Sympathetic Ophthalmia in 2026

Sunrise in Hobart

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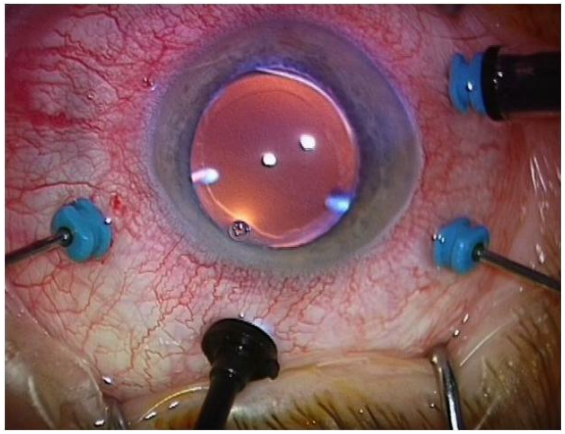
Hobart 2026

Sympathetic Ophthalmia:

Background:

- Louis Braille went blind from SO
- Rogers Vs Whitaker re-defined consent for medical procedures
- VR surgery now commonest cause of SO in some parts of the world



Rogers v Whitaker?

"*Except in the case of an emergency or where disclosure would prove damaging to the patient, a medical practitioner has a duty to warn the patient of a material risk inherent in proposed treatment.*"

per Mason CJ, Brennan, Dawson, Toohey and McHugh JJ., in *Rogers v Whitaker [1992] 175 CLR 479*

Sympathetic Ophthalmia:

Background:

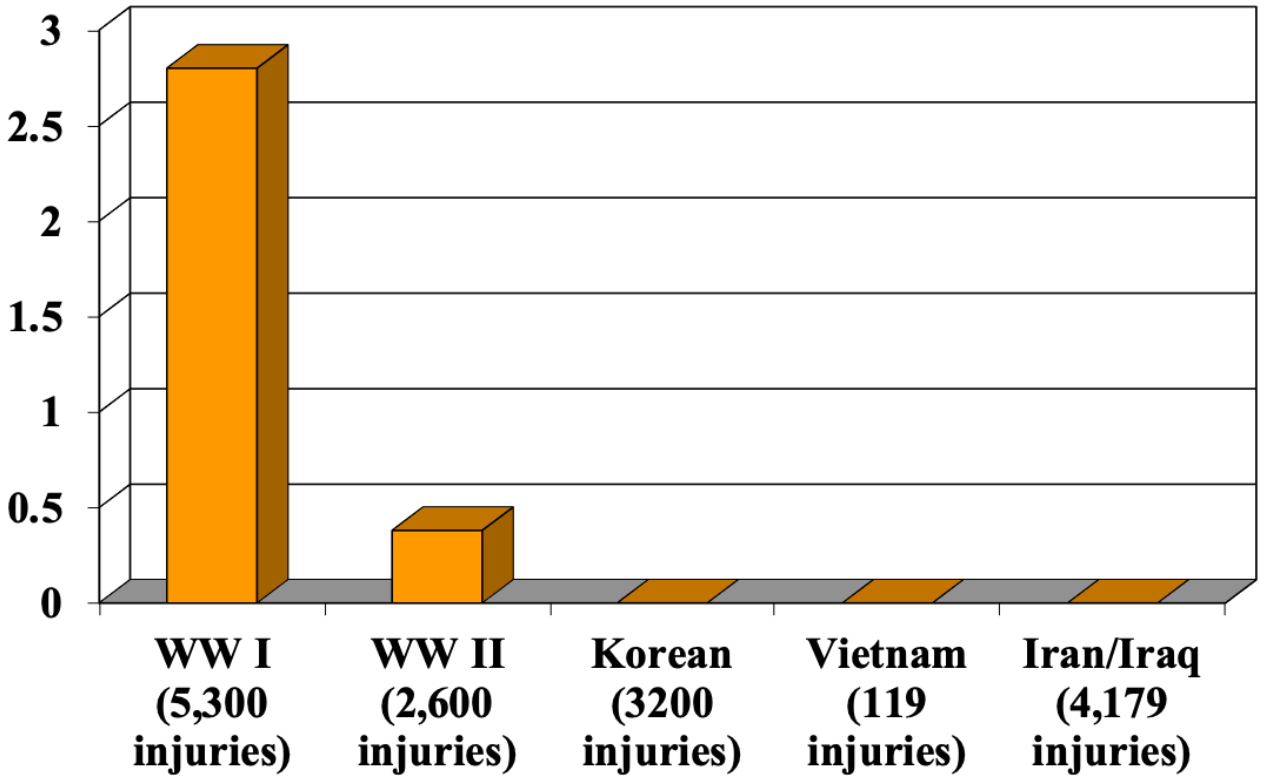
- recognised by Hippocrates
- Archimedes deliberately infected horse eyes with dung as prevention
- SO description by McKenzie (1840) & Fuchs (1910)
  - history of eye trauma
  - bilateral granulomatous pan-uveitis
  - exciting & sympathizing eye
- progressively decreased incidence over last 250 years

