is an infectious disease caused by the Mycobacterium tuberculosis bacillus. Typically, it affects the lung although it can involve any organ (extrapulmonary TB). It is estimated that one third of the world population is infected with tuberculosis, which is known as one of the most frequent causes of infectious death, second only to AIDS. In 2013, it was estimated that 9.0 million people developed the disease and 1.5 million died of it.

In what concerns ocular TB, any ocular structure can be affected, generally due to hematogenous dissemination from a pulmonary loci. The range of ocular expressions continue to be a clinical challenge due to the lack of precise ocular diagnostic tests. A case of tuberculous anterior scleritis is presented, an unusual infection but potentially very destructive.

Case report

Male, 26, from Pakistan, who shares housing with 6 other individuals from the same country. Chronic tobacco smoker without further significant history. He consulted due to reddening and pain in the left eye with one week evolution but without diminished visual acuity. Slit lamp exploration revealed temporal sectorial hyperemia in the left eye with ingurgitation of deep scleral and episcleral vessels (Fig. 1), without whitening with topical phenylephrine, a larger nodular lesion and smaller lesions adhered to deep planes (Fig. 2). Anterior nodular scleritis was diagnosed, establishing treatment with NSAIDs without improvement. Accordingly, a few days later 20 mg oral prednisone was prescribed.

The patient was questioned again in an attempt to find possible infectious epidemiological connections in addition to data related to fever, productive cough, weight loss, etc. The patient only referred slight fever (37.8 °C) with one week evolution. Systemic physical examination did not produce relevant findings.

![Fig. 1 – Left eye with ingurgitation of deep episcleral and scleral vessels at the temporal level, without corneal involvement.](Image)

An early scleral and adjacent tissue biopsy was performed, observing intra-procedure a large adherence between the conjunctiva and the sclera. However, the culture and special stains such as polymerase chain reaction (PCR) were negative for Mycobacterium tuberculosis.

In parallel, additional tests for infectious and self-immune diseases were requested, all of which gave negative results with the exception of a 20 mm purified tuberculin protein derivate (PPD), and positive quantiferon-TB Gold (QFT-G), in addition to chest X-ray and CT compatible with an infectious process. Also, considering the lack of expectoration, bronchoscopy was performed with bronchoalveolar lavage with negative bronchial stains and aspirations for TB as well as undetectable PCR. However, the culture for Koch bacillus was positive.

The final diagnostic was non-bacillic pulmonary TB, accordingly with termination of prednisone treatment. At the same time, treatment was initiated with rifampicin, pyrazinamide, etambutol and isoniazide (Rimstar®), which produced a complete resolution of scleritis which had not been achieved with anti-inflammatory therapy.

Discussion

TB is a worldwide health problem which requires health professionals to be familiar with its general outline. However, ophthalmologists are required to suspect and recognize TB-associated ocular expressions.

Nodular anterior scleritis cases as TB expression are highly infrequent. In a study carried out in Sri Lanka, involving 2130 TB patients, only 23 were diagnosed with ocular disease and a single case of scleritis.

Due to the lack of tuberculosis pulmonary clinic in the present case, it was considered as a possible diagnostic due to the biomicroscopic signs of atypical scleritis and mainly due to the known prevalence of TB in Pakistan. This clinical suspicion was the first essential step to reach a correct diagnostic.
Tuberculous scleritis is mostly a presumed diagnostic due to the difficulty in isolating the bacillus at the ocular level. This is due mainly to 3 reasons.7,8:

- Extra pulmonary forms of TB are general paucibacillary (low bacillus charge), which reduces the diagnostic sensitivity of studies.
- Ocular tissue samples are generally not enough for staining and culture.
- In rare cases, ocular involvement could be the result of an immunological hypersensitivity reaction to antigenic micobacteria components from a distant infection loci.

The above explains the negative results of ocular diagnostic tests because culture productivity, including molecular enhancements techniques, is generally low.9

Even though PPD and QFT-G are not confirmation tests, they support a presumed diagnostic and together with ocular exploration were a starting point for finding the confirmation diagnostic and subsequent treatment.7,10

Despite the absence of ocular diagnostic techniques of choice, PCR is a promising test due to exhibiting more sensitivity and specificity than cultures, in addition to providing results in a short period of time with small sample quantities.10 Even so, current difficulties for reaching a certainty diagnostic require ophthalmologists to maintain clinical suspicion and to progress towards correct etiology together with other medical departments.

**Conflict of interest**

No conflict of interests was declared by the authors.

**REFERENCES**