STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov

Continuing Education Course Approval Checklist

Title: Disease Masquerading as Visual Dysfunction

Provider Name: Marshall B. Ketchum University c/o Dr. John Lee

☑Completed Application
Open to all Optometrists? ☑Yes ☐No
Maintain Record Agreement? ☑Yes ☐No

☑Correct Application Fee

☑Detailed Course Summary

☑Detailed Course Outline

☑PowerPoint and/or other Presentation Materials

☐Advertising (optional)

☑CV for EACH Course Instructor

☑License Verification for Each Course Instructor
Disciplinary History? ☐Yes ☑No

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CONTINUING EDUCATION COURSE APPROVAL APPLICATION

$50 Mandatory Fee

Cashiering and Board Use Only			
Receipt #	Payor ID	Beneficiary ID	Amount
1-3538	5414455	4576474	50

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule, a detailed course outline and presentation materials (e.g., PowerPoint presentation). Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title	**Course Presentation Date**
Disease Masquerading as Visual Dysfunction	05/21/2017

Course Provider Contact Information

Provider Name

John (First) Lee (Last) (Middle)

Provider Mailing Address

Street 2575 Yorba Linda Blv **City** Fullerton **State** CA **Zip** 92831

Provider Email Address jlee@ketchum.edu

Will the proposed course be open to all California licensed optometrists?	☑ YES ☐ NO
Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation?	☑ YES ☐ NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name

John (First) Tassinari (Last) (Middle)

License Number 8873	**License Type** Optometrist
Phone Number (626) 796-3105	**Email Address** jtassinari@westernu.edu

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider 03/30/2017 *Date*

Disease Masquerading as Visual Dysfunction Requiring Vision Therapy

Instructor: John D. Tassinari O.D. Presentation: Lecture
Format: Live CE 2-hour Category: Systemic/Ocular Disease
(Neurological diseases, category NO, emphasized)

Course Description

Binocular vision, accommodation, and overall vision can be the functions through which disease processes and adverse drug reactions manifest. Patients and doctors may be misled that the visual problems are the basis for a vision therapy (VT) workup and subsequent treatment with VT. This course defines and describes an assortment of diseases that presented as potential VT cases. There is particular emphasis on neurologic disease. A case report "grand rounds" format is used. The cases are presented in such a way that audience members can analyze data and make decisions along with the presenter. The diagnoses are not revealed until the end. Adding intrigue to the case presentations is the unabashed inclusion of clinical errors made by the presenter.

Objectives & Learning Outcomes:

1. Attendees will solidify their understanding of how to differentiate between ordinary refractive or binocular dysfunction causing visual symptoms versus underlying disease.
2. Attendees will gain a deeper understanding of autonomic nervous system control of accommodation as it relates to visual side effects of medications.
3. Systemic disease manifesting as binocular/accommodative dysfunction will be better understood by audience members to aid clinical recognition at the primary care level. Anemia, multiple sclerosis, neurosyphilis, and myasthenia gravis will be highlighted.
4. Attendees will elevate their understanding of diseases that can cause reduced monocular best corrected VA in a child. The emphasis will be differential diagnosis of functional amblyopia versus true disease.
5. Strabismus due to malignant neoplasia will be presented in a case-based format to facilitate audience member's vigilance for these serious diseases.

OUTLINE

Disease Masquerading as Visual Dysfunction Requiring Vision Therapy

CASE REPORT; INTERMITTENT EXOTROPIA DUE TO DRUG (METHYLDOPA) SIDE EFFECT

I. 39 yo hypertensive female with diplopia, headaches and visual fatigue
   A. Deficient vergence function with accommodative excess
   B. VT prescribed
II. Autonomic nervous system and accommodation
III. Case report outcome
   A. IXT linked to sympatholytic effect of methyldopa

B. Methyldopa dosage reduction improves symptoms and visual function

AUTONOMIC NERVOUS SYSTEM CAUSE-EFFECT; 4 BRIEF CASE REPORTS

I. Sympatholytic effect of neck injury causes pseudomyopia
II. Cyclopentolate (parasympatholytic) causes increased esotropia
III. Cerebral Palsy, generalized parasympathetic dysfunction, and accommodative dysfunction
IV. Vision ADRs of sympathomimetic stimulant medications for ADHD

CASE REPORT; ACCOMMODATIVE DYSFUNCTION DUE TO ANEMIA

I. 22 yo F with nearpoint blur, asthenopia, & significant visual fatigue
II. Diagnoses: general binocular dysfunction & accommodative dysfunction with significant accommodative insufficiency
III. VT prescribed. Poor progress
IV. Diagnosis and treatment for anemia
    A. Visual symptoms cured
    B. Visual function improves to normal

ACQUIRED BINOCULAR AND ACCOMMODATIVE DYSFUNCTION

I. Systemic disease and binocular/accommodative dysfunction link
II. Rapid fire case reports
    A. 32 yo M with decompensated exophoria secondary to poor rest. VT unnecessary
    B. 22 yo F with binocular and accommodative dysfunction secondary to hypothyroid. VT poor prognosis until hypothyroid cured. Plus add beneficial

CASE REPORT; MARKED ACCOMMODATIVE DYSFUNCTION DUE TO NEUROSYPHILLIS

I. 16 yo F with significant near blur complaint.
II. Marked accommodative insufficiency
III. Abnormal pupils consistent with bilateral Adie's
    A. Mydriasis each eye
    B. Positive reaction to diluted pilocarpine (cholinergic supersensitivity)
IV. Relevant medical history
    A. chronic back pain of unknown etiology
    B. Headaches, under care with neurologist

V .Case Outcome

    A. Report eye findings to neurologist and advise testing for syphilis
    B. FTA – ABS positive
    C. Back pain etiology clarified as tabes dorsalis
    D. +2.25 add prescribed, no VT

2 CASE REPORTS OF INTERNUCLEAR OPHTHALMOPLEGIA DUE TO MULTIPLE SCLEROSIS

I. Both adults present with visual disturbance upon lateral gaze left or right.
II. Both show restriction of adducting eye + nystagmus of abducting eye

III. Case outcomes;
   A. VT not indicated
   B. referral to neurologist, + MS

IV. Internuclear opthalmolplegia
   A. Etiology
   B. Neuroanatomical pathways
   C. Clinical presentation
   D. Differential diagnosis

ACQUIRED STRABISMUS OVERVIEW

I. Pre-existing phoria decompensates

II. Deviation is acquired
   A. Myogenic
   B. Neuroparalytic

CASE REPORT; 9 YO F WITH VARIABLE INTERMITTENT DIPLOPIA DUE TO PEDIATRIC MYASTHENIA GRAVIS

I. Case History
   A. Referred by family OD for VT work-up
   B. Episodic variable diplopia
   C. Exercise induced extreme fatigue

II. Exam normal except for marked endpoint nystagmus

III. Clinical characteristics of endpoint nystagmus

IV. Case Analysis, differential diagnosis of her diplopia complaint

V. Case outcome
   A. VT not indicated
   B. Referral to pediatric neurologist results in diagnosis of Pediatric MG

VI. Pediatric Myasthenia Gravis
   A. Etiology
   B. Clinical presentation
      1. Case history
      2. Eye findings
      3. Eyelid function tests for MG
      4. Compare and contrast with adult MG

ACQUIRED DIPLOPIA OVERVIEW

I. Pre-existing heterophoria or strabismus decompensates

II. Patient acquires a new heterophoria/strabismus

CASE REPORT; 47 YO F WITH ACQUIRED STRABISMUS DUE TO BRAIN TUMOR

I. History & Chief Complaint
   A. diplopia with increasing frequency

B. complex, multifactorial health and wellness history
C. case history, timeline, and medical status
    1. Some information points to longstanding decompensated phoria (benign)
    2. Some information points to new/acquired deviation (ominous)

II. Exam; Intermittent comitant esotropia / non-comitant vertical strabismus
A. Some exam data is consistent with longstanding decompensated phoria (benign)
B. Some exam data is consistent with acquired deviation (ominous)

III. Outcome of case; Left Cavernous Sinus Meningioma

MONOCULAR VISUAL ACUITY LOSS, CHILD

I. Malingering
II. Functional Amblyopia
III. Disease
A. Congenital Eye Anomalies
    1. Myelinated nerve fibers
    2. Hypoplasia of optic nerve with brief case report
    3. Coat's disease with brief case report
B. Acquired monocular eye disease
C. Neoplasia; Retinoblastoma
    1. Epidemiology
    2. Pathophysiology
    3. Clinical presentation
    4. Differential
    5. Treatment options
D. Optic nerve disease

CASE REPORT; 6 YO M WITH POST OPTIC NEURITIS OPTIC ATROPHY MISDIAGNOSED AS ANISOMETROPIC AMBLYOPIA

I. Ordinary amblyopia case history
II. 3.00D of anisometropia, but incorrect eye has poor BCVA
III. Other monocular abnormalities
A. Abnormal color vision
B. + visual field
C. Pale nerve, significant nerve fiber layer loss

CASE REPORT; 7 YO M WITH OPTIC NERVE GLIOMA OS MISDIAGNOSED AS STRABISMUS AMBLYOPIA

I. Variable fixation with OS is confused for strabismus
II. Careful cover test shows no strabismus
III. + optic nerve disease signs
A. +APD
B. + color vision loss
C. + pallor

IV. Referral leads to diagnosis of anterior optic nerve glioma

V. Optic nerve glioma
   1. Pathophysiology
   2. Clinical presentation
   3. Differential
   4. Treatment options

CRANIOPHARYNGIOMA

I. Epidemiology

II. Pathophysiology

III. Clinical presentation
   A. Neurological illness (headache, fever, gait disturbance etc)
   B. Delayed growth
   C. Visual field defects
   D. Reduced best corrected visual acuity
   E. Papilledema

IV. Differential
   A. Psuedopapilledema vs true papilledema
   B. Rapid fire case report of 13 yo M with psuedopapilledema from buried drusen

CASE REPORT; 6 YO F WITH CRANIOPHARYNGIOMA

I. Presents with cc of struggling in school highlighted by poor tracking

II. Small in stature, very active, short attention span, otherwise good health

III. Clinical findings
   A. Poor BCVAs
   B. Visual fields unreliable
   C. Optic nerves appear normal, views compromised because poor fixation

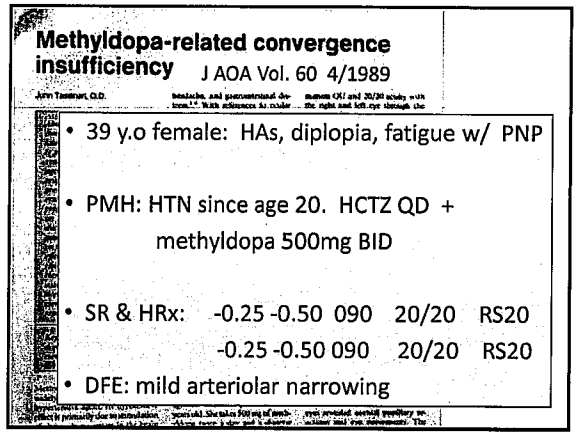
IV. Referral to neurologist because of poor BCVAs results in craniopharyngioma diagnosis

Disease Masquerading as Visual Dysfunction Requiring VT

Asian American Optometric Society
May 21, 2017.

JT Tassinari OD Diplomate BVPPO FCOVD
assoc prof WUCO Private practice Pasadena

No Disclosures / Affiliations



Methyldopa-related convergence insufficiency J AOA Vol. 60 4/1989

- 39 y.o female: HAs, diplopia, fatigue w/ PNP
- PMH: HTN since age 20. HCTZ QD + methyldopa 500mg BID
- SR & HRx: -0.25 -0.50 090 20/20 RS20
  -0.25 -0.50 090 20/20 RS20
- DFE: mild arteriolar narrowing

VT Work-up (HRx in place)

	Findings	Normal
CT	3XP 14 AIXT'	0 3XP'
NPC	20/15/25cm	x/3/5cm
PFV'	8/10/-2	16/21/11
NRA	+1.00	+2.00
PRA	-1.50	-2.25
MEM	plano	+.25↔+.50
BXCYL	-0.50	+.50 - +1.00
Accomm Facil: Fail +/-		8cpm

VT work-up (cont.)