“Fuzzy Wuzzy Angels” of the Kokoda Track in WWII

Sympathetic Ophthalmia:

Incidence of sympathetic ophthalmia after PEI (cases/1,000 injuries)

Courtesy Dr Anthony Hall



Sympathetic Ophthalmia:

Background:

- rare disease
- 0.03/100,000 UK prospective series (23 cases over 15 months)

Prospective surveillance of sympathetic ophthalmia in the UK and Republic of Ireland

Dara J Kilmartin, Andrew D Dick, John V Forrester

Br J Ophthalmol 2000;84:259–263

- 0.14% in 1,392 case series & no SO in eviscerated cases (2 cases over 12 years)

The risk of sympathetic ophthalmia following evisceration for penetrating eye injuries at Groote Schuur Hospital

N du Toit,[1] M I Motala,[2] J Richards,[2] A D N Murray,[2] S Maitra[2]

Br J Ophthalmol 2008;92:61–63.

- 0.04% after multiple VR surgeries (175 cases in 41,365 TPPV)

Sympathetic Ophthalmia after Vitreoretinal Surgeries: Incidence, Clinical Presentations and Outcomes of a Rare Disease

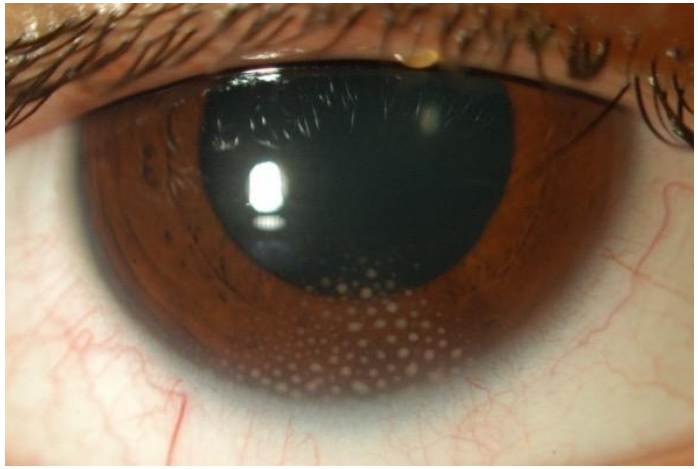
Mudit Tyagi[1], Komal Agarwal[1], Rajeev R Reddy Pappuru[1], Chintan Dedhia[1], Hitesh Agarwal[1], Sameera Nayak[2], Bhavik Panchal[3], Hrishikesh Kaza[4], Soumyava Basu[4], Avinash Pathengay[3], Somasheila Murthy[5], and Virender S Sangwan[5]

