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Case Series

Visual outcome in suspected ocular tuberculosis and role of mantoux testing

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ABSTRACT

Aim: To determine the role of mantoux test in treatment of ocular TB.
Materials and Methods: Three patients who presented to the OPD with features of anterior Uveitis were examined completely, both systemically and ophthalmologically. BCVA, Color vision, Slit lamp examination, dilated fundus examination was done. Systemic investigations in pertaining to Uveitis was done(CBC, Mantoux, CXR, Serology, ESR).
Results: All patients systemically had all investigations negative (including Chest X-ray) except and strong Mantoux reaction with signs of active anterior Uveitis and Vitritis. In collaboration with the department of chest medicine, Anti tubercular treatment was commenced. Patients have recovered from the Uveitis and have improved symptomatically and clinically.
Conclusions: Uveitis can be a presenting feature of extra pulmonary TB. Easily available and affordable Mantoux test can help in detecting TB and commencing treatment which can be sight saving. A close follow up for these patients is needed, as they have been started on ATT after testing mantoux strongly positive and should be closely monitored for any ocular toxicity due to ATT.

1. Introduction

Tuberculosis (TB) is caused by gram positive organism Mycobacterium tuberculosis (Mtb), which is a highly infectious disease. According to WHO 2018, it is ranked above HIV AIDS as a leading cause of death from single infectious agent.[1] India is also endemic for tuberculosis and shares largest global burden. Tuberculosis most commonly affects lungs in 80% of the patients and in remaining 20% patients other organs are involved that may even include eye.[2] So amongst extrapulmonary tuberculosis – Ocular tuberculosis is one of its type. There is a broad spectrum of varied clinical manifestations in Ocular tuberculosis affecting various structures of eye-any part of adnexa, different layers and globe structure, contents of orbit, optic nerve to orbital apex posteriorly.[3] Conjunctiva, cornea and sclera is involved in primary disease, while manifestation of secondary disease is tuberculous uveitis.[3] Granulomatous uveitis is one of the most common manifestations of ocular tuberculosis, which results from secondary dissemination of bacteria via extensive uveal and choroidal vasculature.[2] Findings include- solitary or multiple choroidal nodules, choroiditis, and retinal vasculitis.[3] If not treated well and not timely recognised can lead to unfavourable outcomes.[4] Even though in tuberculosis uveitis is concurrently seen, it is difficult to prove its direct association. Ocular TB is usually not associated with pulmonary tuberculosis, as up to 60% of extrapulmonary tuberculosis patients may not have pulmonary disease and chest X ray is normal in latent TB.[4] There is a significant reduction in recurrences of uveitis, following addition of corticosteroids to anti- tubercular therapy in uveitis patients with; latent/ manifest TB.[4]

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Table 1: Clinical features at the time of presentation

	Patient 1	Patient 2	Patient 3
Age	44yrs	56yrs	52yrs
Sex	Female	Female	Female
Vision	HM+	1st Visit- 6/18 2nd Visit (after 5 days)-6/60 -	6/12- 6/9
Colour vision	21/21	21/21	21/21
Eye	Right eye	Right eye	Right eye
Symptoms	Bov in right eye- 2months	Post cataract surgery 2months, right eye bov? Floaters	Mild bov in right eye- 6 months
Cornea	Fine kp's Endothelial dusting	Clear	Few kp's inferiorly
Pupil	Occlusio pupillae+	Irregular margins of pupil Regularly reacting	Festooned pupil Posterior synechie plastered to lens
IRIS	NVI superiorly	Irregular margins at pupil	Posterior synechie+ 4- 8 clock hours
Anterior Chamber	Fixed hypopyon + inferiorly	AC cells- 2+ flare 1+	AC cells 1+ flare- 1+
LENS	Complicated Cataract	Pseudophakia PCO+	Clear
Fundus	B scan- Echogenic membrane with mobile echoes in posterior compartment of right globe suggestive of pvd/vitreous hemorrhage	Media hazy grade 3 vitritis disc-normal vessel- normal macula- fr dull epiretinal membrane+	Media clear No viritis Disc-normal CDR-0.3 Vessels-normal Macula- fr dull ?? Early mottled appearance Epiretinal membrane
GAT	RE- 20 MMHG LE- 18 MMHG	RE-14 MMHG LE- 16 MMHG	RE-12 MMHG LE-14 MMHG