- Red Lens Test: D - normal
  N- diplopia (crossed)
- Stereo: Random Dot normal
  ↓ contour (70")
- AC/A 2.2/1 normal: 5/1

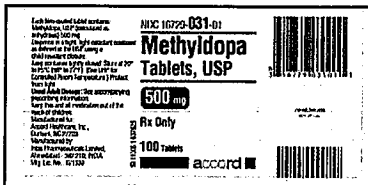
Diagnosis & Plan

- Convergence Insufficiency
- Intermittent XT, low frequency
- Accomm Infacility
- Accomm excess
- CMA
- Plan: VT & continue with HRx
- VT: 10 weekly 1-hour office visits, progr eval on visits 5 & 10, daily Home VT

2nd VT Office Visit – Surprise!

Dramatic reduction in symptoms coincident with ↓ methyldopa. BID → QD

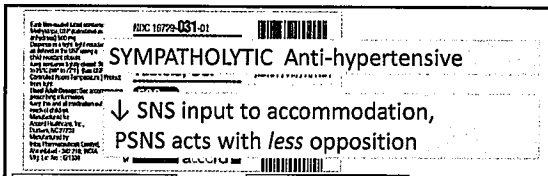
	Pre-VT	2nd VT
ACT'	14 IXT	**8-10 XP**
NPC	20/15/25cm	15/8/25
PFV'	8/10/-2	10/12/6
BXCYL	**-0.50**	**+0.50**
AC/A	**2.2/1**	**3.8/1**



- Centrally acting anti-hypertensive
- Inhibits sympathetic outflow from CNS → Decreased peripheral vascular resistance
- "Sympathotonic"

Autonomic Nervous System; Eyes

	Iris	CB Lens complex
Parasympathetic	constrict	near
Sympathetic	dilate	farpoint
Sympatholytic	miosis	near enhanced + difficulty releasing accommodation



Brainstem
1 diopter of accomm effort → CB Cr. Lens >> 1 diopter of accomm

LESS convergence from AC/A

Effective AC/A ratio *decreases* EXO *increases*

ANS Drugs, Accommodation

	Iris	Accomm
P sympathomimetic Sympatholytic (methyldopa)	miosis	Near enhanced Far more difficult
Sympathomimetic Parasympatholytic	mydriasis	Near inhibited Far enhanced

Cyclopentolate (parasympatholytic) can *increase* Eso deviations

Case Report: Mikey, age 3;10
Intermittent Esotropia
Latent Hyperopia +4.50DS OU

>>> 1 diopter of accommodative effort in brain stem required to yield 1 diopter of accommodation in eye

↑ Accomm *effort* ↑ Convergence
Effective AC/A very high

SYMPATHOMIMETIC
Stimulants (methylphenidate) for ADHD

- Ritalin, Concerta, Metadate, Methylin
- Atomexatine (Stratera) Aderal
- Mydriasis
- Enhance accommodation to farpoint
- Inhibit near accommodation

SA, 22 y.o. F D Hygienist Student

- CC: Blur & asthenopia within 5 minutes of PNP
- PEH: CLs for myopia and near plus
- "My eyes get tired, I get tired, I'm always tired"
- PMH: healthy, no meds. NKA
- 20/20+ with -2.25 Optima FW spheres
- "RS20" each eye at near
- Normal: Stereo, visual fields, color v
- Versions full, pupils normal
- P and A Segs wnl

SA, Binoc/Vergence

0/2XP'

DIV	x/6/1	x/5/3
CONV	2/16/4	9/18/10
DIV'	4/16/8	12/21/11
CONV'	1/10/-2	12/18/10
NPC	25/5/15	x/3/5
V Facil	10cpm	12cpm

SA, Accommodative

BXCYL +.75 +25 - +1.00 MEM +.25 0 - +.50

NRA +1.75 +2.00 PRA -0.50 -2.25

Amps		+/200 AF	
OD	30cm	10cm	Fail – 10cpm
OS	30cm		Fail –
OU	25cm		Fail - 7cpm

SA, Dx & Tx

- Fusional Vergence Dysfunction
- Accommodative Dysfunction (marked AI)

- Begin VT
- Progress Eval #1: (visit 5) Minimal improvement in findings. No improvement in symptoms

SA, VT Visit #8, Surprise!

- Dramatic reduction in visual symptoms with iron dietary supplement

- General physical exam with blood work
- Diagnosis: Anemia
- General fatigue much improved
- Accomm and verg skills MUCH better

Acquired Adult Accommodative Dysfunction

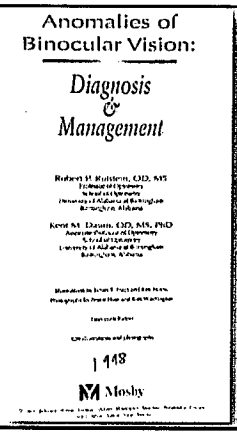
- Functional: accomm detiorates from PNP
- Accomm was previously dysfunctional and increased nearpoint demand causes symptoms to arise
- Previously normal accomm declines because of illness

Acquired Adult Accommodative Dysfunction

Any condition that causes an overall debilitation may also cause accommodative insufficiency"

•Anemia

•Hypoglycemia
•Hypothyroid (young female)



Anemia

- Decreased red blood cells or RBCs have suboptimal hemoglobin
- Delivery of oxygen to cells compromised
- Causes: loss of blood low Vitamin B12
  low iron intake / poor absorption of iron
- Iron from animal foods absorbed better than plant food
- GI distress compromises absorption of Iron and V B12
- V B12 – best source is animal foods. Fortified cereals good
- Alcohol inhibits V B12 absorption
- Vitamin C aids iron absorption

AL, 22yo F, 2nd opinion

- Protracted description of symptoms:

Visual fatigue, blur, HA, awareness of crossing eyes

- Onset 2 years ago. No clear answer if onset coincided with increased PNP
- HRx +0.75 -.25 180 20/20
  +0.75 -.25 180 20/20 +.75 ADD
  Cycloplegic SR = HRx
- Blood Pressure: 125/65
- Normal: Color V, VFs, Pupils, versions,
  IOP P Seg A Seg

AL, Binoc/Vergence

0 / 1 eso'/ 3XP'

DIV	x/6/4	x/5/3
CONV	X/8/3	9/18/10
DIV'	12/18/10	12/21/11
CONV'	X/15/7	12/18/10
NPC	15blur /TN	x/3/5
V Facil	15cpm	12cpm

AL, Accommodative

BXCYL +1.50 +25 - +1.00 MEM* +.75 0 - +.50
NRA +2.25 +2.00 PRA -1.00 -2.25

Amps		+/200 AF	
OD	17cm (6D)	10D	6cpm 10cpm
OS	17cm		8cpm
OU	15cm		Fail - 7cpm

*With Hab in place, through +.75 add

AL, 22yo F Dxs

- Low hyperopia, 100% manifest
- High accomm lag, low EP'
- Fusional Verg Dysfunction
- Accomm Insufficiency
- Accomm Infacility

AL, 22yo F Health & Wellness Qs

(Very thin, skin looks "old" to me. Never removed her scarf or jacket)

Cold Extremities -yes

Skin: dry and itchy

Fatigue: yes

Diet: low appetite, low intake of animal foods

Menstruation: heavy

Constipation: yes

AL Health Summary

Cold extremities Dry skin
Fatigue Low appetite
Constipation.
→ HYPOTHYROID

Hypothyroid can *cause* heavy menstruation

Fatigue
Diet lacks iron and B12
Heavy menstruation
Small
→ ANEMIA

AL, 22 yo F

- **A**: acquired accomm and fusional verg dysfunction secondary to illness

- **P**: Increase near plus to +1.50 add. Defer VT
  Refer for comp physical exam. Blood tests:
  + Low hemoglobin – Anemia
  + Elevated TSH - Hypothyroid

Declined VT. Asked for SV NV Rx

Locus of Illness bases Acc Dysf

- Bilateral and symmetrical
- Other 3rd N involvement absent
- Pyschotropic drugs and accomm dysf (+ and neg accomm)
- Diabetes and accomm studies
- ABI and accomm
- Cortex to E Westph/IIIn pathway?
- Selective vulnerability of Parasympathetic?

IE. 11th grade, age 16, female

- Referred by primary care OD for VT eval.
- Significant near blur despite wearing plus add. + visual fatigue and asthenopia
- Vision complaint: Onset 6 mos ago
- Good student. Is/was very good swimmer

- PMH: complex, onset 9-10 months

IE age 16. Medical Hx. Onset 9-10 mos

- Mom: "she has a condition where they say her body is all tied up in knots". Back, hips, shoulders, neck. Multiple MDs involved
- Pain/sore and weak
- Lupus and fibromyalgia ruled out
- +Migraine headaches
- Failed: Acupuncture, chiropractic, massage therapy, muscle relax drugs, pain relievers

IE. 11th grade, age 16, female

- Significant near blur
- Hab Rx -.50DS 20/20-- +1.25 RS40
  -.25DS 20/20-- +1.25 RS40
- Normal Findings

Visual Fields Color Vision Versions Cover Test
Vergence Tests "D"FE

- Slit Lamp: Mydriasis, minimal constriction
  omission:

Accomm + Pupil Tests

- MEM: +2.00 BXCYL: +2.25
  unaided +2.00
- Monoc push-up amps:
  Target at 1 M wearing +1.00 add (0 demand)
  OD: blur at 95cm pupil unchanged
  OS: blur at 95cm pupil unchanged

- Mydriatic pupils, poorly reactive to light
- Prompt vigorous miosis and improved near VA 5 minutes after diluted pilocarpine instilled

IE. 11th grade, age 16, female

A:
Significant acquired accomm dysfunction (AI)
+ Bilateral mydriatic poorly reactive pupils
Bilateral internal ophthalmoplegia

- Back pain (variant of tabes dorsalis?)
- Sexually active

P: Needs r/o neurosyphilis

- Englestein ES, Ruderman MI, Trojano RA, et al: Dilated tonic pupils in neurosyphilis. J Neurol NeurosurgPsychiatry 1986;49:1455–1457.
- Fletcher WA, Sharpe JA: Tonic pupils in neurosyphilis. Neurology 1986;36:188–192.
- Sakai T, Shikishima K, Mizobuci T, et al: Bilateral tonic pupils associated with neurosyphilis. Jpn J Ophthalmol 2003;47:368–371.
- Yakashi S, Ohshima J, Yonekura J, et al: **A case of early syphilis presenting general paresis-like symptoms and bilateral tonic pupils.** Rinsho Shinkeigaku 1992;32:994–999
- Zeligs MA, Joseph GF: Unilateral internal ophthalmoplegia: sole clinical sign in patient with syphilitic meningitis. Arch Neurol Psychiatry 1945;54:389–390.