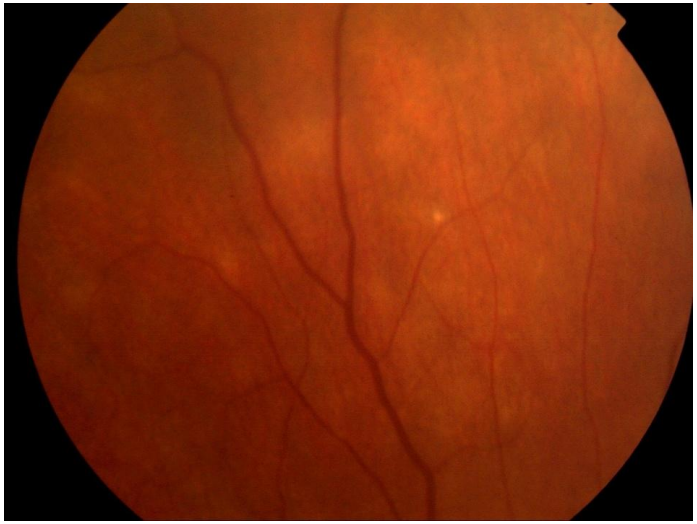
Seminars in Ophthalmology, 2019; 34(3): 157–162

Sympathetic Ophthalmia:

Clinical Features:

- anterior segment:
  - granulomatous KPs
  - AC cells & flare
- vitreous cellular infiltrate
- posterior segment:
  - multiple small focal choroidal infiltrates (Dalen-Fuchs nodules)
  - ± serous retinal fluid
  - disc swelling
  - CME
- similar features to VKHD

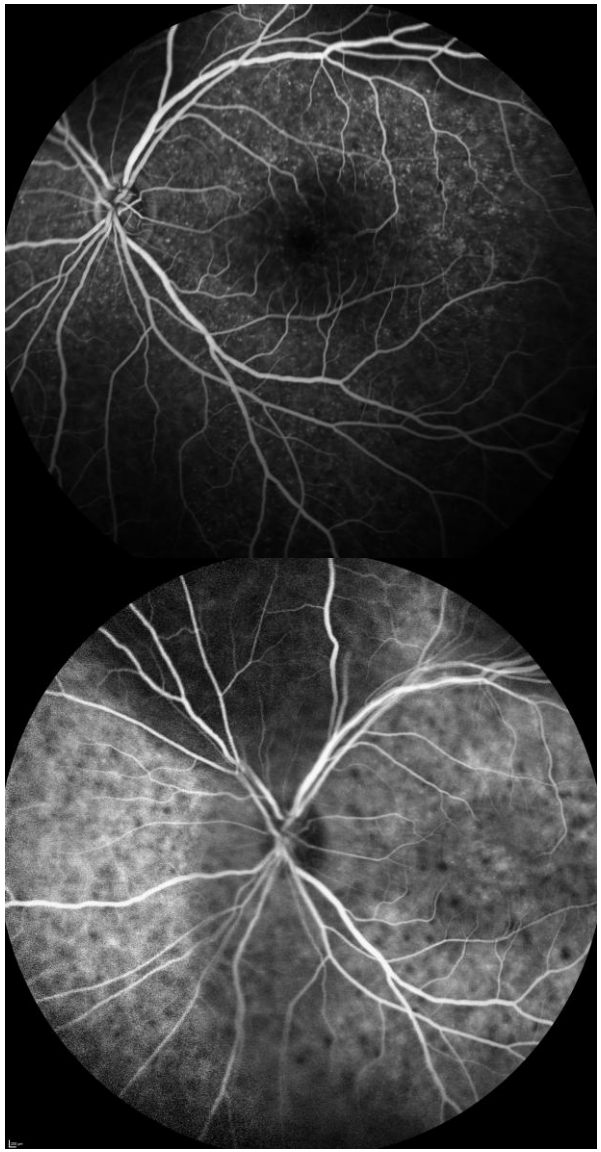




Sympathetic Ophthalmia:

Multi-Modal Imaging:

- B-scan: choroidal thickening
- EDI-OCT: choroidal thickening; focal choroidal lesions
- FFA: multiple pin-point & focal sub-retinal hyperfluorescent leaks
- ICGA: persistent focal hypo-cyanescent spots



Sympathetic Ophthalmia:

Diagnosis:
SUN Classification Criteria

Criteria

1. History of unilateral ocular trauma or surgery

AND

2. Ocular inflammation, either

a. Bilateral OR

a. If there is no view in the inciting eye (e.g. enucleated, phthisis, opaque cornea), then detectable inflammation in the sympathizing eye

