Ocular inflammation and tuberculosis

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Financial interests: none

Background: Tuberculosis-related uveitis (TRU) is a multifaceted clinical manifestation. New diagnostic methods have emerged and it is worth studying their impact in diagnosing latent or active tuberculosis (TB) in TRU. The specificity is better for interferon-γ release assays (IGRA) than tuberculin skin test (TST).

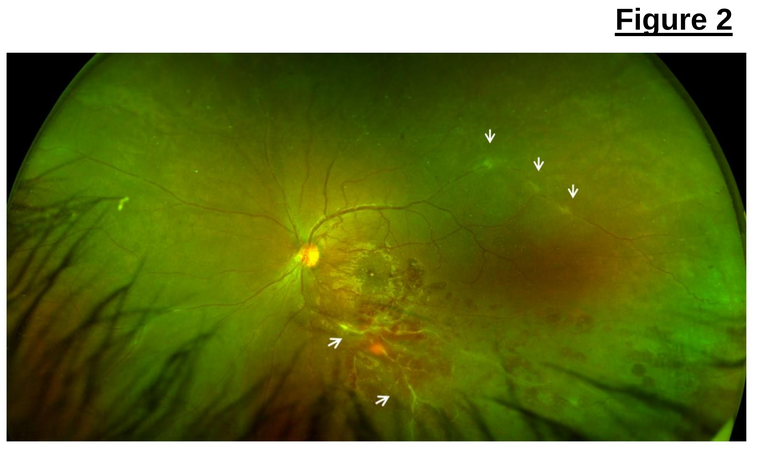
Patients & Methods: Retrospective chart analysis of 245 consecutive patients diagnosed with presumed TRU at our institution, a referral center for uveitis, in Paris, France from 2012 to 2016.
All patients fulfilled the following study criteria : either exhaustive clinical records of confirmed active TB in internal medicine department, and/or search for tuberculous contagion history, known infection, non-infectious uveitic syndromes ruled out except for TRU, positive TST (induration of ≥15 mm at 72 h) and/or IGRA testing, pulmonary findings of TB on radiology.
We recorded demographics data for potential factors influencing the prevalence of TRU and its various anatomo-clinical forms in uveitis (i,e, systemic vasculitis).

Results:
In 2012, TRU accounted for 5.1 % of subjects with active intraocular inflammation in our uveitis clinics. This prevalence increased to 5.7 % in 2016.
Posterior uveitis was the most common case (28%), closely followed by anterior uveitis (23%) and panuveitis (18.5%). Most of patients (84%) had no pulmonary TB.

Figure 1

Fundus picture of a patient with tubercular pseudo-serpiginoid choroiditis showing central healed lesion with grayish white active borders.

Figure 2



Ultra-wide field fundus picture (Optomap®, OPTOS) of a patient with tubercular retinal vasculitis showing perivascular sheathing with an inflammatory branch retinal vein occlusion (arrows).

Demographics

Data available in 89/245 patients

	Ocular TB (total population)	Ocular inflammation and Latent TB	Ocular inflammation and Active TB
	89 (100)	**75 (84)**	**14 (16)**
Mean age (year)	54	56	52
Gender (% male)	64 (72)	NR	NR

Diagnostic tests results: TST and IGRA (QFT or T-SPOT. TB)

Data available in 89/245 patients

	No of patients (%) **Ocular TB (Total population)**	No of patients (%) **Ocular inflammation and Latent TB**	No of patients (%) **Ocular inflammation and Active TB**
	89 (100)	**75 (84)**	**14 (16)**
+ve TST*	37 (82)	31 (80.5)	6 (86)
+ve IGRA**	65 (94)	52 (94.5)	13 (100)

A positive IGRA indicate either latent TB, and possibly a prior infection unrelated to the uveitis or a false positive IGRA test (caused by mycobacteria, defective antigen tubes…).

*37 and 7 TST tests results not performed in the 'Latent TB' and the 'Active TB' groups, respectively
**20 and 1 IGRA tests not performed in the 'Latent TB' and 'Active TB' groups, respectively

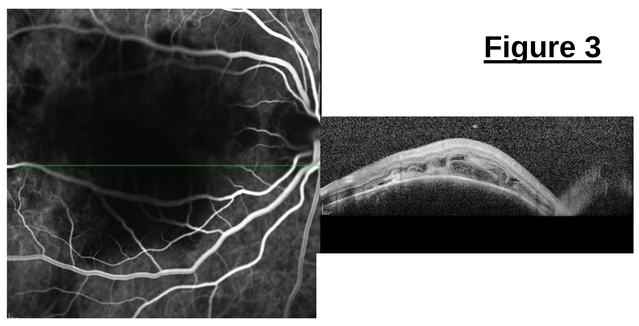
Clinical characteristics of TRU patients

140/245 patients

	Bilateral	Anterior uveitis	Intermediate uveitis	Posterior uveitis	Panuveitis	Unspecified uveitis
No of patients (%) **140 (100)**	47 (36)*	32 (23)	9 (6)	39 (28)	26 (18.5)	34 (24.5)

*data unavailable in 10 patients

Figure 3



ICG of a patient with tubercular choroidal granuloma showing hypofluorescence.
On SD-OCT, an attachment was seen between the retinal pigment epithelial-choriocapillaris layer and the neurosensory retina and inflammatory infiltrate in the deeper retinal layers.

Comments:
Most of the patients affected by TRU were male foreign-born persons (from Africa or Southern Asia).
The posterior segment of the eye was the most affected, particularly in the form of ischemic retinal vasculitis (fig.2) and serpiginous-like choroiditis (fig.1) (30% and 12% of the eyes with posterior involvement, respectively). Most of anterior uveitis were recurrent or chronic in nature (66%). Granulomatous uveitis (in the anterior segment or in the choroid as detected by ICG (fig.3)) is an important indicator of TRU.

Conclusions:
Screening for TB in uveitis of unknown etiology or not responding to conventional therapy allows the initiation of anti-tuberculosis treatment ± systemic steroids therapy. In latent ocular TB there is a lack of gold standard.

References: Trad et al, Ocular Immunol Inflamm 2017; Krassas et al, Eye 2017; Mora et al, Acta Ophthalmologica 2016; Ang et al, Br J Ophthalmol 2014; Jabs et al, Am J Ophthalmol 2005.