Internal ophthalmoplegia: AI + Mydriasis

ACUTE

Idiopathic, unilateral	Bilateral
Later becomes "Adies Tonic Pupil"	Suggests disease
	Not to be confused w/ Argyll Robertson

- Mydriasis
- Poor light rxn
- Pupil reacts to accomm but is slow to do so and stays miotic

Acquired Binoc Dysfunction

- Acquired Deviation

- Acquired (loss) of fusional vergence

Pre-existing deviation decompensates

Likely to be associated with an illness. Case report

Phoria / low normal. Acquired fusional vergence dysfunction

Very likely to be associated with an illness (& accomm dysf)

WQ, age 32, male

- Intermittent Diplopia x 3 mos "I can't control it"
- D worse than near. Worse end of day
- Coincident with successful conclusion of CRT / ortho K
- Referring OD confirms longstanding exo
- PMH: negative. Very healthy

WQ age 32 Binoc/Vergence

25 IXT / 25 IXT'

DIV	x/30/25	x/7/4
CONV	x/8/-10	9/19/10
DIV'	x/30/25	13/21/13
CONV'	4/10/0	17/21/11
NPC	x/10/25	x/5/7
V Facil	0 cpm	15cpm

Stereopsis: Normal
Red Lens: fused

V pattern o/w comitant

WQ age 32, Accommodation

MEM +.25 0 - +.50

NRA +1.75 +2.00 PRA -1.25 -2.25

Amps		+/200 AF	
OD	5D 7D	11cpm	11cpm
OS	5D	11cpm	
OU	-	12cpm	10cpm

WQ age 32 restaurant owner, A & P

A:

- IXT Basic Exo, low vergence skills + SPs
- Mild Accomm Insufficiency (no symptoms)
- Medical Hx rules out decompensated phoria

Plan:

Rx VT 6+ 1 Ptnt Educ Re Prognosis....

"Excuse me Dr. I have to tell you something"

WQ age 32 restaurant owner, A & P

PMH: ~~healthy~~ + inadequate rest. Diplopia onset coincides with inadequate rest

A:

- IXT Basic Exo, low vergence skills + SPs
- Mild Accomm Insufficiency (no symptoms)
- Medical Hx ~~rules out~~ suggests decompensated phoria and acquired AI that has begun to improve

Plan:

HVT now. Follow-up in 1 month

Phone call 6 weeks later: Diplopia gone

MC, 31 WF

"I see double when I read and I also get dizzy"

During versions, gaze left... "That's the problem, when I read and look that way, that's when it happens"

VH, 21 M

"I can't look to the side. I walk down the hallway and I can't look. I have to turn my head"

Me, "Do you see double?"

"It moves, it doubles, I just can't look to the side"

MC 31 WF	VH, 21 M
• Versions abnormal* on gaze left	• Versions abnormal with right or left gaze. Extreme HM
• NPC normal	• NPC (?)
• All other findings normal	• All other findings normal

MC, 31 WF Versions

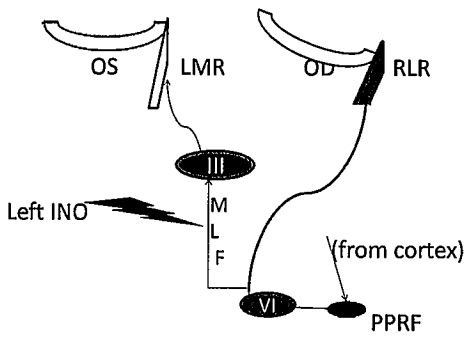
- Left Gaze: variable XT, LE shaking left and right. OD lagging
- Right Gaze: looks grossly normal
- Red Lens: crossed diplopia in R and L gaze
- Lateral gaze XT left *and* right

MS & Internucluear Ophthalmoplegia (INO)

- Medial Longitudinal Fasiculus (MLF) in brain stem inflamed "MLFitis"
- MLF: dense myelination
- MLF: communication tract for EOM nuclei (hence, internuclear)

MS & Internucluear Ophthalmoplegia (INO) aka MLFitis

- Disrupted horizontal conjugate gaze, esp saccades
- Adducting eye restricted - XT w/ Diplopia
- INO on side of adducting eye
- Abducting eye - nystagmus (pendular) w/ oscillopsia



MLFitis continued

- Vertical eye movements
- Bilateral INO is classic MS
- 30% of MS will have INO
- Optic neuritis is first demyelinating event in 20% of MS. MLFitis less (5%?)
- DDx: tumor, vascular occlusive disease, trauma, 3rd nerve paresis

Acquired Strabismus

Myogenic

Thyroid, injury, M Gravis, orbital disease

Neuroparalytic

III down & out, ptosis, pupil

IV Vertical deviation (hypertropia on affected side)

VI Esotropia

INO

Supranuclear

IP, 9 yo F 3rd Grade. Good student

- Cc: "sometimes she sees double, does she need eye exercises?" Onset: this school year
- Cover Test D: 0 in all gazes. N: 3xp
- Vergence: normal
- Accomm: normal T I O
- VAs, Pupils, VFs, Color V: normal
- P and A Seg: normal T I F
- Saccades: normal
- Versions: Full, > Avg endpoint nystagmus

Endpoint Nystagmus aka physiologic nystagmus

- Small amplitude high velocity jerk nystagmus at extreme end of horizontal gaze (sometimes vertical)
- Universal
- R ≠ L common
- Exaggerated by hypoglycemia or booze
- Marked EPN & infantile ET
- Can be associated with IPs Dx

Diplopia Characteristics: Onset 2 mos ago

Associated with specific task? NO
specific viewing D?

Geography: variable

Frequency: erratic

Duration: "like 1 second" to 20 minutes

Question(s) I forgot to ask

Health & Wellness Hx. IP 9yo Girl

- No meds, no allergies, no asthma
- Diet/Sleep: normal, good
- Unusual fatigue: mom "no" very active
- IP: "no, mom, remember that 1 time I told you that at recess I got so tired I had to rest?"
- Me: "after you rested, what happened?
- IP: "I felt good, I could play again"
- Recurrence? "Like once or twice"

Diplopia DDx

- Intermittent Strabismus: NO. Cover Test normal
- Fusional Vergence dysfunction: NO, ranges etc normal
- Faking it:
- Neurological Dz:

Faking vs True Neuro Dz

	Faking	Neuro Dz
Her personality	√	
Endpoint Nystag		√
Her description of diplopia		√
Her description of fatigue		√
QIFTA TIF		

IP, 9 yo girl. Neuro Dz suspect
Plan: refer to pediatrician. request neurological workup

DX: Juvenile MG

- Myasthenia Gravis: autoimmune disease
- Antibodies attack postsynaptic membrane at neuromuscular junction

JUVENILE MG

- Varying degrees of painless muscle weakness and fatigability
- JMG: **Most frequent presentation is ptosis**
- Binoc/EOM (variable intermittent *deviation*),
- Accomm
- voice, swallowing, limb
- Weakness worse end of day. Improves with rest

M Gravis Eyelid testing

- Case History for variable intermittent uni or bi lateral ptosis
- Sustained upgaze (2 min) induces ptosis
- Cogan's Lid Twitch: downgaze 15 sec then upgaze, eyelid(s) twitch
- Ice Pack Test for presenting or induced ptosis

M Gravis Epidemiology

- Juvenile MG is rare <20 per 100,000
  Norway: Incidence 1.6 / 1 million per year
- Pre-pubertal Male = Female
- Pubertal & Adult: F > M 4.5:1

Presents as Ocular MG

- Pre-pubertal Caucasian: 40%
- Pre-pubertal Chinese: 75%
- Pubertal: 9-16%
- Adult: 28%

M Gravis Epidemiology

Ocular MG *progresses* to Generalized MG

• Pre-pubertal Caucasian: 40%	8 – 15%	
• Pre-pubertal Chinese: 75%		
• Pubertal:	9-16%	25 – 45%
• Adult:	28%	79%

M Gravis Course & Prognosis

	Severity	Spontaneous Remission	Response to Therapy
PRE-PUBERTAL	mild	OFTEN	GREAT
PUBERTAL	moderate	sometimes	good
ADULT	bad	infrequent	mediocre

Non-ptotic ocular myasthenia gravis: a common presentation of an uncommon disease

Colavito J, Cooper J, Ciuffrieda KJ
J AOA 2005 76 (7)

- Ocular MG w/o ptosis: Dx is elusive
- Accomm & verg worse with with repeated testing and/or at end of day
- Unequal amps, 2nd eye worse. Case 2
- VT makes symptoms + accomm and vergence findings *worse*
- Home sleep or ice-pack test

Acquired Diplopia

Pre-existing Deviation	Acquired
Decompensates (WQ)	Deviation
Usually comitant and	Usually non-c
Intermittent .	& constant
Any Illness	Neurologic DZ
Higher PNP Demand	
Senescence	

LB 47 yo WF Post Lasik (2010) Emmetropia, Presbyopia
July 2011 +200s OTC

- "My left eye is drifting in. When it does, I see double"

Near: No, not if SRx in place.
D: Yes, conversation and beyond

- Frequency: Daily "a lot", *increasing*
- Duration: seconds, less than a minute
- Geography: Unsure
- Onset (1): 2004 (age 40)during bad bronchitis. self-resolved
- Onset (2) : 2008. Had neuro/MRI → neg

LB 47 yo WF Post Lasik (2010) Emmetropia, Presbyopia
+200s OTC

- VAs, VFs, C Vision, Pupils NORMAL
- Versions NORMAL, incl EPN
- (TIF) ??
- P Seg (optic discs) NORMAL
- Sensory fusion: NORMAL (no suppression)

LB 47 yo WF

DX = intermittent left ET and left hypertopia

UCT/UCT'
usually no movement
sometimes OS moves down and out

ACT
ESO deviation = D: 15BO in all gazes
N: 4BO, SRx on
Hyper deviation = 9BD OS 7BD OS 5BD OS
R 1° Gaze L
L Shoulder: Worse

DX= Comitant Intermittent L ET. DI?
Non-com Intermittent L Hypertropia, Left 4th N

LB, 47 yo Health Hx.

Diplopia Onset(2), 3 years ago. Getting worse

- Chronic pain past 3 years. Vicodin daily. Motrin as needed
- Back surgery 2 years ago
- Hysterectomy 1 year ago
- Hypoglycemia
- Dry skin, weight gain, cold extremities
- Poor sleep, chronic fatigue
- Convincingly denies diplopia prior to age 40

LB, Intermittent Strab w/Acquired Intermittent Diplopia

Pre-existing Deviation	Acquired
Decompensates	Deviation
LBs health history	No diplopia < 40,
Previous Neuro was neg	large deviation
Not Constant or acute onset	
Comitant Eso per ACT	Eso: spread of comitancy
Could be congen 4th N	Non-comitant Vertical (4thN)

LB 47 yo WF A & P

Acquired intermittent diplopia: etiology unclear
decompensated eso and hyper versus
acquired deviation

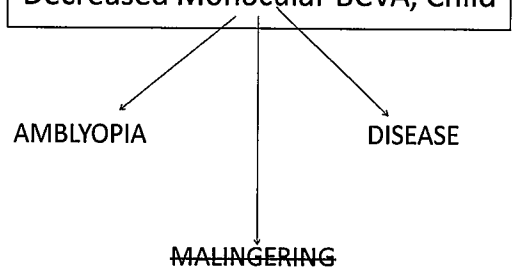
P: Refer to PCP ask for clarification re health status
PCP agreed to refer to neuro-ophthamologist

Outcome: left cavernous sinus meningioma

Cavernous Sinus, Lesions to Cranial Nerves

- Poly neuropathy.
- Non concomitant expected... LB: spread of comitancy. Menigioma slow growing.
- LB: III spared, incl pupil and lid
- V spared
- III and IV are in C sinus lateral wall.
- VI – middle of C sinus

Decreased Monocular BCVA, Child



AMBLYOPIA

FORM DEPRIVATION	FUNCTIONAL
• Input blocked. Ex:	• Input abnormal
• Congenital Cataract	• Anisometropia
• Cornea opacity	• Unilateral strabismus
• Ptosis	• Onset age 6 or younger

DZ causing monoc VA loss, child

- Birth defects, eye
- Acquired
- Neoplasia, eye
- Optic nerve disease

Can *present* as amblyopia and / or unilateral strabismus

AH, age 8;7. 20/400 OS. CLXT. XT onset: "age 2 or 3 years old"