AND

3. Evidence of more than isolated anterior uveitis, either

a. Anterior chamber and vitreous inflammation OR

a. Panuveitis with choroidal involvement

Exclusions

1. Positive serology for syphilis using a treponemal test

1. Evidence for sarcoidosis (either bilateral hilar adenopathy on chest imaging or tissue biopsy demonstrating non-caseating granulomata)

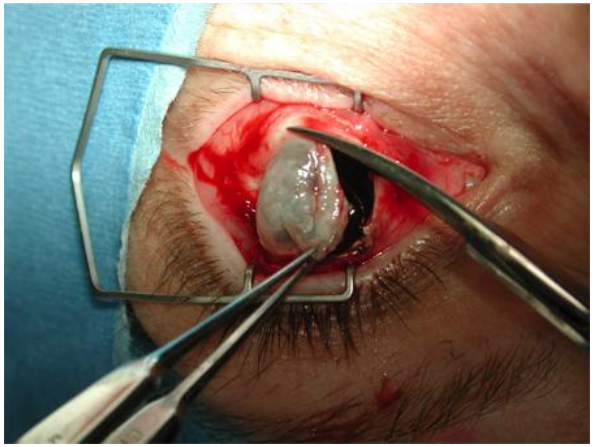
- high index of suspicion
- infection was thought protective – not true

Am J Ophthalmol 2006;141:498–507.

Sympathetic Ophthalmia:

Surgical Management:

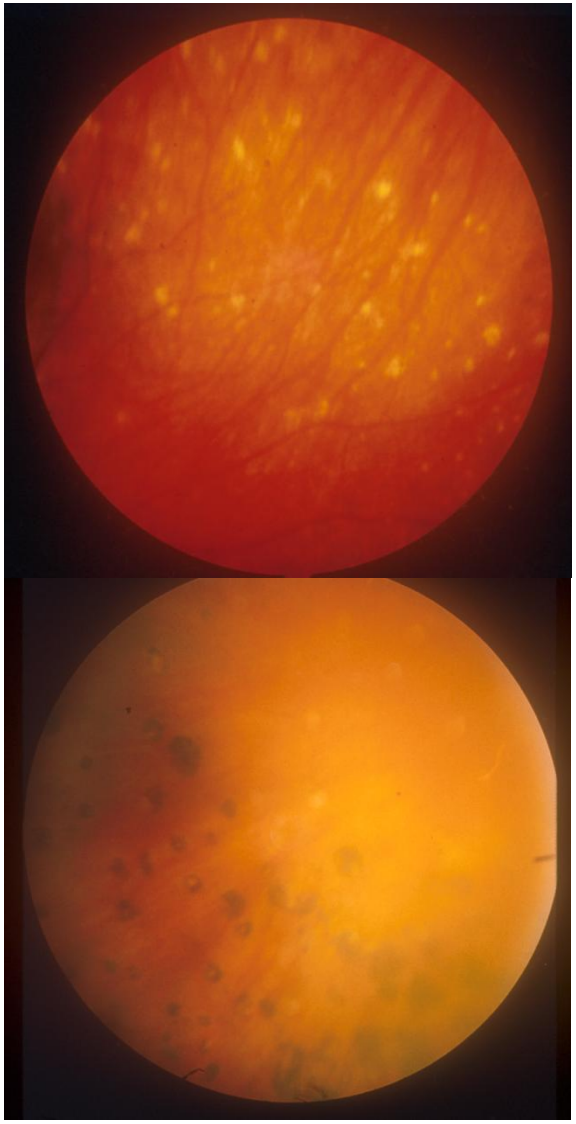
- expert microsurgical repair critical
- *to keep or remove an eye decided on a patient by patient basis on clinical & surgical factors*
- both enucleation & evisceration safe to remove eye
- evisceration commonest and gives best cosmesis



Sympathetic Ophthalmia:

Medical Management:

- severe threat to vision
- often only one seeing eye
- aggressive systemic combination immunomodulatory therapy for severe disease => oral steroids + methotrexate or mycophenolate
- consider in selected cases:
  - IVMP
  - biologics



Save Sight Institute

Sympathetic Ophthalmia:

Outcomes:

- 26% presented with ≤ 6/60 in sympathizing eye
- vision loss to ≤ 6/60 @ 10% per person-year
- 47% complications at presentation
- complications @ 40% per person-year
- cataract, optic neuropathy, exudative RD
- exudative RD => poor visual outcome
- 59% visual outcome ≥ 6/12
- 75% visual outcome ≥ 6/60

