Clinical Pearls in Vitreoretinal Surgery
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List of Abbreviations (Condition)
- EMM = Epimacular Membrane (ERM = Epiretinal Membrane)
- MH = Macular Hole
- FTMH = Full Thickness MH
- LMH = Lamellar or partial thickness MH
- CNV = Choroidal Neovascular Membrane
- AMD = Age Related Macular Degeneration
- DME = Diabetic Macular Edema
- DDME = Diabetic DME
- SCR = Sickle Cell Retinopathy
- PVR = Proliferative Vitreoretinopathy
- RRD = Rhegmatogenous Retinal Detachment
- TRD = Traction Retinal Detachment
- VitH = Vitreous Hemorrhage (VitH)
- RT = Retinal Tear
- GB = Giant Break
- PVD = Posterior Vitreous Detachment
- IOFB = Intraocular Foreign Body
- PDR = Preoperative Diabetic Retinopathy
- NPDR = Nonproliferative Diabetic Retinopathy
- DMI = Diabetic Macular Edema
- IVL = Intravitreal Lucentis
- IVE = Eylea
- IVT = Intravitreal Injection
- IVA = Intravitreal Avastin

List of Abbreviations (Procedure)
- A/SX = Air Silicone Exchange
- CSB = Circumferential Scleral Buckle
- C3F8 = Octafluoropropane, Perfluoropropane
- EPC = Endophotocoagulation
- Endo-PRP = Endo Panretinal Photocoagulation
- EUA = Examination Under Anesthesia
- F/GX = Fluid Gas Exchange
- FMP = Forceps Membrane Peel
- PFO = Perfluoro-N-octane, Perfluoron, Perfluorocarbon
- SBEB = Scleral Buckle with Encircling Band
- SMS = Submacular Surgery
- SF6 = Sulfur Hexafluoride
- PPV, TPV = Trans (old) Pars Plana Vitrectomy
- PPC, PPL = Pars Plana Capsulectomy
- PFO = Perfluoro-N-octane, Perfluoron, Perfluorocarbon
- PVR = Proliferative Vitreoretinopathy
- ROP = Retinopathy of Prematurity
- PHPV = Persistent Hyperplastic Primary Vitreous
- NVG = Neovascular Glaucoma
- NVD = Disc NV
- NVI = Iris NV
- NVM = Neovascular Membrane
- SMM = Submacular Membrane
- IOL = Intraocular Lens Implant
- CME = Cystoid Macular Edema

PPV
- Pre-Op exam
  - Criterion for SX
- Intra-operative Issues
  - Basics of SX (video clips)
- No Suture
- Post-operative Care
  - Retina SX vs. Cataract Surgery!
- Complications
- Prognostic Markers and Outcomes!
- Co-management Issues
  - Surgical cases vs. chronic care patients

PPV indications
- Macular Disease
  - EMM/VMT
  - MH
  - CNV, SMM (SMS)
- Retinal Vascular Disease (VH)
  - PDR
  - VH
  - TRD
  - EPM (for/for)
  - SCR
  - CNV, BRVO
  - NVI (WVO)
  - RRD
  - VS, Pneumatic
  - VS, SB
  - Vitreous Substitutes
- Endophthalmitis
- Cataract Surgery Complications
  - Dislocated lens or IOL
- Trauma
  - Penetrating Injuries
  - Inadvertent Penetration
  - IFR
- Miscellaneous
  - Floaters, Astroids
  - Vitritis, Ocular inflammation
  - Diagnostic Vitrectomy
  - VH other etiologies
  - ROP
- PHPV

PPV Complications
- Cornea
  - Inflammation
  - Iris Neovascularization
- Glaucoma
  - Epiretinal Membrane (ERM)
- Air, Gas, Silicone Pupillary Block, PFO
  - Neovascular
  - Silicone
- Endophthalmitis
- Retinal
  - CNIE (likely much more common in cataract surgery than PPV)
  - Vascular Occlusion
  - RT or RRD
  - Non-RhegRD
  - Loss of Best Vision
- Choroidal Detachment (non vs. hemorrhagic)
- Hemorrhage
- Cataract
- Suture Related
Case Selection and Expectations

- Criteria for surgery depends on the disease as well as...
  - Patient's systemic condition status
  - Symptoms (e.g., metamorphopsia)
  - Status of the fellow eye
- Prognostic Markers
  - Pre-op VA
  - Duration of condition
  - Coexisting disease
  - Established permanent tissue loss.

