Ocular Syphilis: Case Series (2000-2015) from Two Tertiary Care Centers in Montreal

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Background
In the past 10 years, an important resurgence of syphilis cases was observed in the province of Quebec, reflecting the worldwide increase. Incidence of infectious syphilis increased from 0.4/100000 person-year in 2000 to 8.9/100000 in 2015, with the majority of cases of 2015 (58%) residing in Montreal. Alongside that resurgence, more ocular manifestations of syphilis were being diagnosed. This is worrisome since it is known that syphilis can affect any part of the eye, and that without treatment, the disease can have serious consequences potentially leading to blindness.2

Objective
To describe the demographics, clinical presentations, proportion of co-infection with HIV, management and visual outcomes of cases of ocular disease attributed to syphilis in Montreal.

Methods and Patient Selection
We undertook a retrospective case-series study covering a period from January 1, 2000 to December 31, 2015 in two ophthalmology tertiary care centers in Montreal, Hôpital Maisonneuve-Rosemont and Hôpital Notre-Dame du CHUM. The study received approval of ethics committees from the two centers.

- We obtained the list of all positive syphilis serology results corresponding to the study period from the Quebec Public Health Laboratory (LSPQ) database. Due to change from a traditional to a reverse sequence syphilis algorithmic approach in both centers during the study period, we included all of the following in our list: 1) RPR+/confirmation test+, 2) EIA+/RPR+/confirmatory test (titer > 1/4), 3) EIA+/RPR+/confirmatory test (titer from 1/1 to 1/4)/confirmatory test, and 5) EIA+/RPR+/confirmation test+. - The list of sera was screened to remove patient duplicates and was crossed with the administrative appointment software of our centers, keeping only patients that had a visit to either one of the ophthalmology departments during the study period. Only patients with ocular disease possibly related to syphilis were included in the study. Once the patient selection was completed, data were compiled retrospectively from medical chart review and entered into a database.

Results
From the list of 10,821 sera with positive syphilis during the study period, 469 sera were selected by the study protocol from two ophthalmology departments. From those, a total of 115 patients had ocular disease possibly related to syphilis. Among the 115 patients, 35 patients (30%) of patients had positive serology in our study.

Table 1: DEMOGRAPHICS AND PRESENTING OCULAR VITALITY (N=115)

Table 2: ICD9 CODES AT PRESENTATION (50 PATIENTS)

Table 3: COMBINATION PENTAX TRITREX 3 DOSES (20 PATIENTS)

Lumbar puncture was done in only a little more than half of our patients (56%) despite the recommendation to perform it in all cases of syphilis with ocular manifestations.6

A lumbar puncture was more frequently done in patients with HIV infection (33/37: 89%) than in patients without HIV infection (22/59: 38%) among the 75 patients for which HIV infection status was known (p<0.01)

Although VDRL positivity rate was no different between HIV infected and uninfected patients, HIV infected patients had a higher rate of elevated white blood cells and proteins in the CSF as shown in table 4.

The proportion of patients that had an LP and were treated with IV aqueous penicillin was clearly not high enough; we should aim to investigate and treat ocular syphilis like neurosyphilis.

Among the 75 patients, 21 did not receive antibiotic therapy either because of loss to follow-up or refusal. Antimicrobial regimens administered in the 94 treated patients are shown in table 5. Only 65 patients (57%) of 115 received the recommended regimen which is IV aqueous penicillin G or chlortetracycline.

With a mean follow-up of 17 months, there was an overall improvement (IK 0.8, Figure 2) compared to their presentation visual acuity (IK 0.1). The greatest improvement was seen in patients with posterior uveitis, panuveitis and optic nerve involvement as shown in figure 2.

Discussion/Conclusion
Despite the high incidence of ocular syphilis, no prospective observational study, we believe that key findings of this work are of some importance:
- Between 2000 and 2015, 2.5% of patients with positive syphilis serology in laboratories within hospitals with tertiary ophthalmology centers in Montreal had ocular syphilis.
- The study confirms:
  i) all stages of syphilis can involve the eye,
  ii) ocular syphilis can affect any part of the eye, and
  iii) visual acuity can improve with treatment.

The unknown HIV status in 14% of our cohort is alarming: a screening test for HIV test should be done to every patient with any manifestation of syphilis.

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