- Hypoplasia of left optic nerve causing poor VA OS
- Also has reduced color v OS
- + A P D OS
- Poor vision causes constant strab.
- This type of strabismus is called sensory strabismus

Congenital Birth Defects, Eye

- Congenital Cataract
- Retinopathy of Prematurity
- Persistent Primary Hyperplastic Vitreous
- Myelinated Nerve Fibers
- Coloboma, pits, hypoplasia of optic nerve
- Coats Disease: Young male with unilateral exudative vascular retinopathy

ACQUIRED Monoc DZ causing VA Loss

- Ocular Toxocara
- CMV
- Toxoplasmosis chorioretinitis
- Histoplasmosis maculopathy

3.NEOPLASIA, Eye - Retinoblastoma

- Malignant tumor of embryonic retinal cells
- Incidence: 1 in 20,000 births
- Onset: birth – 12 months
- Average age of Dx: 17 mos
- Most are Dxd by age 3 years
- Inherited: younger and bilateral

Retinoblastoma Clinical Presentation

- Leukocoria – pearly iridescent 56%
- Strabismus 20%
- Red, painful eye with elevated IOP/Glaucoma 7%
- Poor vision 5%
- Other 12%

DZ causing monoc VA loss, child

✓Birth defects, eye
✓Acquired
✓Neoplasia, eye
• Optic nerve disease
1. optic neuritis
2. optic nerve glioma
3. craniopharyngioma

Pediatric Monocular Optic Nerve DZ

- Optic neuritis: papillitis or retrobulbar
  - meningoencephalitis (bilateral)
  - systemic / dental / sinus infection
  - vaccination sequelae
  - can present as unilateral strabismus
- Optic nerve glioma
- Craniopharyngioma

DS, age 6;4

- Failed vision screening at pre-school (age 5)
- Pediatric OMD diagnosed anisometropic amblyopia LEFT eye
- Treatment: SRx full time and part time direct occlusion of OD..... Minimal improvement
- Cc: "Will VT help?"
- compliant with SRx / occlusion: impossible
- Exam
  poor BCVA OS confirmed (20/60)
  3.50D anisometropia confirmed

DS, age 6;4 Exam (cont.)

Unaided VA	D	N (40cm)
OD	20/20	RS20
OS	20/100	RS60

Subj

+1.75	-.25	180	20/20
-1.75	-.25	180	20/60

DS, age 6;4 Amblyopia Left Eye

Sensory Fusion: Suppress OS
No random dot stereo + Gross Stereo (fly)

Cover Test: No strab

Pupils		normal
Color	OD	normal
Vision	OS	normal (slow)
Visual	OD	normal
Fields	OS	abnormal

DS, post optic neuritis optic atrophy

- RNFL defect
- Superior arcuate and central scotoma
- Abnormal color v OS
- Optic nerve disease, blurred input early in life caused axial elongation myopia OS which caused anisometropia
- Poor cooperation with occlusion explained

DG, age 7. 20/60 BCVA OS. Prior Records

Cyclo +2.50 -1.25 180 20/20
Refraction +2.50 -1.25 180 20/60

SRx +2.00 -1.00 180 Plan:
+2.00 -1.00 180
Cover Test: "small constant left XT"
Sensory fusion: "suppress OS"
Color vision: (n.t.) Confrontation VFs: normal
SRx FT & occlude OD

Follow-up: No improvement. Suspect malingering, refer for VT eval

VT Work-Up 20/60 OS confirmed

- No strabismus with repeated cover test.
- No aniso...
- No amblyopia
- + Color vision loss OS
- + APD OS
- OS: Pale disc secondary to anterior optic nerve glioma

Anterior Optic Nerve Glioma

- Retrobulbar astrocytic fibrous tumor
- Swollen nerve → time → pallor
- Clinical signs: ↓ VA, R/G color, VF defects, + APD
- NON-metastatic. Usually no treatment
- "Posterior" glioma: Located in chiasm.
- neurofibromatosis

Craniopharyngioma

- Anterior pituitary tumor, childhood (2 : 100,000)
- Congenital: manifests infant – age 14
- Non-malignant
- Invasive/compressive
  - Optic chiasm. V Problems
  - 3rd ventricle. Elevated ICP with papilledema
- Compromised growth

DA, age 13. "VT" symptoms despite SRx

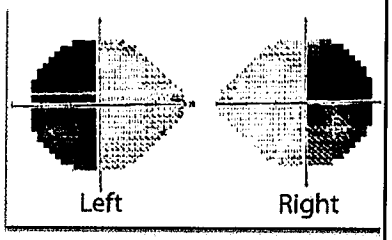
- -0.50- .25 180 20/20 +
  -1.50- .75 180 20/20+
- Mild HAs & variable near blur "getting better"
- PMH: overweight, no meds
- No strab. Versions & pupils normal
- VFs & Color V normal
- Accommodative work-up: Normal
- Vergence work-up: Normal
- False alarm: buried drusen of optic nerve heads

Craniopharyngioma

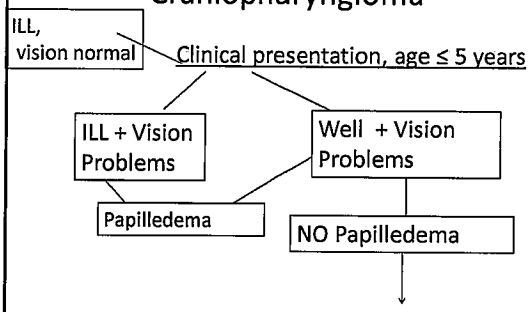
- Anterior pituitary tumor, childhood
- Congenital: manifests infant – age 14
- Non-malignant
- Invasive/compressive
  - Optic chiasm. V Problems
  - 3rd ventricle. Elevated ICP with papilledema
- Growth retardation
- Prompt treatment prevents/minimizes permanent neurological damage

Craniopharyngioma, V Problems

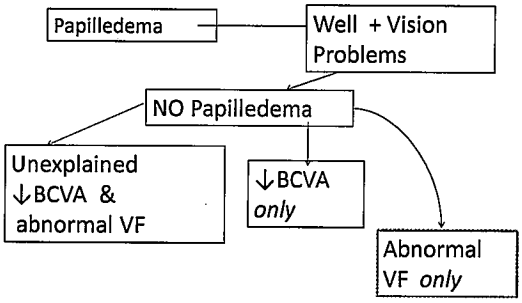
- Unexplained ↓ BCVA, monoc or OU
- Bitemporal VF Loss
- Diplopia



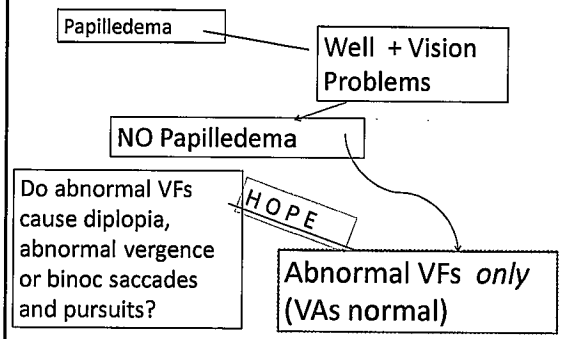
Craniopharyngioma



Craniopharyngioma, clinical presentation

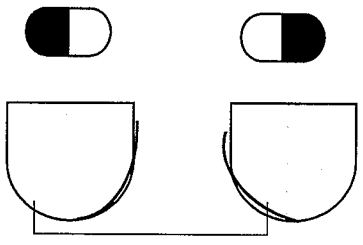


Craniopharyngioma, clinical presentation



Bitemporal VFs and Eye Movements

Each of the 2 normal hemifields is paired with desensitized hemifield. Sensory fusion impaired



JM, 6 y.o. "Poor Tracking"

- Playful, active, short attention span, small stature, repeating K
- My exam UA VA OD 20/40 BCVAs
  Broken Wheel Test OS 20/50

- +.50DS OU, dry and wet, VAs same
- No strabismus (primary gaze)

JM exam age 6 years (cont.)

- NPC normal
- prism bar vergence ranges: unreliable
- Markedly abnormal and erratic saccades and pursuits
- A Seg, pupils, monocular color vision normal
- Confrontations & FDT VFs: unreliable
- Post Seg: "nl to extent seen. Compromised views because of poor cooperation"

JM age 6 Years. A & P

A:

- Reduced BCVAs (attention / effort?)
- Erratic, nystagmus like saccades and pursuits. Unlike those seen in poor effort/attention or OMD
- Short stature

P: Refer to pediatric neurologist

Outcome: Cranial tumor requiring surgery

Disease Masquerading as Visual Dysfunction Requiring VT

Diplomate Preparatory Course

Nov 8 2016

AAO Anaheim CA

Thank You

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Education

Institution	Degree	Year	Concentration
So. California College of Optometry	---	1996	Ocular Disease
State University of NY, College of Optometry	---	1988	Vision Therapy Residency
So. California College of Optometry	O.D.	1987	Optometry
So. California College of Optometry	B.S.	1985	Visual Science
California State Univ. - Northridge	---	1983	Occupational Health

Licensure

California - August, 1987 no. 8873,
New York - February, 1988 no. T004878
California - January, 1997 no. 8873T - Expanded scope of license to treat ocular disease.
California - July 2001 Expanded scope of license to treat glaucoma.
California - May 2012 Glaucoma Certified

Academic Honors And Professional Recognition

Professional Career

Merit Promotion to Associate Professor So. Calif. College Optometry, 06/2013, This promotion is noteworthy because part time faculty rarely achieve the status of Associate Professor
Diplomate, Binocular Vision Pediatric & Perception Section, American Academy of Optometry 12/2006
Fellow, American Academy of Optometry 1991
Fellow, College of Optometrists in Vision Development 1993
Merit Promotion to Assistant Professor, SCCO, 07/1993
Honorable Mention, Best Technical Article. Awarded by Optometric Editors Association. 06/26/1998.
Best Article J Optom Vis Develop 2007
Best Article J Optom Vis Develop 2008
Hillsides Special Recognition Award 2011

Optometry College

Doctor of Optometry with Distinction,05/1987.
Homer Hendrickson Vision Training Award, 04/1987.
Second Place Award for Research, 1987 SCCO Senior Research Symposium.
Auxiliary to the COA Scholarship Award, 04/1986.
Summa Cum Laude Bachelor of Science Degree, 05/1985.
Arab Educational Foundation Scholarship Award, 10/1984 and 10/1985.
Student Membership in Beta Sigma Kappa Honors Fraternity, 08/1984 – 05/1987.

Undergraduate
Dean's List each semester (Fall and Spring) 1979-1983, Cal State Northridge.

Leadership

Vice Diplomate Chair Binocular Vision Pediatric Perception Section of American Academy of Optometry. 12/2010 – 12/ 2012
Diplomate Chair, BVPPO Section AAO. 12/2012 – 12/2014
Section Vice Chair, BVPPO Section AAO 12/2014 - ongoing
California Optometric Association Education and Professional Practices Committee. Member 02/2008 – 01/2011. Chair,02/2011 – 01/2014
Member, Reference Committee for COA 02/2008 House of Delegates
State Coordinator (CA) Infant SEE Program. 12/2004 – present.
Chair, International Examination and Certification Board for the College of Vision Development, 10/2000 to 10/2003.
Student Research Committee, So. California College of Optometry, 08/1994 – 05/2000
President, San Gabriel Valley Optometric Society, 01/1997 to 12/1998.
President - Elect, San Gabriel Valley Optometric Society, 01/1995 to 12/1996.
Political Activities Coordinator, San Gabriel Valley Optometric Society, 02/1990 to 02/1994.
Delegate for San Gabriel Valley Optometric Society at COA House of Delgates, almost yearly 1989-2014
Trustee and Student Liaison Chairperson, Walter O. Studt Foundation, 03/1991 to 12/1998
Co-Chairman, SCCO Alumni Reunion Weekend 08/1992
Secretary, Beta Sigma Kappa Honors Fraternity, 1985-1986
Vice-President, Omega Delta Optometric Fraternity, 1985-1986.
Director, Department of Community Health, SCCO student Association, 1985-1986.