Sympathetic Ophthalmia: Incidence of Ocular Complications and Vision Loss in the Sympathizing Eye

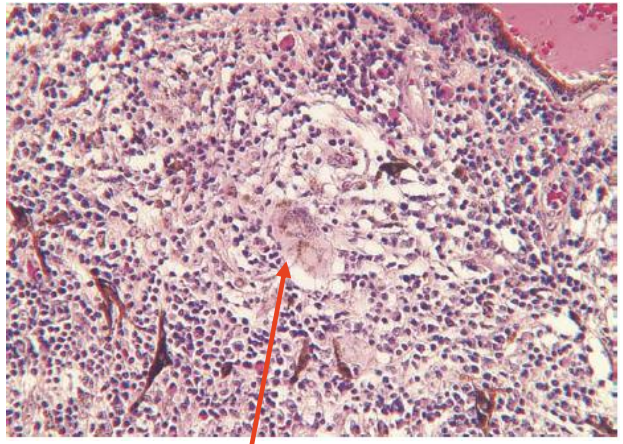
ANAT GALOR, JANET L. DAVIS, HARRY W. FLYNN, JR, WILLIAM J. FEUER, SANDER R. DUBOVY, VIKRAM SETLUR, MUGE R. KESEN, DEBRA A. GOLDSTEIN, HOWARD H. TESSLER, IRINA BYKHOVSKAYA GANELIS, DOUGLAS A. JABS, AND JENNIFER E. THORNE

Am J Ophthalmol 2009;148:704–710.

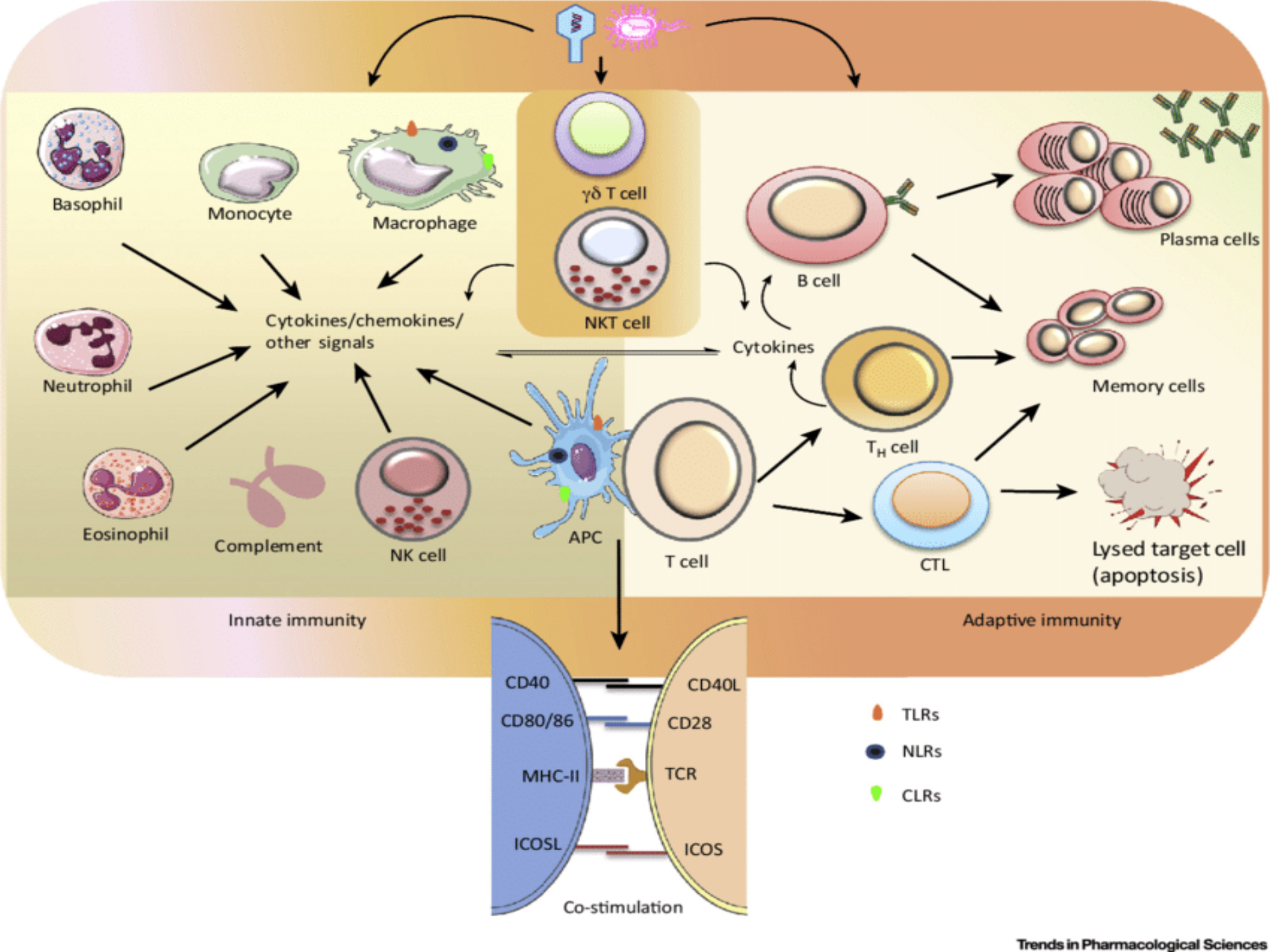
Sympathetic Ophthalmia:

