Our Patient's Eyes are Red: Is it a Manifestation of a Systemic Disease?

(Uveitis and Scleritis Can Herald A Systemic Disease)

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Red eye is a common presenting complaint in primary care practice. Often it may happen that a red eye would be a presenting sign of a hidden systemic disease.

Descriptive Case 1

A 25-year-old lady was referred to our Out Patient Services at Taparia Institute of Ophthalmology, Bombay Hospital, Mumbai in 2016 with redness, pain, watering which had been diagnosed as a Pterygium and surgically excised to no avail. She has no known systemic illnesses and was from a poor socioeconomic status. On presentation she had a clinical picture of Necrotising Scleritis with a Granulomatous Anterior Uveitis (Fig 1) - Clinically suggestive of Tuberculosis. The patient was investigated with a General Physician where investigations revealed an ESR: 35 mm at 1 hour; Mantoux Test: Strongly positive and ulcerating at 48 mm with 5 TU at 48 hours; Serum ACE: 7.2 IU/ml; X-ray Chest: Suggestive of Active Pulmonary Tuberculosis. She required surgical repair with a scleral patch graft along with Anti-Tuberculosis treatment to achieve anatomically and functionally an excellent outcome (Fig 2).

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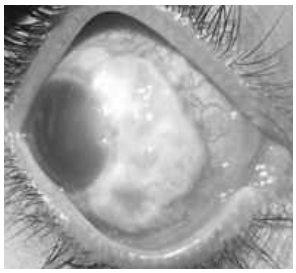
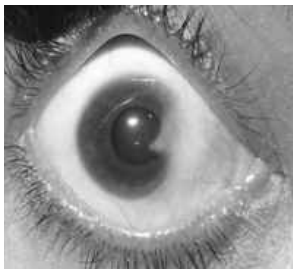




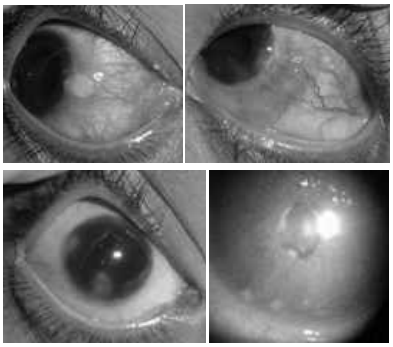
Figs. 1 & 2: Right Eye of a patient with Necrotising Scleritis with a Granulomatous Anterior Uveitis of Tuberculous Aetiology before and after treatment

Tuberculosis may commonly manifest in the eye as various patterns such as

- Ulcerated Phlyctenular Conjunctivitis (Fig 3),
- Sclerokeratitis (Fig 4),
- Keratoconjunctivitis (Fig 5),
- Granulomatous Anterior Uveitis (Fig 6),
- Granulomatous Intermediate Uveitis,
- Serpiginous Like Choroiditis and Retinal Vasculitis.

The treating Ophthalmologist / Ocular Inflammation Specialist requires the help of a General Physician in the management of all such cases. Index Tuberculosis

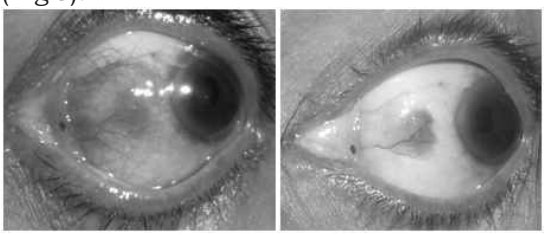
Guidelines now recognise Ocular Tuberculosis as an entity where symptoms of fever and weight loss may be absent.[2]



Figs. 3 - 6: Ulcerated Phlyctenular Conjunctivitis, Sclerokeratitis, Keratoconjunctivitis, Granulomatous Anterior Uveitis - Manifestation of Tuberculosis as Red Eyes

Descriptive Case 2

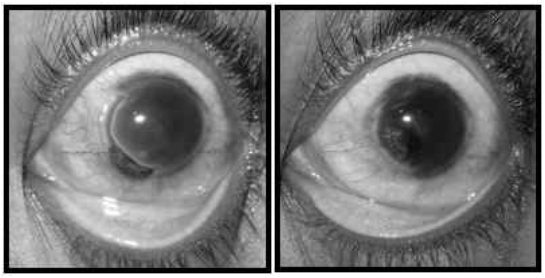
A 58-year-old lady was referred to our Out Patient Services at Taparia Institute of Ophthalmology, Bombay Hospital, Mumbai in 2009 with recurrent redness, pain in left eyes for 6 months. She had been treated for Tuberculous Meningitis, 3 years back. She also had a bilateral knee joint pain for 10 years and was hyperthyroid for 2 years. On presentation she had a clinical picture of a Necrotising Scleritis with a single sentinel vessel suggestive of Autoimmune aetiology (Fig 7). She was investigated with possibility of Wegener's Granulomatosis in mind and had an ESR - 80 mm (1 hour); Mantoux Test: 2 TU, 23 X 18 mm (72 hours); Collagen Vascular Profile - ANA: ++, ANCA: 26.9 RU/ml (Strongly Positive); Anti Thyroid Antibodies - Strongly Positive. A Rheumatologist and her own General Physician's help was of utmost importance to immunomodulate her with Methotrexate especially because of Tuberculosis in the past. Her scleritis resolved with Methotrexate and she also underwent a successful cataract surgery (Fig 8).



Figs. 7, 8: Left Eye of a patient with Necrotising Scleritis with Limited Wegener's Granulomatosis before and after treatment with Oral Methotrexate.