Professional Experience – Practice and Educator

Owner of a private group practice in Pasadena, CA. Full scope optometry with specialty in vision therapy, 07/1989 to 12/2015.
Faculty Member, Southern Calif. College of Optometry 08/1988 – 11/2015. Final assignment was Coordinator of Vision Therapy Services at the Optometric Center of Los Angeles. Duties included clinical supervision of senior optometry students, conducting topical seminars, overseeing the day to day operations of the OCLA vision therapy services, and supervising senior research projects. Rank: Associate Professor.
Assoc Prof, Chief of Pediatrics Western Univ College of Optom. 10/ 2015 - present
Supervisor, SCCO Clinical Externship, 12/1999 to 2005
Clinical Instructor, Extern Site for Western College of Optometry. 4th year students from Western College of Optometry provide direct patient care in my office under my supervision. August 2012-Oct 2015. I also supervised 1st and 2nd years in clerkship program.
Assoc Prof, Chief of Pediatrics Western Univ College of Optom. 10/ 2015 - present

Professional Experience- Profession of Optometry

Expert Examiner, International Examination and Certification Board for the College of Optometrists in Vision Development. This is an appointed position. I evaluated Optometrists who are seeking fellowship in this organization. 10/1998 to 10/2000.

Expert Examiner, National Board of Examiners in Optometry. As an expert examiner for the NBEO, I examine Doctors of Optometry who are seeking State Licensure. 10/1996 to 10/2004.

Journal Referee – Journal of Optometric Vision Development. 10/2004 to 10/2012. This Journal transformed to become *Optometry & Visual Performance* in10/2012. I was asked to join this the review board for OVP and accepted. Concluded 06/2015

Journal Referee – California Optometry. 10/2007 to present

Journal Referee (guest reviewer) *Optometry, J Amer Optom Assoc.* 06/2008 and 01/2011.

Journal Referee Austin Journal of Clinical Ophthalmology. 12/2013 – 2014.

Vision and Learning Consultant – So. Pasadena Unified School District, 04/1999-2015 .

Vision and Learning Consultant – Rosemead Unified School District, 04/2001 to 2015.

Vision and Learning Consultant - Glendale Unified School District, 02/1998 to 2015. I am a vendor, contracted to provide vision testing, vision skill testing, and vision therapy.

Consultant, RC Instruments (VT Equipment), 01/1994 to 04/ 1994.

Visual Consultant - Villa Esparanza Home for Adults with Special Needs, 01/1992 to present.

Visual Consultant - 5 Acres Boy's and Girl's Aid's Society of Los Angeles, 09/1990 to present.

Associate Optometrist, practice of Robert Q. Eastland, O.D. 01/1989 to 06/1989. Full scope optometry including vision therapy.

Research Consultant, Centinela Valley Juvenile Diversion Project Vision Care Pilot Program. 12/1990 to 01/1996.

Staff Optometrist, Loma Linda Ophthalmology Medical Group, Colton Calif. 07/1988 to 01/1989. Duties include infant and child eye examinations, strabismus/amblyopia evaluations, pre and post operative exams.

Vision Therapy Residency, SUNY/College of Optometry, 06/1987 to 06/1988. This was a one year post-graduate program comprised of direct patient care, graduate-level didactic courses, research, and teaching in the area of vision therapy. I performed 37 strabismus/ amblyopia evaluations, 17 visual efficiency evaluations, and 28 perceptual-motor evaluations for learning disability. I administered 91 strabismus/amblyopia therapy sessions, 22 visual efficiency therapy sessions, and 139 perceptual-motor therapy sessions.

Post-Graduate Clinical Supervision of Third Year Students at the Optometric Center of Fullerton Primary Care and Vision Therapy Clinics, 05/1987 to 06/1987.

Teaching Assistant, Third Year Vision Therapy Clinic, Optometric Center of Fullerton (SCCO), 05/1986 to 09/1986.

Teaching Assistant for `Ophthalmic Optics and Lens Design'; Chester Katz O.D. Instructor, SCCO Fall Quarter 1985 and Winter Quarter 1986.

Teaching Assistant for `Binocular Vision and Space Perception'; David Kirschen, O.D.,

Ph.D. Instructor, SCCO Spring Quarter 1986

Lab Technician and Optometric Assistant, Office of Chester Katz O.D. Reseda, Calif. 07/1985 to 09/1985 and 01/1987 – 05/1987.

Lab Technician and Optometric Assistant, Office of Michel Kawaji O.D. Los Angeles Calif., 06/1986 to 12/1986.

Publications

Comer G, Tassinari J, Sherlock L, (1988) A Clinical Comparison of the Threshold Related and Single Intensity Strategies of the Humphrey Field Analyzer. J AOA vol.59 no.8

Tassinari J, Binasal Occlusion in Esotropia. Presented at the 1988 Skeffington Symposium on Vision, Jan. 1988.

Tassinari J, Methyldopa Related Convergence Insufficiency. J of the Amer Optom Assoc. 1989; 60 (4): 311-314.

Tassinari J, Binasal Occlusion. Journal of Behavioral Optometry 1990; 1 (1): 16-21.

Tassinari J, Excessively Close Working Distance. Journal of Behavioral Optometry 1995; 6 (4): 87-89.

Tassinari J, Computerized Instruments: Their use in vision therapy. Optometry Today April 1995.

Tassinari J, Nearpoint Visual Stress. Lecture presented as part of the Walter O. Studt Foundation Vision Therapy Practica. September 1996.

Tassinari J, Eastland R., Vision Therapy for Deficient Visual-Motor Integration. J Optom Vision Development 1997; 28: 214-26.

Tassinari J, Monocular Estimate Method Retinoscopy: Central Tendency Measures and Relationship to Refractive Status and Heterophoria. Optom Vis Sci 2002; 79(11): 708-14.

Tassinari J, Deland P, Developmental Eye Movement Test; Reliability and Symptomatology. Optom, J Amer Optom Assoc 2005; 76(7): 387-99.

Tassinari J, Change in accommodative response and posture induced by nearpoint plus lenses per monocular estimate method retinoscopy. J Beh Optom 2005; 16(4): 87-93.

Tassinari J, Untreated Oculomotor Dysfunction. Optom Vis Dev 2007: 38(3): 121-24.

Tassinari J, Assessing the assessment: Learning Related Vision Problems Test Scores Revisited. Optom Vis Dev 2008 39 (3): 128 – 139.

Tassinari J, Vision therapy for sensory fusion disruption syndrome: 2 case reports. Optom Vis Dev 2010 41 (4): 215-21.

Tassinari J, Rating the Test Scores from a Visual Information Processing Battery. This document is a chapter in; Pacific University College of Optometry Visual Perceptual Test Manual. 2010

Tassinari J, Case Report: Occlusion Therapy for Amblyopia. California Optometry Magazine May 2014

Tassinari J, Reliability and validity of a computerized tachistoscope test. Vision Development & Rehabilitation 2016 2 (4): 242-48.

Continuing Education Lectures / Conference Presentations

Visual Field Screening. A Comparison of the Threshold Related and Single Intensity Strategies on the Humphrey Field Analyzer. Presented at the SCCO 1987 Senior Research Symposium with L. Sherlock. 2nd place

The Role of Language in Learning Disability. Presented at the SUNY/Optometry Residents Seminar, Nov. 1987.

A Clinical Comparison of the Threshold Related and Single Intensity Strategies on the Humphrey Central 40 Point Test. 1987 Annual Meeting of the American Academy of Optometry (paper session)

Vision Therapy for the Family Practitioner. Presented to the Rio Hondo Optometric Society, Jan. 1991.

Total Vision and the Hearing Impaired Child. Presented at the annual meeting of the Alexander Graham Bell Association for the Deaf, Jan. 1991

The Flow of Vision Therapy Patients Through My Office. Presented within Dr. Eric Borsting's course on Vision and Learning at So. Calif. College of Optometry 1992-1996

Testing of Vision Function and Vision Therapy Part 1. Presented to the Taiwan Optometric Association during a 4 day seminar November 1994.

Testing of Vision Function and Vision Therapy Part 2. Presented to the Taiwan Optometric Association during a 4 day seminar May 1995.

Building a VT Specialty within a Primary Care Optometry Practice. SCCO Block Lectures, presented annually to Senior Class 1992 - 1999

Vision and Learning. A lecture presented to the Learning Disabilities Association of California 10-25-97. This 3 hour lecture was also taped for audio cassette.

Cycloplegic Agents. A lecture presented to the L.A. County Optometric Society 10-28-97.

What's new in Children's Vision and VT. A lecture presented at So. Calif College of Optometry 6-6-04.

Infant Vision Care for Babies. A lecture presented to San Gabriel Valley Optometric Society 3-16-05.

Infant Primary Eye and Vision Care. A lecture presented at So. Calif College of Optometry 7-10-05.

Infant Vision Care for Babies. CE lecture for San Gabriel Valley Optometric Society 3-16-05

Optometric VT. A Refresher Course for Primary Care ODs. CE lecture at SCCO 12-3-06

Symptomatic Binocular or Accommodative Dysfunction. Plus Lenses? Prism? Both? Neither? CE Lecture at SCCO 2-18-07

Infant Vision Care for Babies. CE lecture for Rio Hondo Optometric Society 9-23-08

Infant Vision Care for Babies. CE lecture for San Fernando Valley Optometric Society 12-6-08

Vision Therapy. A Refresher Course for Primary Care Optometrists. CE lecture 1-hour at the 2008 AAO meeting.

Nearpoint Plus Lens Prescribing for Symptomatic Accommodative or Binocular Dysfunction. CE lecture for Rio Hondo Optometric Society 2-12-10
Primary Eye & Vision Care for Babies and Young Children. A 2-hour lecture to the San Joaquin Valley Optometric Society 3-15-10
Useful but Sometimes Overlooked Pediatric Pharmaceuticals. CE Lecture at SCCO 3 – 04 - 12
Eye on Reading. 2-hour lecture at the 2012 AAO Meeting
Pediatric Merry Go Rounds. 2-hour CE Lecture at SCCO on 7-21-13
Eye on Reading. 2-hour lecture 2013 AAO Meeting.
Disease Masquerading as Binocular Vision Disorder. 1-hour CE. SCCO Ocular Disease Symposium. March 2014
Useful but Sometimes Overlooked Pediatric Medications. 2-hour CE at Optometry's Meeting June 2014
The Struggling Student; 4 Case Types. 2-hour lecture November 2014 AAO Meeting
Disease Masquerading as Binocular Vision Disorder. 2-hour CE. IEOS Jan 2015
The Struggling Student, 3 Case Types. 2-hour lecture October 2015 AAO Meeting
Panel Member, Calif Head Start Association Health Institute, Annual Conference 2015. Topic: Vision Screening of infants through age 3;0.
Tales from the Crib. 7 Infant Case Reports. 2-hours Optometry's Meeting June 2016
The Struggling Student; 4 Case Types. 2-hour lecture Optometry's Meeting June 2016

Anterior Segment Disease in Infants and Young Children. 5 Case Reports. 1-hour WUCO Webinar July 2016
Disease Masquerading as Visual Dysfunction Requiring VT. Congress of Optometry Academic Functional Monterrey, Mexico. September 2016
Disease Masquerading as Visual Dysfunction Requiring VT. 2-hours. AAO November 2016 Diplomate Preparatory Course
Do Babies Ever Need Glasses? When? Why?. 1-hour webinar with TQ exam 1-4-2017
Importance of Comprehensive Eye Exams Early in Life + Panel Discussion. LACOS 1-22-2017
Asian Amer Optom Society May 2017 – pending
Pediatric A Seg DZ AAO 2017 - pending

Membership in Community Organizations

Immaculate Conception Catholic Church Children's Liturgy Program 1995 - ongoing
Immaculate Conception Parochial School Parent Teacher Organization 1996-2006
Immaculate Conception Youth Group Adult Leader 2005 – ongoing
Stubenville Youth Conference Adult Chaperone, 2009 - ongoing
Young and Healthy Provider Network (donated vision care).
LA County USC Maternal Child Care Clinic (donated vision care for children with HIV).
Knights of Columbus Fraternal Organization- volunteer service to poor and needy as well as fundraising.