Table 2: Investigations

	Patient 1	Patient 2	Patient 3
Mountaux Test	Strongly positive- 30 MMS	++ 22 MMS	26 MMS
CRP	8.34	6.24	7.8
Ace (angiotensin converting enzyme)	Normal range	Normal range	Normal range
ESR	77	84	69
FBS	98	RBS-111	RBS-87
HIV	Negative	Negative	Negative
HbsAg	Negative	Negative	Negative
HCV	Negative	Negative	Negative
VDRL	Negative	Negative	Negative

Table 3: Patients after 3 months

	Patient 1	Patient 2	Patient 3
Visual acuity	**CFCF**	After start of ATT- 6/12(B)	After start of ATT- 6/9- 6/6
Duration of therapy	3 months	3 months	3 months

Table 4: At 6 months- improved clinical picture

	Patient 1	Patient 2	Patient 3
Visual acuity	CF@1.5m full improvement in the vision didn't come due to complicated cataract. cataract surgery pending.	6/12- 6/9	6/6(P)-6/6
Duration of therapy	6 months	6 months	6 months
Improved parameters	Cornea- Clear AC- Clear no cells no flare	AC- Ocassional cells+ No flare	Cornea- clear AC- Contents clear Pupil- 3 MM RRR Some pigments on anterior lens capsule. Fundus- Media clear DISC- Normal Vessels- Normal Macula- FR dull

2. Objectives

To determine the role of mantoux test in treatment ocular tuberculosis.

3. Materials and Methods

A prospective observational study done on 3 patients presenting to ophthalmology outpatient of Sapthagiri Institute of Medical Sciences, Bangalore.

3.1. Study period

6 months (March 2022- October 2022). Three patients who presented to the ophthalmology outpatient with diminision of vision were thoroughly examined. Clinical features of the patient suggested of anterior uveitis. BCVA (Best corrected visual acuity), Color vision, Slit lamp examination, dilated fundus examination was done. Systemic investigations in pertaining to Uveitis was done (CBC, Mantoux, CXR, CRP, ESR, serology- HIV, HbsAg, HCV, VDRL, ACE). Both ophthalmological as well as systemic findings were correlated. Patients who turned out to be strongly mantoux positive, were referred to chest physician for further systemic evaluation, and they were started on anti-tubercular medication (ATT). ATT was administered following which systemic steroids were started. Manifestations of any concurrent extrapulmonary as well as pulmonary involvement was evaluated. These patients were then followed up to closely monitor their response to treatment as well as side effects of ATT.

4. Results

All patients systemically had all investigations negative (including Chest X-ray) except and strong Mantoux reaction with signs of active anterior Uveitis and Vitritis. In collaboration with the department of chest medicine, Anti tubercular treatment was commenced. Patients have recovered from the Uveitis and have improved symptomatically and clinically.

5. Discussion

India is endemic for tuberculosis-contributes to share largest global burden. Its really difficult to diagnose tuberculosis infection. Only when M tuberculosis is cultured and its DNA is amplified from the involved tissue- a definitive diagnosis is possible. In the cases, when the above condition is not possible, a diagnosis of presumed ocular tuberculosis is made when the indirect evidence can suggest strongly for tuberculosis which is responsible for patient's clinical condition.[5] Mantoux test is feasible to patient in terms of availability and affordability. Strongly positive mantoux signifies tuberculosis that helps in commencing ATT which can be further sight saving. Intraocular TB is a great mimicker of various uveitis entities and it can be considered in differential diagnosis of any type of intraocular inflammation.[3] QuantiFERON®-TB Gold test- is an diagnostic test, not done seeing patients affordability of our patients in the study. All the patients treated with ATT and concomitant oral steroids showed improvement clinically.

A retrospective study done by Shahidatul-Adha et al. on patients showed patients to have positive Mantoux test (94.1%) and raised erythrocyte sedimentation rate (ESR) value (58.8%).[4]

6. Conclusions

Uveitis can be a presenting feature of Extra pulmonary TB. Easily available and affordable Mantoux test can help in detecting TB and commencing treatment which can be sight saving. Our study shows strongly positive Mantoux test > 20 mm, is suggestive of ocular tuberculosis, which is a required considerate for starting patients on Antitubercular medication(ATT). A close follow up for these patients is needed, as they have been started on ATT after testing mantoux strongly positive and should be closely monitored for any ocular toxicity due to ATT.

Our study shows the role of strongly positive Mantoux test in diagnosing and treating ocular tuberculosis.

7. Source of Funding

None.

8. Conflict of Interest

None.

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