Scleral Melt In Wegener's Granulomatosis

Wegener's Granulomatosis (now Granulomatosis with polyangiitis) may sometimes cause an uncontrolled scleritis and a consequent scleral melt which requires surgery under cover of immunomodulation as shown below.



Figs. 9,10: Left Eye of a 34-year-old lady with Necrotising Scleritis with Evolving Wegener's Granulomatosis with scleral melt before and after treatment. She required a surgical wound repair with Cyanoacrylate glue under cover of Intravenous Cyclophosphamide.

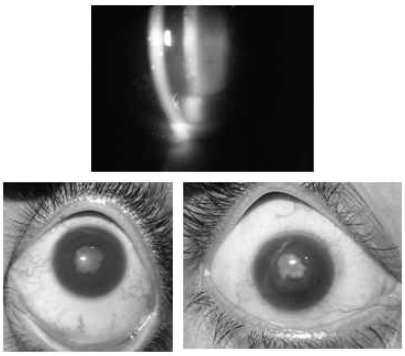
Patterns Of Inflammation Specific To Autoimmune Diseases

The autoimmune diseases including the HLA related diseases such as HLA B27 - Ankylosing Spondylosis and HLA B 51 - Behcet's Disease may also manifest initially in the eye in specific patterns. These patterns of Uveitis[3,4] and Scleritis

are:

- HLA B27 related unilateral Non-Granulomatous Anterior Uveitis with hypopyon
- HLA B51 related Occlusive Panuveitis causing involvement of all layers of the eye.
- ANCA related Necrotising Scleritis
- RA Factor / Anti-CCP Antibody 5 related Dry Eyes, Peripheral Ulcerative Keratitis, Scleritis or Scleromalacia Perforans

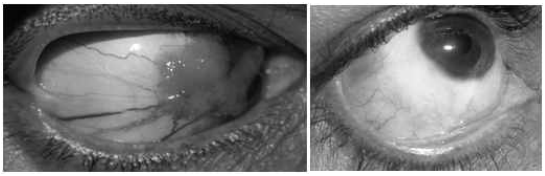
Again, this requires the Ophthalmologist / Ocular Inflammation Specialist to work in conjunction with the General Physician and the Rheumatologist (Figs. 11,12,13). **Knowledge of these patterns allows a targeted approach to investigations which is rational and cost effective.**



Figs. 11,12,13: Patients presenting with HLA Related Uveitis: 26-year-old gentleman - HLA B27 Uveitis; 13-year-old boy - HLA B27 related Uveitis; 33-year-old lady with HLA B51 related Panuweitis - All treated with immunomodulation: respectively using Methotrexate, Combination immunomodulation including Adalimumab and Cyclosporine - All doing well with treatment and on follow up.

Ocular Surface Squamous Neoplasia

Finally, one needs to keep in mind that tumours of the Ocular Surface such as Ocular Surface Squamous Neoplasia 6 may present as an innocuous looking red eye and require elaborate surgery but are very amenable to treatment.



Figs. 14, 15: A 24-year-old patient with a Biopsy proven Ocular Surface Squamous Neoplasia before and after Excision Biopsy and Edge Cryotherapy.

Take Home Message:

1. Red Eyes due to common entities like Conjunctivitis can be treated conservatively at primary care level.
2. Uncommon Red Eyes such as those accompanied by pain, decrease of vision may herald an ocular manifestation of systemic disease
3. Ocular Tuberculosis has varied manifestations or patterns in the eye and they may be identified by the Ophthalmologist / Ocular Inflammation Specialist but need a help from the General Physician for successful treatment.
4. Autoimmune diseases related to HLA B27 / HLA B51 positivity or RA Factor / ANCA Positivity or ANA Positivity or Anti-thyroid antibodies may first manifest as Red Eyes
5. These autoimmune diseases also could have various patterns which can be identified by the Ophthalmologist / Ocular Inflammation Specialist.
6. Manifestations of autoimmune diseases in the eye sometimes require immunomodulation 7 with agents like Methotrexate, Azathioprine, Cyclophosphamide and Cyclosporine as well as Biologicals to achieve control

of inflammation and the control of the disease to "limit" it to the eye and prevent "evolution" of disease to "systemic" disease.

7. Neoplasms at times may present as Red Eyes and need to be identified and treated appropriately.

Acknowledgements

All pictures used in the article are of patients (whose identities are not disclosed) who are treated by the corresponding author in conjunction with General Physicians, Rheumatologists and Other Appropriate Specialists as required / deemed necessary for control of the disease and the corresponding author whole-heartedly acknowledges the help and guidance of all those general physicians / specialists for these and the other patients - past and future.

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Catheter-based renal denervation for treatment of hypertension

After the initial unprecedented enthusiasm for catheter-based renal denervation for the treatment of resistant hypertension, the negative results of the sham-controlled SYMPICITY HTN-3 trial with the single-electrode radiofrequency Symplicity catheter have cast major doubts on the efficacy of this technique to treat these patients. Various factors might have contributed to these negative results. By contrast, the DENERHTN trial, which compared renal denervation plus stepped care standardised antihypertensive treatment with care standardised antihypertensive treatment above in patients with resistant hypertension, although not sham-controlled, reported a 5-6 mm Hg difference in daytime ambulatory systolic blood pressure (SBP) in favour of renal denervation at 6 months.

If renal denervation definitively proves its ability to lower blood pressure significantly and safely, it should be offered at reduced costs in low-income countries, where the prevalence of hypertension is much higher than in high-income countries and hypertension leads to major complications because of poor access to oral antihypertensive medications.

Michel Azizi, The Lancet, 2017, Vol 390, 2124-2126