TB or Not To Be

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Case History

- 38 yo Indigenous male
- C/o pain, light sensitivity, hazy vision right eye x 1 week
- **Ocular History:**
  - Mild NPDR OU
- **Medical History:** T2DM, HTN & dyslipidemia
- **Medications:** Amlodipine, Lisinopril, Glipizide, Fenofibrate, Atorvastatin & Canagliflozin

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Clinical Findings

	OD	OS
Visual Acuity cc	20/50 PH 20/30	20/40 PH 20/20
EOMs	Full, smooth, unrestricted	
Confrontation Visual Fields	FTFC	FTFC
Pupils	ERRL, (-) RAPD	
Spectacle Prescription		
OD	-2.00/ -0.75 x 175	
OS	-1.25/ -0.50 x 155	

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Clinical Findings - Ant Segment

	OD	OS
Adnexa	Mild blepharitis	Mild blepharitis
Bulbar Conjunctiva	**3+ injection, > circumlimbal**	White/quiet
Cornea	Clear	Clear
Anterior chamber	**3+ cells, 2+ flare**	Deep and quiet
Iris	Flat and intact	Flat and intact
Lens	Clear	Clear
	(-) KPs, (-) PS	

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Clinical Findings - Post Segment

	OD	OS
Macula	Even pigmentation	Even pigmentation
Posterior Pole	Mild NPDR, HTN ret	Mild NPDR, HTN ret
Periphery	Flat & intact	Flat & intact
Vitreous	Clear	Clear
ONH	Pink/distinct	Pink/distinct
	(-) vitritis, (-) snowbanking/snowballs, (-) vasculitis, (-) ONH edema	

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Management

Dx: Unilateral, Acute Non-Granulomatous Anterior Uveitis

- Pred Acetate 1 gt Q1H while awake, then taper
- Cyclopentolate 1 gt BID

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Management of Anterior Uveitis

- Topical ophthalmic steroids
  - Most common: Pred acetate
  - Also difluprednate & dexamethasone
  - Q1H or Q2H to achieve rapid control of inflammation
  - Taper once inflammation is resolved
- Cycloplegia
  - Cyclopentolate (~BID) or Atropine (~QD)
  - D/c once inflammation improves

(Gutteridge & Hall, 2007; Harthan et al. 2016; Bajoria et al. 2018)

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Second Episode

- Presents with **left** eye pain and photophobia 6 months later
- Clinical examination consistent with left, acute, non-granulomatous anterior uveitis

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Management

Dx: Recurrent, Alternating Non-Granulomatous Anterior Uveitis

- Pred Acetate & Cyclopentolate treatment as previous
- Systemic work-up:
  - CBC w/ differential
  - HLA B27
  - Syphilis Serology
  - QuantiFERON TB Gold
  - Chest X-Ray
  - Tick Panel*

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Work-Up for Anterior Uveitis

Systemic Investigations indicated if:

- Recurrent
- Bilateral/Alternating
- Granulomatous
- Childhood presentation

(Forooghian et al 2005; Sève et al. 2017)

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Work-Up for Anterior Uveitis

All Investigations	
• Complete blood count with differential	
Non-Granulomatous (recurrent, chronic, and/or bilateral)	
HLA-B27 Spondyloarthropathies	• Serum HLA-B27 • If positive or insidious back pain: X-Ray of spine and sacroiliac joints
Syphilis	• Syphilis Serology*
Tuberculosis	• Tuberculin Skin Test† OR Quantiferon TB-Gold • Chest X-Ray
Tubulointerstitial Nephritis and Uveitis Syndrome (TINU)	• ↑ urinary β2-microglobulin • ↑ Serum creatinine, ↓ eGFR • Urinalysis ○ Non-specific microscopy pyuria, hematuria, proteinuria

(Forooghian et al 2005; Sève et al. 2017; Amaro et al. 2020; Hettinga et al. 2015)

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Work-Up for Anterior Uveitis

