REFER OR RELAX:RETINA

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Lattice Degeneration

- 5-10% in General Population
- Found in 30% of all RD cases

- But, less than 1% of all lattice results in RD!!
  - Byer NE. OPHTH 1989. 0.7% over 10 years

Lattice Degeneration

- Circumferential oval lesions often with thin white blood vessels
- Pigment can vary
- Vitreous adhesion at borders
- Syneretic vitreous overlying the lesion itself
- Can have atrophic round holes without operculum typically towards end of lesions
  - Occur up to 30% of the time

Lattice Degeneration

- Most common in Superior and inferior retina
  - 2/3 cases from 5-7 or 11-1 o'clock
- Typical lesion size
  - ½ to 2.5 DD in width
  - 1-4 DD in length
- Average numbers of lesion per eye: 2
  - Range: 1-19
- Bilateral in >>50% of cases

Lattice degeneration

- Most new cases discovered from 10-20 years of age
- May have hereditary component
- No apparent gender or race bias

Risk Factors

- Myopia > 3D, especially if < 30.
- Myopia > 6 D at any age
- Fellow eye has RD
- Family history of RD
- Symptoms
- Presence of traction
- High risk behavior

Follow up

- Lattice as only sign/symptom
  - Scleral depression
  - Pt ed.
  - RTC 1 year
- Lattice with symptoms of flashes floaters
  - Reexamine q 6 mos
  - Repeat DFE/scleral depression
  - Pt ed

Follow up

- Lattice with holes but no risk factors
  - Scleral depression
  - Pt ed
  - Rtc 6 mos
  - Sooner if young myope, myope > 5 D, inferior holes, or adhesion
- Lattice with risk factors for RD
  - Consider retinal consult
- Lattice with breaks at margin of lesion
  - Consider retinal consult

Retinal Breaks

- Occur in 3 to 7% of adult population
- Usually asymptomatic
- 1-2% with breaks progress to detachment
- Risk factors include lattice degeneration, high myopia, atrophic holes, aphakia/pseudophakia, and trauma

Horseshoe tears

- Common locations
  - Near lattice
  - Near pigment clumps
  - Near chorioretinal scars
- Worst locations
  - Superior
  - Near equator
  - Close to posterior pole

Treatment

- Laser treatment is used to seal the break by creating adhesion between the retinal tissue and underlying RPE
- Provides barrier to continued enlargement from vitreo-retinal traction and prevents accumulation of subretinal fluid
- Adhesion present 24 hours after surgery, and strengthens over several days

Procedure

- Topical or retrobulbar anesthesia
- Entire lesion should be enclosed by at least 3 rows in a honeycomb pattern

Follow-up

- RTC 1-2 weeks after laser for symptomatic tears
- 3-4 weeks for asymptomatic
- If large or superior, RTC even sooner
- If enlargement or new subretinal fluid, retreat with 1 week follow-up
- RTC 6-8 weeks after initial follow-up
- Yearly thereafter

Complications

- Few complications
  - inadequate burn intensity, causing ineffective adhesion
  - possible CNVM
  - intraretinal hemorrhage
  - vitreous hemorrhage
  - ERM formation

Operculated holes

- Round, red hole with overlying free operculum attached to vitreous
  - Operculum often appears smaller than hole
- Minimal risk as no traction
- Treatment sometimes
  - High myopia
  - Aphakia
  - h/o RD in the fellow eye
  - Other factors

Atrophic Retinal Holes

- Small round, red hole w/o operculum
  - May have surrounding pigment
  - Occasional edmea
- 2-3% of general population
- Most often in vitreous base
- Found in atrophic retina, perhaps 2^0 to vascular insufficiency

Atrophic Retinal Holes

- No traction
  - Minimal risk of detachment
- Asymptomatic holes
  - Yearly
  - Pt ed
- Asymptomatic with surrounding edema
  - Follow more closely
- Symptomatic
  - Consider consult
- Other associated issues
  - As warranted
- Rarely treated

Treatment of Asymptomatic Lesions

Lesion	Phakic	High Myopia	RD etc in other eye
Atrophic hole	No	No	Rarely
Operculated hole	No	Rarely	Rarely
Lattice with or without hole	No	Rarely	Sometimes
Flap tear	Sometimes	Sometimes	Usually

Treatment of Symptomatic Lesions

Lesion	Treat
• Horseshoe tears	• Yes
• Operculated holes	• Rarely
• Atrophic holes	• No
• Lattice w/o holes	• No
• Lattice with holes	• Sometimes