Special Olympics Opening Eyes Vision Health Program, Volunteer Optometrist.
Union Station (donated vision care for indigent/homeless individuals).
Chair, Annual Fundraising Drive, Columbian Foundation for People with Mental Retardation 2002-2014.
Head Coach - Monrovia Youth Baseball League (MYBL) Pony Dodgers, 2004 and 2005.
Volunteer Speaker and Job Shadow Host, Blair High School Health Career Academy
Health Advisory Committee, Center for Community & Family Services / Head Start, Pasadena. Jan 2011 - ongoing
City of Saints Youth Conference, Planning Committee and supervisor of Transportation, Aug 2015 - ongoing

STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
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CONTINUING EDUCATION COURSE APPROVAL APPLICATION

$50 Mandatory Fee

Cashiering and Board Use Only			
Receipt #	Payor ID	Beneficiary ID	Amount
1-3538	5414455	4576474	50

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule, a detailed course outline and presentation materials (e.g., PowerPoint presentation). Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title	**Course Presentation Date**
Disease Masquerading as Visual Dysfunction	05/21/2017

Course Provider Contact Information

Provider Name

John (First) Lee (Last) (Middle)

Provider Mailing Address

Street 2575 Yorba Linda Blv **City** Fullerton **State** CA **Zip** 92831

Provider Email Address jlee@ketchum.edu

Will the proposed course be open to all California licensed optometrists?	☑ YES ☐ NO
Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation?	☑ YES ☐ NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name

John (First) Tassinari (Last) (Middle)

License Number 8873	**License Type** Optometrist
Phone Number (626) 796-3105	**Email Address** jtassinari@westernu.edu

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider 03/30/2017 *Date*

Disease Masquerading as Visual Dysfunction Requiring Vision Therapy

Instructor: John D. Tassinari O.D. Presentation: Lecture
Format: Live CE 2-hour Category: Systemic/Ocular Disease
(Neurological diseases, category NO, emphasized)

Course Description

Binocular vision, accommodation, and overall vision can be the functions through which disease processes and adverse drug reactions manifest. Patients and doctors may be misled that the visual problems are the basis for a vision therapy (VT) workup and subsequent treatment with VT. This course defines and describes an assortment of diseases that presented as potential VT cases. There is particular emphasis on neurologic disease. A case report "grand rounds" format is used. The cases are presented in such a way that audience members can analyze data and make decisions along with the presenter. The diagnoses are not revealed until the end. Adding intrigue to the case presentations is the unabashed inclusion of clinical errors made by the presenter.

Objectives & Learning Outcomes:

1. Attendees will solidify their understanding of how to differentiate between ordinary refractive or binocular dysfunction causing visual symptoms versus underlying disease.
2. Attendees will gain a deeper understanding of autonomic nervous system control of accommodation as it relates to visual side effects of medications.
3. Systemic disease manifesting as binocular/accommodative dysfunction will be better understood by audience members to aid clinical recognition at the primary care level. Anemia, multiple sclerosis, neurosyphilis, and myasthenia gravis will be highlighted.
4. Attendees will elevate their understanding of diseases that can cause reduced monocular best corrected VA in a child. The emphasis will be differential diagnosis of functional amblyopia versus true disease.
5. Strabismus due to malignant neoplasia will be presented in a case-based format to facilitate audience member's vigilance for these serious diseases.

OUTLINE

Disease Masquerading as Visual Dysfunction Requiring Vision Therapy

CASE REPORT; INTERMITTENT EXOTROPIA DUE TO DRUG (METHYLDOPA) SIDE EFFECT

I. 39 yo hypertensive female with diplopia, headaches and visual fatigue
   A. Deficient vergence function with accommodative excess
   B. VT prescribed
II. Autonomic nervous system and accommodation
III. Case report outcome
   A. IXT linked to sympatholytic effect of methyldopa

B. Methyldopa dosage reduction improves symptoms and visual function

AUTONOMIC NERVOUS SYSTEM CAUSE-EFFECT; 4 BRIEF CASE REPORTS

I. Sympatholytic effect of neck injury causes pseudomyopia
II. Cyclopentolate (parasympatholytic) causes increased esotropia
III. Cerebral Palsy, generalized parasympathetic dysfunction, and accommodative dysfunction
IV. Vision ADRs of sympathomimetic stimulant medications for ADHD

CASE REPORT; ACCOMMODATIVE DYSFUNCTION DUE TO ANEMIA

I. 22 yo F with nearpoint blur, asthenopia, & significant visual fatigue
II. Diagnoses: general binocular dysfunction & accommodative dysfunction with significant accommodative insufficiency
III. VT prescribed. Poor progress
IV. Diagnosis and treatment for anemia
    A. Visual symptoms cured
    B. Visual function improves to normal

ACQUIRED BINOCULAR AND ACCOMMODATIVE DYSFUNCTION

I. Systemic disease and binocular/accommodative dysfunction link
II. Rapid fire case reports
    A. 32 yo M with decompensated exophoria secondary to poor rest. VT unnecessary
    B. 22 yo F with binocular and accommodative dysfunction secondary to hypothyroid. VT poor prognosis until hypothyroid cured. Plus add beneficial

CASE REPORT; MARKED ACCOMMODATIVE DYSFUNCTION DUE TO NEUROSYPHILLIS

I. 16 yo F with significant near blur complaint.
II. Marked accommodative insufficiency
III. Abnormal pupils consistent with bilateral Adie's
    A. Mydriasis each eye
    B. Positive reaction to diluted pilocarpine (cholinergic supersensitivity)
IV. Relevant medical history
    A. chronic back pain of unknown etiology
    B. Headaches, under care with neurologist

V .Case Outcome

    A. Report eye findings to neurologist and advise testing for syphilis
    B. FTA – ABS positive
    C. Back pain etiology clarified as tabes dorsalis
    D. +2.25 add prescribed, no VT

2 CASE REPORTS OF INTERNUCLEAR OPHTHALMOPLEGIA DUE TO MULTIPLE SCLEROSIS

I. Both adults present with visual disturbance upon lateral gaze left or right.
II. Both show restriction of adducting eye + nystagmus of abducting eye

III. Case outcomes;
   A. VT not indicated
   B. referral to neurologist, + MS

IV. Internuclear opthalmolplegia
   A. Etiology
   B. Neuroanatomical pathways
   C. Clinical presentation
   D. Differential diagnosis

ACQUIRED STRABISMUS OVERVIEW

I. Pre-existing phoria decompensates

II. Deviation is acquired
   A. Myogenic
   B. Neuroparalytic

CASE REPORT; 9 YO F WITH VARIABLE INTERMITTENT DIPLOPIA DUE TO PEDIATRIC MYASTHENIA GRAVIS

I. Case History
   A. Referred by family OD for VT work-up
   B. Episodic variable diplopia
   C. Exercise induced extreme fatigue

II. Exam normal except for marked endpoint nystagmus

III. Clinical characteristics of endpoint nystagmus

IV. Case Analysis, differential diagnosis of her diplopia complaint

V. Case outcome
   A. VT not indicated
   B. Referral to pediatric neurologist results in diagnosis of Pediatric MG

VI. Pediatric Myasthenia Gravis
   A. Etiology
   B. Clinical presentation
      1. Case history
      2. Eye findings
      3. Eyelid function tests for MG
      4. Compare and contrast with adult MG

ACQUIRED DIPLOPIA OVERVIEW

I. Pre-existing heterophoria or strabismus decompensates

II. Patient acquires a new heterophoria/strabismus

CASE REPORT; 47 YO F WITH ACQUIRED STRABISMUS DUE TO BRAIN TUMOR

I. History & Chief Complaint
   A. diplopia with increasing frequency

B. complex, multifactorial health and wellness history
C. case history, timeline, and medical status
    1. Some information points to longstanding decompensated phoria (benign)
    2. Some information points to new/acquired deviation (ominous)

II. Exam; Intermittent comitant esotropia / non-comitant vertical strabismus
A. Some exam data is consistent with longstanding decompensated phoria (benign)
B. Some exam data is consistent with acquired deviation (ominous)

III. Outcome of case; Left Cavernous Sinus Meningioma

MONOCULAR VISUAL ACUITY LOSS, CHILD

I. Malingering
II. Functional Amblyopia
III. Disease
A. Congenital Eye Anomalies
    1. Myelinated nerve fibers
    2. Hypoplasia of optic nerve with brief case report
    3. Coat's disease with brief case report
B. Acquired monocular eye disease
C. Neoplasia; Retinoblastoma
    1. Epidemiology
    2. Pathophysiology
    3. Clinical presentation
    4. Differential
    5. Treatment options
D. Optic nerve disease

CASE REPORT; 6 YO M WITH POST OPTIC NEURITIS OPTIC ATROPHY MISDIAGNOSED AS ANISOMETROPIC AMBLYOPIA

I. Ordinary amblyopia case history
II. 3.00D of anisometropia, but incorrect eye has poor BCVA
III. Other monocular abnormalities
A. Abnormal color vision
B. + visual field
C. Pale nerve, significant nerve fiber layer loss

CASE REPORT; 7 YO M WITH OPTIC NERVE GLIOMA OS MISDIAGNOSED AS STRABISMUS AMBLYOPIA

I. Variable fixation with OS is confused for strabismus
II. Careful cover test shows no strabismus
III. + optic nerve disease signs
A. +APD
B. + color vision loss
C. + pallor

IV. Referral leads to diagnosis of anterior optic nerve glioma

V. Optic nerve glioma
   1. Pathophysiology
   2. Clinical presentation
   3. Differential
   4. Treatment options

CRANIOPHARYNGIOMA

I. Epidemiology

II. Pathophysiology

III. Clinical presentation
   A. Neurological illness (headache, fever, gait disturbance etc)
   B. Delayed growth
   C. Visual field defects
   D. Reduced best corrected visual acuity
   E. Papilledema

IV. Differential
   A. Psuedopapilledema vs true papilledema
   B. Rapid fire case report of 13 yo M with psuedopapilledema from buried drusen

CASE REPORT; 6 YO F WITH CRANIOPHARYNGIOMA

I. Presents with cc of struggling in school highlighted by poor tracking

II. Small in stature, very active, short attention span, otherwise good health

III. Clinical findings
   A. Poor BCVAs
   B. Visual fields unreliable
   C. Optic nerves appear normal, views compromised because poor fixation

IV. Referral to neurologist because of poor BCVAs results in craniopharyngioma diagnosis

Disease Masquerading as Visual Dysfunction Requiring VT

Asian American Optometric Society
May 21, 2017.

JT Tassinari OD Diplomate BVPPO FCOVD
assoc prof WUCO Private practice Pasadena

No Disclosures / Affiliations

Methyldopa-related convergence insufficiency

J AOA Vol. 60 4/1989

John Tassinari, O.D.

- 39 y.o female: HAs, diplopia, fatigue w/ PNP
- PMH: HTN since age 20. HCTZ QD + methyldopa 500mg BID
- SR & HRx: -0.25 -0.50 090 20/20 RS20
  -0.25 -0.50 090 20/20 RS20
- DFE: mild arteriolar narrowing

VT Work-up (HRx in place)

	Findings	Normal
CT	3XP 14 AIXT'	0 3XP'
NPC	20/15/25cm	x/3/5cm
PFV'	8/10/-2	16/21/11
NRA	+1.00	+2.00
PRA	-1.50	-2.25
MEM	plano	+.25↔+.50
BXCYL	-0.50	+.50 - +1.00
Accomm Facil: Fail +/-		8cpm

VT work-up (cont.)

