Course Title: **Macular edema: when to treat and when to refer**

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1. Objectives
	1. Learn to identify macular edema in the clinic
	2. Understand the main causes of macular edema
	3. appropriate testing for macular edema
	4. Review Latest Medical advances for managing macular edema
	5. Review latest surgical advances for managing macular edema
	6. Understand how new advanced imaging techniques facilitate diagnosis and management of retinal disease
	7. Understand when to refer and how to co-manage pts with retinal disorders
2. Learning to identify Macular Edema in the clinic
	1. Look for diagnoses associated with macular edema
		1. Epiretinal membrane
		2. Retinal vein occlusion
		3. Drusen
		4. Diabetic retinopathy
		5. Uveitis
	2. Clinical findings suggesting edema is present
		1. Distortion on Amsler grid (metamorphopsia)
		2. Loss of foveal reflex
		3. Watske-Allen test
3. Main causes of macular edema
	1. Biochemistry
		1. Factors associated with inflammation
		2. Prostaglandins, leukotrienes, other cytokines
		3. VEGF family of molecules
		4. Carbonic anhydrase
	2. Treatments target these biochemical pathways
4. Medical advances for retinal management
	1. Front line options for you
		1. NSAIDS:
			1. when to start
			2. how to monitor your patients
			3. When to refer
		2. Steroids:
			1. when to start
			2. how to monitor your patients
			3. When to refer
			4. Use of the strong steroid
	2. Eliminate treatment failures - Combination therapies for macular edema
		1. Topical cocktail of strong steroid, NSAID, and CAI drops
		2. Spironolactine and Epilactone for CSR
		3. PDT, anti-VEGF therapy for CSR
		4. PDT, anti-VEGF and DEX implant for recalcitrant wet AMD
		5. DEX implant, anti-VEGF, NSAID for recalcitrant ME with DR and RVO
5. Surgical advances for retinal management
	1. New Instrumentation
		1. The nickel/titanium loop for membrane peeling
		2. Valved Cannula Systems
		3. 27 gauge vitrecomy for complex cases
	2. Drug-assisted vitrectomy
		1. Trienscence steroid injection for identifying vitreoretinal interface
		2. Role of Avastin in minimizing complications
		3. Chemical vitrectomy with Jetrea
	3. New techniques
		1. Prevent shrinkage and slippage: Direct silicone-liquid exchanges
		2. Triescence for membranes
		3. Simpler buckles save time and improve outcomes
6. New advanced imaging techniques for retinal disorders
	1. OCT imaging for diagnosis occult retinal and systemic disorders
		1. Retinal vascular occlusions
		2. Optic neuropathies
		3. Steroid-induced maculopathies
		4. Vitromacular traction, epiretinal membranes and macular holes
		5. Glaucoma
	2. Noninvasive OCT angiography
	3. B-scan – an old dog for new disorders
7. Referral and Co-management
	1. Office exam and diagnostic testing can be used to identify high risk patients
		1. Role of OCT
			1. Edema
			2. Membranes
			3. Macular atrophy
			4. Optic atrophy
			5. Neurodegenerative disorders
			6. Drug toxicity
		2. Role of visual fields
			1. Glaucoma associated with retinal disorders
			2. Retinal degenerations
			3. Malingering
			4. Retinal detachment
			5. Optic neuropathies
		3. Ophthalmoscopy and OPTOS imaging: what to look for
			1. Peripheral pigmentary changes
			2. Elevated vessels
			3. Hemorrhages
			4. Mass lesion
	2. When is Prompt referral warranted
		1. Symptomatic patient
		2. Unexplained vision loss
		3. Trauma
		4. Unexpected findings: Mass, inflammation, infection, hemorrhage
	3. General eye doc should facilitate follow-up of testing, monitoring of changes and re-referral when the need arises.
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