Pathology:

- granulomatous chronic inflammatory infiltrate
- multi-nucleated giant cells
- macrophages, T-cells, B-cells
- pigment & RPE cells within nodules
- initial innate immune response, then T cell mediated disorder
- T cell responses dominant and drive SO



multi-nucleated giant cells


Basophil
Monocyte
Macrophage
γδ T cell
NKT cell
B cell
Plasma cells
Cytokines/chemokines/
other signals
Cytokines
Neutrophil
Memory cells
Eosinophil
Complement
NK cell
APC
T cell
T_H cell
CTL
Lysed target cell
(apoptosis)
Innate immunity
Adaptive immunity
CD40
CD40L
CD80/86
CD28
MHC-II
TCR
ICOSL
ICOS
Co-stimulation
TLRs
NLRs
CLRs

Sympathetic Ophthalmia:

Immune Responses:

	Innate Immunity	Adaptive Immunity
origins	ancient	vertebrates only
specificity	non-specific pattern recognition (PAMPs) (DAMPs)	specific antigen
activation	rapid	delayed
soluble effectors	complement, APRs, cytokines & chemokines	antibodies
cellular effectors	granulocytes, macrophages,	T & B Cells
host protection	local	systemic
effect on host	bystander injury altered homeostasis	minimal injury
memory	none	key intrinsic feature anamnestic response

Sympathetic Ophthalmia:

Immunopathogenesis:

- revolution in our understanding of immune responses
- innate immune system pivotal in shaping immune responses
- innate immune response begins within minutes & primes T cell mediated immune response
- T cell responses dominant and drive SO
- anamnestic response likely to be critically important
- genetic predisposition highly likely in SO
  - HLA or DR antigens
  - innate immunity genetic mutations

Sympathetic Ophthalmia:

Where are we in 2026??

- ***removal of the injured eye does NOT prevent SO***
- ***there is no "protective" time window***
- very low incidence of SO due to expert microsurgical repair & careful post-operative management
- surgery may trigger onset of SO
- enucleation or evisceration decided on a patient by patient basis on surgical factors
- evisceration commonest and gives best cosmesis
- immunosuppressive therapy for SO
  => good outcome in many patients

Sympathetic Ophthalmia:

Take Home Messages:

- rare
- autoimmune disease
- exact pathogenesis remains unclear
- initial innate immune response then T cell driven immune response
- removing an injured eye days following the injury will *not* prevent SO
- evisceration or enucleation as needed
- SO treatment effective for most patients

Sympathetic Ophthalmia:

Acknowledgements:

- Dr Anthony Hall
- Dr Alan Palestine

? Questions

Mast Lock Commanche close to the finish line in the Derwent River Hobart