- Red Lens Test: D - normal
  N- diplopia (crossed)
- Stereo: Random Dot normal
  ↓ contour (70")
- AC/A 2.2/1 normal: 5/1

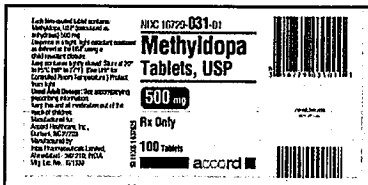
Diagnosis & Plan

- Convergence Insufficiency
- Intermittent XT, low frequency
- Accomm Infacility
- Accomm excess
- CMA
- Plan: VT & continue with HRx
- VT: 10 weekly 1-hour office visits, progr eval on visits 5 & 10, daily Home VT

2nd VT Office Visit – Surprise!

Dramatic reduction in symptoms coincident with ↓ methyldopa. BID → QD

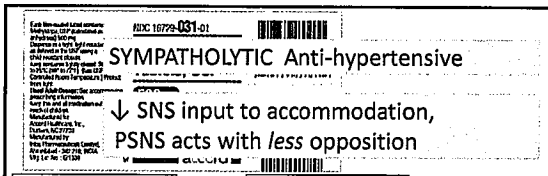
	Pre-VT	2nd VT
ACT'	14 IXT	**8-10 XP**
NPC	20/15/25cm	15/8/25
PFV'	8/10/-2	10/12/6
BXCYL	**-0.50**	**+0.50**
AC/A	**2.2/1**	**3.8/1**



- Centrally acting anti-hypertensive
- Inhibits sympathetic outflow from CNS → Decreased peripheral vascular resistance
- "Sympathotlytic"

Autonomic Nervous System; Eyes

	Iris	CB Lens complex
Parasympathetic	constrict	near
Sympathetic	dilate	farpoint
Sympatholytic	miosis	near enhanced + difficulty releasing accommodation



Brainstem
1 diopter of accomm effort → CB Cr. Lens >> 1 diopter of accomm

LESS convergence from AC/A
Effective AC/A ratio *decreases* EXO *increases*

ANS Drugs, Accommodation

	Iris	Accomm
P sympathomimetic Sympatholytic (methyldopa)	miosis	Near enhanced Far more difficult
Sympathomimetic Parasympatholytic	mydriasis	Near inhibited Far enhanced

Cyclopentolate (parasympatholytic) can *increase* Eso deviations

Case Report: Mikey, age 3;10
Intermittent Esotropia
Latent Hyperopia +4.50DS OU

>>> 1 diopter of accommodative effort in brain stem required to yield 1 diopter of accommodation in eye

↑ Accomm *effort* ↑ Convergence
Effective AC/A very high

SYMPATHOMIMETIC
Stimulants (methylphenidate) for ADHD

- Ritalin, Concerta, Metadate, Methylin
- Atomexatine (Stratera) Aderal
- Mydriasis
- Enhance accommodation to farpoint
- Inhibit near accommodation

SA, 22 y.o. F D Hygienist Student

- CC: Blur & asthenopia within 5 minutes of PNP
- PEH: CLs for myopia and near plus
- "My eyes get tired, I get tired, I'm always tired"
- PMH: healthy, no meds. NKA
- 20/20+ with -2.25 Optima FW spheres
- "RS20" each eye at near
- Normal: Stereo, visual fields, color v
- Versions full, pupils normal
- P and A Segs wnl

SA, Binoc/Vergence

0/2XP'

DIV	x/6/1	x/5/3
CONV	2/16/4	9/18/10
DIV'	4/16/8	12/21/11
CONV'	1/10/-2	12/18/10
NPC	25/5/15	x/3/5
V Facil	10cpm	12cpm

SA, Accommodative

BXCYL +.75 +25 - +1.00 MEM +.25 0 - +.50

NRA +1.75 +2.00 PRA -0.50 -2.25

Amps		+/200 AF	
OD	30cm	10cm	Fail – 10cpm
OS	30cm		Fail –
OU	25cm		Fail - 7cpm

SA, Dx & Tx

- Fusional Vergence Dysfunction
- Accommodative Dysfunction (marked AI)

- Begin VT
- Progress Eval #1: (visit 5) Minimal improvement in findings. No improvement in symptoms

SA, VT Visit #8, Surprise!

- Dramatic reduction in visual symptoms with iron dietary supplement

- General physical exam with blood work
- Diagnosis: Anemia
- General fatigue much improved
- Accomm and verg skills MUCH better

Acquired Adult Accommodative Dysfunction

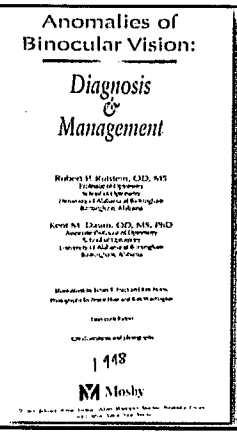
- Functional: accomm detiorates from PNP
- Accomm was previously dysfunctional and increased nearpoint demand causes symptoms to arise
- Previously normal accomm declines because of illness

Acquired Adult Accommodative Dysfunction

Any condition that causes an overall debilitation may also cause accommodative insufficiency"

•Anemia

•Hypoglycemia
•Hypothyroid (young female)



Anemia

- Decreased red blood cells or RBCs have suboptimal hemoglobin
- Delivery of oxygen to cells compromised
- Causes: loss of blood low Vitamin B12
  low iron intake / poor absorption of iron
- Iron from animal foods absorbed better than plant food
- GI distress compromises absorption of Iron and V B12
- V B12 – best source is animal foods. Fortified cereals good
- Alcohol inhibits V B12 absorption
- Vitamin C aids iron absorption

AL, 22yo F, 2nd opinion

- Protracted description of symptoms:

Visual fatigue, blur, HA, awareness of crossing eyes

- Onset 2 years ago. No clear answer if onset coincided with increased PNP
- HRx +0.75 -.25 180 20/20
  +0.75 -.25 180 20/20 +.75 ADD
  Cycloplegic SR = HRx
- Blood Pressure: 125/65
- Normal: Color V, VFs, Pupils, versions,
  IOP P Seg A Seg

AL, Binoc/Vergence

0 / 1 eso'/ 3XP'

DIV	x/6/4	x/5/3
CONV	X/8/3	9/18/10
DIV'	12/18/10	12/21/11
CONV'	X/15/7	12/18/10
NPC	15blur /TN	x/3/5
V Facil	15cpm	12cpm

AL, Accommodative

BXCYL +1.50 +25 - +1.00 MEM* +.75 0 - +.50
NRA +2.25 +2.00 PRA -1.00 -2.25

Amps		+/200 AF	
OD	17cm (6D)	10D	6cpm 10cpm
OS	17cm		8cpm
OU	15cm		Fail - 7cpm

*With Hab in place, through +.75 add

AL, 22yo F Dxs

- Low hyperopia, 100% manifest
- High accomm lag, low EP'
- Fusional Verg Dysfunction
- Accomm Insufficiency
- Accomm Infacility

AL, 22yo F Health & Wellness Qs

(Very thin, skin looks "old" to me. Never removed her scarf or jacket)

Cold Extremities -yes

Skin: dry and itchy

Fatigue: yes

Diet: low appetite, low intake of animal foods

Menstruation: heavy

Constipation: yes

AL Health Summary

Cold extremities Dry skin
Fatigue Low appetite
Constipation.

→ HYPOTHYROID

Hypothyroid can *cause* heavy menstruation

Fatigue
Diet lacks iron and B12
Heavy menstruation
Small

→ ANEMIA

AL, 22 yo F

- **A**: acquired accomm and fusional verg dysfunction secondary to illness
- **P**: Increase near plus to +1.50 add. Defer VT
  Refer for comp physical exam. Blood tests:
  + Low hemoglobin – Anemia
  + Elevated TSH - Hypothyroid

Declined VT. Asked for SV NV Rx

Locus of Illness bases Acc Dysf

- Bilateral and symmetrical
- Other 3rd N involvement absent
- Pyschotropic drugs and accomm dysf (+ and neg accomm)
- Diabetes and accomm studies
- ABI and accomm
- Cortex to E Westph/IIIn pathway?
- Selective vulnerability of Parasympathetic?

IE. 11th grade, age 16, female

- Referred by primary care OD for VT eval.
- Significant near blur despite wearing plus add. + visual fatigue and asthenopia
- Vision complaint: Onset 6 mos ago
- Good student. Is/was very good swimmer
- PMH: complex, onset 9-10 months

IE age 16. Medical Hx. Onset 9-10 mos

- Mom: "she has a condition where they say her body is all tied up in knots". Back, hips, shoulders, neck. Multiple MDs involved
- Pain/sore and weak
- Lupus and fibromyalgia ruled out
- +Migraine headaches
- Failed: Acupuncture, chiropractic, massage therapy, muscle relax drugs, pain relievers

IE. 11th grade, age 16, female

- Significant near blur
- Hab Rx -.50DS 20/20-- +1.25 RS40
  -.25DS 20/20-- +1.25 RS40
- Normal Findings

Visual Fields Color Vision Versions Cover Test
Vergence Tests "D"FE

- Slit Lamp: Mydriasis, minimal constriction
  omission:

Accomm + Pupil Tests

- MEM: +2.00 BXCYL: +2.25
  unaided +2.00
- Monoc push-up amps:
  Target at 1 M wearing +1.00 add (0 demand)
  OD: blur at 95cm pupil unchanged
  OS: blur at 95cm pupil unchanged

- Mydriatic pupils, poorly reactive to light
- Prompt vigorous miosis and improved near VA 5 minutes after diluted pilocarpine instilled

IE. 11th grade, age 16, female

A:
Significant acquired accomm dysfunction (AI)
+ Bilateral mydriatic poorly reactive pupils
Bilateral internal ophthalmoplegia

- Back pain (variant of tabes dorsalis?)
- Sexually active

P: Needs r/o neurosyphilis

- Englestein ES, Ruderman MI, Trojano RA, et al: Dilated tonic pupils in neurosyphilis. J Neurol NeurosurgPsychiatry 1986;49:1455–1457.
- Fletcher WA, Sharpe JA: Tonic pupils in neurosyphilis. Neurology 1986;36:188–192.
- Sakai T, Shikishima K, Mizobuci T, et al: Bilateral tonic pupils associated with neurosyphilis. Jpn J Ophthalmol 2003;47:368–371.
- Yakashi S, Ohshima J, Yonekura J, et al: **A case of early syphilis presenting general paresis-like symptoms and bilateral tonic pupils.** Rinsho Shinkeigaku 1992;32:994–999
- Zeligs MA, Joseph GF: Unilateral internal ophthalmoplegia: sole clinical sign in patient with syphilitic meningitis. Arch Neurol Psychiatry 1945;54:389–390.