RD

- Rule-of-thumb:
  - For macula off RD, want to get it repaired in same amount of time it has been off
  - So if off for 4 days, best to try repair within 4 days!
- Macula on RD is emergency!
  - Same day referral to retinal specialist
  - **Remind pt NPO until sees specialist in case same-day surgery**

Retinal Detachments

- Rhegmatogenous RD occur when liquefied vitreous fluid enters the sub-retinal space through a full-thickness retinal break.
- Occurs in 1/100,000 per yr
- Treatment options include scleral buckle, pars planar vitrectomy, and pneumatic retinopexy

Retinal Detachments

- Many factors go into selecting which procedure is best for patient
  - Phakic/pseudophakic
  - Location of tear
  - Size of tear
- Experience of retinal surgeon is essential!
  - Do your homework!

PVD

- Really no consensus
- Symptomatic PVD without retinal break
  - AOA:1-2 weeks
  - **AAO: depending on symptoms, risk factors and clinical finings:**
    - **1-6 weeks**
    - **Then 6 mos to 1 year**
  - Cleveland Clinic: 4-6 Weeks
  - Others: if no heme or other issues, very low risk so no need to see to back

PVD

- Floaters are typically most common symptom
  - Cobwebs
  - Files
  - Hairs
- Flashes
  - Indicative of traction on retina, but not necessarily a tear or break

The Vitreous Humor

- Vitreous attached most firmly at
  - Macula
    - VMT
  - Vitreous base
  - Around optic nerve head
    - Weiss' Ring
  - Also, some traction on blood vessels
    - Vit heme

Incidence of PVD

Age	Incidence
>30	RARE
30-59	10%
60-69	27%
>70	63%
>80	75%

- 65%>65 HAVE A PVD

Incidence of PVD

- Incidence may be accelerated by
  - Myopia
  - Trauma
  - Prior vitreoretinal disease
  - Surgery
  - Inflammation
- Symmetrical 90% of the time
- Happens to second eye with 1-2 years

PVDs

- Good News:
  - Retinal Tears/Breaks *Relatively* uncommon
    - One study: only 7-15% of symptomatic PVDs have a retinal break
- Bad news:
  - 7-15% have a retinal break

Risk Factors

- Hemorrhage
  - 90% have break
- Inflammatory cells
- Pigment
  - Schaeffer's Sign
    - Indicates break is possible

PVD: Take Home

- DFE WITH scleral Depression!
- Council patient on signs and symptoms of RD
  - Increase in floaters
  - Increase in flashes
  - Sudden loss of vision/ curtain over eye
- RTC ≈6 weeks as long as FLASHES are present
  - Sooner if heme or high risk
- 6 months to 1 year after
- DOCUMENT! DOCUMENT! DOCUMENT!

CHRPE

- Unifocal lesion typically appear as flat, pigmented round lesions with distinct margins
- Color ranges from light brown to jet black, depending upon amount of melanin
- Often have areas of chorioretinal atrophy within the lesion that appear window like and allow a clear view of the underlying choroid (lacunae)

CHRPE

- Typical size is 2-6 mm, but may be smaller or as large as 14 DD (21 mm)
- Can be located anywhere within the fundus, but about 70% in temporal half of fundus
- No apparent racial predisposition, although reported more in Caucasians
- May be present at birth, with reports in as young as 3 months old

CHRPE

- Lesions are almost always stable in size, but color may change.
  - Very rare instances of enlargement with time
- Typically asymptomatic, and found on routine exam, but large lesions have been shown to have VF defects

CHRPE

- Can also appear as multifocal CHRPE
  - From 3 to 30 lesions, 0.1 to 3.0 mm in size
- Benign, stationary and unilateral in 85% of the cases
- Often called bear tracks

Gardner's Syndrome

- Multifocal CHRPE have been associated with Gardner's Syndrome
  - AKA FAP: familial adenomatous polyposis
  - Familial condition of colonic polyps that may be precursor to colon cancer
  - However, these lesions are bilateral, have more irregular borders, and are often scattered throughout the fundus

CHRPE

- Deferential includes nevi and choroidal melanoma
  - Nevi: nevi are rarely jet black and tend to have more indistinct borders
  - Melanomas tend to be greater than 2mm in thickness, where CHRPE are flat
- B-scan, serial photos and frequent monitoring of assistance

Nevus

- Common, benign tumor of the posterior fundus
- Typically slate –gray or brown in color, with somewhat indistinct borders
  - Often have overlying drusen, which signify chronicity of lesion
- Vary in size from 1/3 DD to as much as 7 DD
  - Flat or minimally elevated, < 2mm

