Vitrectomy Surgery for Proliferative Diabetic Retinopathy

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Review Question

• What is a possible risk to vitrectomy surgery?
  – Endophthalmitis
  – Retinal Detachment
  – Cataract
  – Choroidal Hemorrhage
  – All of the above
Review Question

• What are the best locations for the working sclerotomies in vitrectomy?
  – 3 and 9 o’clock, 3 mm posterior to limbus
  – 10 and 2 o’clock, 5 mm posterior to limbus
  – 11 and 1 o’clock, 3 mm posterior to limbus
  – 12 and 6 o’clock, 5 mm posterior to limbus
What is the best way to prevent post op retinal detachment?

- Use wide field viewing device
- Ophthalmoscopy with Scleral depression at end of every case
- Low aspiration/ vacuum during vitrectomy
- Avoid the vitreous base with cutter
Review Question

• Indications for vitrectomy in PDR include which of the following:
  – Non clearing vitreous hemorrhage
  – Macular pucker associated diabetic macular edema
  – Tractional retinal detachment
  – All of the above
Indications for Vitreous Surgery

- Diabetic Retinopathy
- Macular Degeneration
- Retinal Detachment
- Macular Hole
- Macular Pucker
- Vitreous Opacity
- Vitreous Infection
Risks of Vitrectomy

- Infection/ Endophthalmitis
- Retinal Tear
- Retinal Detachment
- Choroidal Effusion or Hemorrhage
- Cataract
- Glaucoma (after gas tamponade or VH removal)
- Anesthesia Block Related
Essentials of Vitrectomy

- Pre-op Evaluation
- Adequate Anesthesia
- Sterile Prep and Technique
- Surgical Assistant
- Proper Sclerotomy/ Wound Placement
- Intraocular Visualization
- Control Any Intraocular Bleeding
- Tight Wound Closure
- Post op Evaluation
Indications in Proliferative Diabetic Retinopathy

- Non clearing vitreous hemorrhage
- Tractional retinal detachment
- Macular pucker associated with diabetic macular edema
Goals Vitrectomy in PDR

• To remove vitreous hemorrhage
• To treat or prevent retinal detachment
• To treat underlying ischemic pathology
Vitreous Hemorrhage: Symptoms

• Shower of dots or floaters
• Vision may decrease to light-perception only
Vitrectomy

Before

After
Diabetic Retinal Detachment

• End-stage disease of proliferative diabetic retinopathy

• Fibrous tissue from new vessel growth contracts and detaches retina

• Results in permanent loss of vision if uncorrected and macula involved

• Treated with vitrectomy techniques
Vitrectomy for Diabetic Tractional Detachment

Before

After
Macular Pucker Removal and Diabetic Macular Edema

- Macular Pucker will often exacerbate diabetic macular edema
- Removal of macular pucker can lessen burden of intravitreous injections or focal laser
Safety Techniques

• Confirm Intraocular Placement of Infusion
• Maintain Intraocular Spatial Orientation
• Control Intraocular Pressure (too high/too low)
• Avoid Iatrogenic Trauma (Tears/Cataracts)
• Check Wound Integrity
• Visualize Periphery at Conclusion of Every Case
  – Scleral Depressed Exam
• Post-op Instructions with Contact Information
Patient 1

- 80 y/o F
- C/o blurry VA OS for 3 months
- VA OS: HM
- Dense Vitreous hemorrhage from suspected PDR OS
Patient 1

- Assess fellow eye to anticipate level or degree of pathology in surgical eye.
Patient 1

• B scan ultrasound: to assess for retinal detachment, choroidal mass, choroidal detachment, and density of vitreous hemorrhage.
Patient 1

- Consent with discussion of risks and benefits
- Consider pre-operative anti-vegf injection (Avastin)
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