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 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

- Lamellar Macula Hole OS
  - Also called partial thickness macular hole
- Pt ed.
- Monitor in 3 mos.
- Repeat OCT
- Consider retina referral if worsens

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!!