Nevus

- Very common, with prevalence ranging from 0.2% up to 32% of patients
- More common in Caucasian population
- Asymptomatic, and usually found on routine exams
- Management consists of serial photography and frequent follow-up, with ultrasound if needed for more suspicious lesions

Nevus

- TFSOM: To Find Small Ocular Melanomas
  - T: Thickness: lesions > 2 mm
  - F: Fluid: any subretinal fluid suggestive of RD
  - S: Symptoms of photopsia or vision loss
  - O: Orange pigment overlying the lesion
  - M: Margin touching the optic nerve head
    - No factor= 3% risk of converting to melanoma in 5 yrs
    - 1 factor=8% risk
    - 2 or more factors =50% risk

Central Serous Retinopathy

- Common disorder of unknown etiology which typically affects men between age 20 and 45
  - Males to females 10:1
- Serous detachment of neurosensory retina due to leakage from small defect in RPE

Central Serous Retinopathy

- Pt typically presents with fairly recent onset of blurred VA in one eye with a scotoma, micropsia, or metamorphopsia
  - VA typically 20/30-20/70
  - Often correctable with low hyperopic RX
  - Unilateral in 70% of cases

Central Serous Retinopathy

- Appears as a shallow round or oval elevation of the sensory retina often outlined by a glistening reflex
- FA is helpful in providing definitive diagnosis
  - Classic Smoke stack appearance (occasionally)
  - Ink-blot appearance
- OCT shows marked elevation

CSR: Risk Factors

TRADITIONAL
- Male > Female 10:1
- Age: Peak 20-45
- Type A personality
- Stress
- Pregnancy

OTHERS
- Steroid use
  - Oral
  - Topical?
  - Inhaled?
  - Injection?
- Choroidal Thickness
- Sleep apnea?
- Genes?

Central Serous Retinopathy

- 80-90% of pts will undergo spontaneous resolution and return to normal (or near normal) VA within 1-6 mos.
  - >60% resolve back to 20/20
  - Rare to have vision remain < 20/40
- Approx 40% will get recurrence
- CNVM is VERY rare occurrence, but possible

CSR

- **When to worry/refer**
  - If VA worse than 20/70
  - If pt demographics do not support
  - If does not resolve in 6 mos
  - If gets worse rather than better
  - FA/ OCT does not support diagnosis
  - "Just doesn't feel right"
  - Pt is unable to accept vision/prognosis

Treatment

- Observation
- PDT
- Anti-VEGF
- Anti-corticosteroids
  - Rifampin
  - Mifepristone
  - Ketoconazole
  - Spironolactone/eplerenone
  - Finasteride
- Acetazolamide
- Aspirin
- Metoprolol
- H.pylori treatment
- Methotrexate
- Behavior Modification!

LMH

- Symptoms
  - mild metamorphopsia,
  - limited acuity loss
  - stable vision
- Surgery is controversial
  - 25% to 75% improved visual acuity
- Therefore, monitoring seems reasonable

FTMH

- Definition: Full thickness macular hole that affects all macular layers from ILM to RPE
- Size
  - Small: ≤250 um
  - Medium: 250um to 400um
  - Large ≥ 400 um
- Presence or absence of VMT
- By cause
  - Primary: Initiated by VMT (formerly idiopathic)
  - Secondary: from associated disease or trauma

FTMH

- Small holes
  - Small rate of spontaneous closure
  - Very high surgical closure rate (almost 100%)
  - Best response to pharmacologic vitreolysis
- Medium holes
  - High surgical closure rate (>90%)
  - Decent response to pharmacologic vitreolysis
- Large holes
  - High surgical closure rate (75-90%)
  - No response to pharmacologic vitreolysis
  - ½ of all holes are large at time of diagnosis

ERM

AGE	INCIDENCE
< 60	1.7%
60-69	7.2%
70-79	11.6%
80+	9.3%

BLUE MOUNTAIN EYE STUDY, AUSTRALIA

ERM

- Consider surgery if:
  - VA 20/40-ish or worse
  - Symptomatic
  - Visual need of patient
- Make sure you have an experienced surgeon!!

CRVO/BRVO

- Refer if macula edema within 1 week
  - Laser vs. injection in BRVO
  - Injection CRVO
  - Steroids?
- Systemic workup recommended
  - DM
  - HTN
  - Cholesterol panel
  - Carotid Doppler
- Look for NV/NVI/NVA/NVG esp. in CRVO, esp. if ischemic