Vitreomacular Interface Management

- Increased incidence as other aging related conditions...
- More active seniors
- Advances in OCT imaging
- Advances in small incision vitrectomy

Vitreomacular interface repair

- ILM Peel
  - ILM basement membrane of Mueller cells. Cellular proliferation is involved in these conditions
  - Staining
    - Triamcinolone (Kenalog)
    - ICG
    - Trypan Blue
    - Brilliant Blue G 250 (BBG)
      - AKA Acid Blue 90, Coomassie brilliant blue
      - Protein staining for biologic testing

VAM-VMT

- Vitreomacular Adhesion
  - Common finding in an aging eye
  - Usually asymptomatic
  - Uneven PVD
  - Spontaneous resolution or progression to VMT
- Vitreomacular Traction
  - Photopsia, Metamorphopsia, VA loss
  - Best diagnosed with OCT
  - Leading to MH
  - Treatment: Observation, Ocriplasmin (Jetrea), PPV
    - Jetrea is a proteolytic enzyme indicated for treatment of symptomatic VMA

EMM

- Pre-Op Exam
  - Photo and OCT
  - FA (Not necessary unless...)
- Non-Urgent Referral
- Surgery Criterion
  - Symptoms (e.g., metamorphopsia)
  - OCT findings (Anatomic changes)
- Prognostic Markers
  - Pre-op VA
  - Duration
  - Other coexisting conditions
Macular Hole

- Pre-Op Exam
  - Photo and OCT
  - Watzke’s light
  - Red Free
  - Non-Urgent Referral
- Surgery Criteria (MH Spectrum)
  - FTMH
  - LMH
  - Patient’s Physical Limitations
- Prognostic Markers
  - MH Size
  - Duration
  - Patient’s Compliance to Head-down Position
  - Other Coexisting Conditions
    - Tumors

Retinal Vascular Disease

- PDR
  - VH (most prevalent indication)
  - TRD (macular involved)
  - DME (PDR/NPDR)
- SCR
- RVO
- NVI (NVG)

PDR- (VH, TRD)

- Urgent Referral
  - NVI
  - RRD

VH

- Indications for timing of PPV
  - TRD a/o RRD
  - NVI
  - Monocular Patient (good eye involvement)

Rhegmatogenous Retinal Detachment

- PVD
  - W/ or W/O preexisting factors
    - RT,..., RRD
    - Pre-existing
      - Lattice
  - Non-PVD
    - Atrophic hole...

RRD vs. Retinoschisis
RRD_ Referral and Treatment timeline

- Duration of symptoms
- Status of the Macula

RRD_ Treatment options

- Location and extend of RRD
- Location and number of RTs
- Lens status
- Pre-existing conditions

RRD_Pneumatic

- Superior RRD, (One RT, 10-2 o'clock)
- Cryopexy vs. laser

RRD

- PPV
- F/GX
- EPC

RRD-PPV FGX

Inferior RRD

- Scleral Buckle
  - Numerous Issues
- PPV, PFO
Silicone

- Difficult RRDs
- PVR

Silicone Emulsification and Glaucoma

Recurrent RRD

Inoperable RD

- NLP

Choroidal

Lens and Cataract Surgery Complications - TPPL

- Intraoperative broken posterior capsule
  - High risk for, CME, endophthalmitis, retained cataract fragment, vitreous traction, RD, displaced IOL position.
  - Dropped nucleus
- Dislocated IOL
- Complicated Cataract
  - Loose zonules
Endophthalmitis

- Endophthalmitis Vitrectomy Study (EVS)
  - Routine, immediate vitrectomy not necessary for patient with better than LP vision (worse than HM)
- Immediate Tap and Inject broad spectrum antibiotics

Ocular Injuries

- Work and home-related
- MVA
- Fireworks and gun related
- Recreational activities
- Immediate PPV should be avoided unless certain IOFB

Open Globe- Laceration IOFB

- External injury clues
- Inferior location
- No View of fundus
  - X-ray or CT orbit (no MRI)

Asteroids

- Usually no impressive symptoms
- Not indicated unless
  - Obscuring view or treatment of coexisting pathology

Uveitis and Vitritis

- Role of PPV in chronic uveitis
- Diagnostic vitrectomy for cases unable to identify etiology
- Severe enough compromising vision
VH other etiologies

- Pre-existing (diagnosed or undiagnosed) CRVO BRVO
- Sickle Retinopathy and other vaso-occlusive disease
- PVD with VH
  — Difficult to R/O RT