Granulomatous	
As above and:	
Sarcoidosis	• Chest X-Ray (hilar or mediastinal adenopathy) • ↑ Serum ACE (angiotensin converting enzyme) • ↑ Serum Lysozyme
Pediatric Presentation	
Juvenile Idiopathic Arthritis	• Rheumatoid Factor (RF) • Antinuclear Antibodies (ANA) • HLA-B27
TINU	As above

(Forooghian et al 2005; Sève et al. 2017; Amara et al. 2020; Hettinga et al. 2015)

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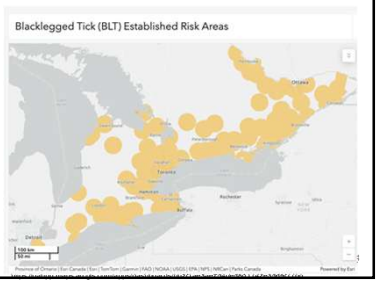
Tick Panel ?

- Regular hiking in an area with black legged ticks and known Lyme disease
- Increasing prevalence of Lyme disease in Ontario



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Laboratory Results

	Results		
CBC	Normal	HLA B27	Negative
Syphilis Serology	Non-reactive	Tick Panel	Negative
QuantiFERON TB Gold	**Positive**	Chest X-ray	Normal

Final Dx: Tubercular Anterior Uveitis

- **Latent Extra-Pulmonary Tuberculosis**

- Referral placed to Infectious Disease/Public Health

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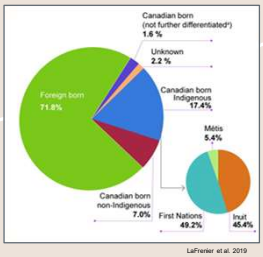
Tuberculosis

- *Mycobacterium tuberculosis*
- Spectrum of disease
  - Latent (non-infectious) disease with later re-activation to active (infectious) disease
  - Pulmonary vs Extrapulmonary
- TB is most common among immigrant and Indigenous populations



LaFreniere et al. 2019

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(LaFreniere et al. 2019; Testi et al. 2020; Gupta et al. 2010; La Distia et al. 2014; Ng et al. 2017; Lewinsoh et al. 2017; Abdsamadov & Tursunov, 2020)

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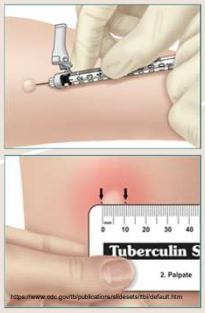
Tubercular Uveitis

- Posterior uveitis (36%) and panuveitis (35%) most common
  - Can also include anterior (12%) or intermediate (16%) uveitis
- Only 16% have pulmonary findings on X-Ray
  - Normal X-Ray does NOT exclude TB
- < 8% have respiratory symptoms



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(SUN working group, 2021; Testi et al. 2020; Gupta et al. 2010; La Distia et al. 2014; Ng et al. 2017; Lewinsoh et al. 2017; Abdisamadov & Tursunov, 2020)

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Tubercular Anterior Uveitis

- Immune-mediated response to tuberculosis antigens
  - No direct infectious etiology
- Most commonly unilateral, chronic, and granulomatous
  - 28% of cases are non-granulomatous

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(Basu et al. 2020; Agrawal et al. 2020; Gupta et al. 2016)

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Management of TB Anterior Uveitis

- Topical steroids and cycloplegics
- Latent TB w/ Normal Chest X-Ray:
  - Generally doesn't require anti-TB treatment
    - TB treatment does not impact clinical outcomes
  - If Recurrent: Consider anti-TB treatment - May reduce risk of recurrence
- Latent TB w/ pulmonary lesions on Chest X-Ray
  - Recommend anti-TB treatment
- Active TB:
  - Requires anti-TB treatment

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(Agrawal 2020; Tomkins-Netzer et al. 2018;. Agrawal et al. 2021; Bajema et al. 2017)

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