Internal ophthalmoplegia: AI + Mydriasis

ACUTE

Idiopathic, unilateral	Bilateral
Later becomes "Adies Tonic Pupil"	Suggests disease
	Not to be confused w/ Argyll Robertson

- Mydriasis
- Poor light rxn
- Pupil reacts to accomm but is slow to do so and stays miotic

Acquired Binoc Dysfunction

- Acquired Deviation

- Acquired (loss) of fusional vergence

Pre-existing deviation decompensates

Likely to be associated with an illness. Case report

Phoria / low normal. Acquired fusional vergence dysfunction

Very likely to be associated with an illness (& accomm dysf)

WQ, age 32, male

- Intermittent Diplopia x 3 mos "I can't control it"
- D worse than near. Worse end of day
- Coincident with successful conclusion of CRT / ortho K
- Referring OD confirms longstanding exo
- PMH: negative. Very healthy

WQ age 32 Binoc/Vergence

25 IXT / 25 IXT'

DIV	x/30/25	x/7/4
CONV	x/8/-10	9/19/10
DIV'	x/30/25	13/21/13
CONV'	4/10/0	17/21/11
NPC	x/10/25	x/5/7
V Facil	0 cpm	15cpm

Stereopsis: Normal
Red Lens: fused

V pattern o/w comitant

WQ age 32, Accommodation

MEM +.25 0 - +.50

NRA +1.75 +2.00 PRA -1.25 -2.25

Amps		+/200 AF	
OD	5D 7D	11cpm	11cpm
OS	5D	11cpm	
OU	-	12cpm	10cpm

WQ age 32 restaurant owner, A & P

A:

- IXT Basic Exo, low vergence skills + SPs
- Mild Accomm Insufficiency (no symptoms)
- Medical Hx rules out decompensated phoria

Plan:

Rx VT 6+ 1 Ptnt Educ Re Prognosis....

"Excuse me Dr. I have to tell you something"

WQ age 32 restaurant owner, A & P

PMH: ~~healthy~~ + inadequate rest. Diplopia onset coincides with inadequate rest

A:

- IXT Basic Exo, low vergence skills + SPs
- Mild Accomm Insufficiency (no symptoms)
- Medical Hx ~~rules out~~ suggests decompensated phoria and acquired AI that has begun to improve

Plan:

HVT now. Follow-up in 1 month

Phone call 6 weeks later: Diplopia gone

MC, 31 WF VH, 21 M

"I see double when I read and I also get dizzy"

During versions, gaze left... "That's the problem, when I read and look that way, that's when it happens"

"I can't look to the side. I walk down the hallway and I can't look. I have to turn my head"

Me, "Do you see double?"

"It moves, it doubles, I just can't look to the side"

MC 31 WF	VH, 21 M
• Versions abnormal* on gaze left	• Versions abnormal with right or left gaze. Extreme HM
• NPC normal	• NPC (?)
• All other findings normal	• All other findings normal

MC, 31 WF Versions

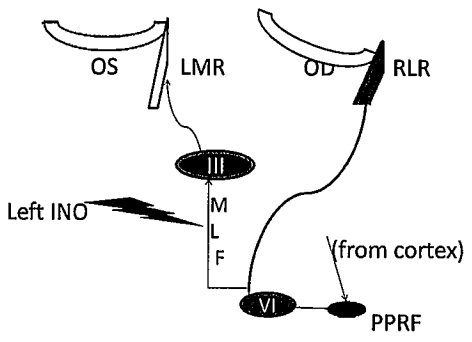
- Left Gaze: variable XT, LE shaking left and right. OD lagging
- Right Gaze: looks grossly normal
- Red Lens: crossed diplopia in R and L gaze
- Lateral gaze XT left *and* right

MS & Internucluear Ophthalmoplegia (INO)

- Medial Longitudinal Fasiculus (MLF) in brain stem inflamed "MLFitis"
- MLF: dense myelination
- MLF: communication tract for EOM nuclei (hence, internuclear)

MS & Internucluear Ophthalmoplegia (INO) aka MLFitis

- Disrupted horizontal conjugate gaze, esp saccades
- Adducting eye restricted - XT w/ Diplopia
- INO on side of adducting eye
- Abducting eye - nystagmus (pendular) w/ oscillopsia



MLFitis continued

- Vertical eye movements
- Bilateral INO is classic MS
- 30% of MS will have INO
- Optic neuritis is first demyelinating event in 20% of MS. MLFitis less (5%?)
- DDx: tumor, vascular occlusive disease, trauma, 3rd nerve paresis

Acquired Strabismus

Myogenic

Thyroid, injury, M Gravis, orbital disease

Neuroparalytic

III down & out, ptosis, pupil

IV Vertical deviation (hypertropia on affected side)

VI Esotropia

INO

Supranuclear

IP, 9 yo F 3rd Grade. Good student

- Cc: "sometimes she sees double, does she need eye exercises?" Onset: this school year
- Cover Test D: 0 in all gazes. N: 3xp
- Vergence: normal
- Accomm: normal T I O
- VAs, Pupils, VFs, Color V: normal
- P and A Seg: normal T I F
- Saccades: normal
- Versions: Full, > Avg endpoint nystagmus

Endpoint Nystagmus aka physiologic nystagmus

- Small amplitude high velocity jerk nystagmus at extreme end of horizontal gaze (sometimes vertical)
- Universal
- R ≠ L common
- Exaggerated by hypoglycemia or booze
- Marked EPN & infantile ET
- Can be associated with IPs Dx

Diplopia Characteristics: Onset 2 mos ago

Associated with specific task? NO
specific viewing D?

Geography: variable

Frequency: erratic

Duration: "like 1 second" to 20 minutes

Question(s) I forgot to ask

Health & Wellness Hx. IP 9yo Girl

- No meds, no allergies, no asthma
- Diet/Sleep: normal, good
- Unusual fatigue: mom "no" very active
- IP: "no, mom, remember that 1 time I told you that at recess I got so tired I had to rest?"
- Me: "after you rested, what happened?
- IP: "I felt good, I could play again"
- Recurrence? "Like once or twice"

Diplopia DDx

- Intermittent Strabismus: NO. Cover Test normal
- Fusional Vergence dysfunction: NO, ranges etc normal
- Faking it:
- Neurological Dz:

Faking vs True Neuro Dz

	Faking	Neuro Dz
Her personality	√	
Endpoint Nystag		√
Her description of diplopia		√
Her description of fatigue		√
QIFTA TIF		

IP, 9 yo girl. Neuro Dz suspect
Plan: refer to pediatrician. request neurological workup

DX: Juvenile MG

- Myasthenia Gravis: autoimmune disease
- Antibodies attack postsynaptic membrane at neuromuscular junction

JUVENILE MG

- Varying degrees of painless muscle weakness and fatigability
- JMG: **Most frequent presentation is ptosis**
- Binoc/EOM (variable intermittent *deviation*),
- Accomm
- voice, swallowing, limb
- Weakness worse end of day. Improves with rest

M Gravis Eyelid testing

- Case History for variable intermittent uni or bi lateral ptosis
- Sustained upgaze (2 min) induces ptosis
- Cogan's Lid Twitch: downgaze 15 sec then upgaze, eyelid(s) twitch
- Ice Pack Test for presenting or induced ptosis

M Gravis Epidemiology

- Juvenile MG is rare <20 per 100,000
  Norway: Incidence 1.6 / 1 million per year
- Pre-pubertal Male = Female
- Pubertal & Adult: F > M 4.5:1

Presents as Ocular MG

- Pre-pubertal Caucasian: 40%
- Pre-pubertal Chinese: 75%
- Pubertal: 9-16%
- Adult: 28%

M Gravis Epidemiology

Ocular MG *progresses* to Generalized MG

- Pre-pubertal Caucasian: 40%
- Pre-pubertal Chinese: 75%

} 8 – 15%

- Pubertal: 9-16% 25 – 45%
- Adult: 28% 79%

M Gravis Course & Prognosis

	Severity	Spontaneous Remission	Response to Therapy
PRE-PUBERTAL	mild	OFTEN	GREAT
PUBERTAL	moderate	sometimes	good
ADULT	bad	infrequent	mediocre

Non-ptotic ocular myasthenia gravis: a common presentation of an uncommon disease

Colavito J, Cooper J, Ciuffrieda KJ
J AOA 2005 76 (7)

- Ocular MG w/o ptosis: Dx is elusive
- Accomm & verg worse with with repeated testing and/or at end of day
- Unequal amps, 2nd eye worse. Case 2
- VT makes symptoms + accomm and vergence findings *worse*
- Home sleep or ice-pack test

Acquired Diplopia

Pre-existing Deviation	Acquired
Decompensates (WQ)	Deviation
Usually comitant and	Usually non-c
Intermittent .	& constant
Any Illness	Neurologic DZ
Higher PNP Demand	
Senescence	

LB 47 yo WF Post Lasik (2010) Emmetropia, Presbyopia
July 2011 +200s OTC

- "My left eye is drifting in. When it does, I see double"

Near: No, not if SRx in place.
D: Yes, conversation and beyond

- Frequency: Daily "a lot", *increasing*
- Duration: seconds, less than a minute
- Geography: Unsure
- Onset (1): 2004 (age 40)during bad bronchitis. self-resolved
- Onset (2) : 2008. Had neuro/MRI → neg

LB 47 yo WF Post Lasik (2010) Emmetropia, Presbyopia
+200s OTC

- VAs, VFs, C Vision, Pupils NORMAL
- Versions NORMAL, incl EPN
- (TIF) ??
- P Seg (optic discs) NORMAL
- Sensory fusion: NORMAL (no suppression)

LB 47 yo WF

DX = intermittent left ET and left hypertopia

UCT/UCT'
usually no movement
sometimes OS moves down and out

ACT
ESO deviation = D: 15BO in all gazes
N: 4BO, SRx on
Hyper deviation = 9BD OS 7BD OS 5BD OS
R 1° Gaze L
L Shoulder: Worse

DX= Comitant Intermittent L ET. DI?
Non-com Intermittent L Hypertropia, Left 4th N

LB, 47 yo Health Hx.

Diplopia Onset(2), 3 years ago. Getting worse

- Chronic pain past 3 years. Vicodin daily. Motrin as needed
- Back surgery 2 years ago
- Hysterectomy 1 year ago
- Hypoglycemia
- Dry skin, weight gain, cold extremities
- Poor sleep, chronic fatigue
- Convincingly denies diplopia prior to age 40

LB, Intermittent Strab w/Acquired Intermittent Diplopia

Pre-existing Deviation	Acquired
Decompensates	Deviation
LBs health history	No diplopia < 40,
Previous Neuro was neg	large deviation
Not Constant or acute onset	
Comitant Eso per ACT	Eso: spread of comitancy
Could be congen 4th N	Non-comitant Vertical (4thN)

LB 47 yo WF A & P

Acquired intermittent diplopia: etiology unclear
decompensated eso and hyper versus
acquired deviation

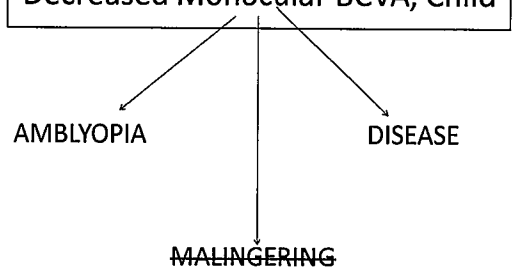
P: Refer to PCP ask for clarification re health status
PCP agreed to refer to neuro-ophthamologist

Outcome: left cavernous sinus meningioma

Cavernous Sinus, Lesions to Cranial Nerves

- Poly neuropathy.
- Non concomitant expected... LB: spread of comitancy. Menigioma slow growing.
- LB: III spared, incl pupil and lid
- V spared
- III and IV are in C sinus lateral wall.
- VI – middle of C sinus

Decreased Monocular BCVA, Child



AMBLYOPIA

FORM DEPRIVATION	FUNCTIONAL
• Input blocked. Ex:	• Input abnormal
• Congenital Cataract	• Anisometropia
• Cornea opacity	• Unilateral strabismus
• Ptosis	• Onset age 6 or younger

DZ causing monoc VA loss, child

- Birth defects, eye
- Acquired
- Neoplasia, eye
- Optic nerve disease

Can *present* as amblyopia and / or unilateral strabismus

AH, age 8;7. 20/400 OS. CLXT. XT onset: "age 2 or 3 years old"

- Hypoplasia of left optic nerve causing poor VA OS
- Also has reduced color v OS
- + A P D OS
- Poor vision causes constant strab.
- This type of strabismus is called sensory strabismus

Congenital Birth Defects, Eye

- Congenital Cataract
- Retinopathy of Prematurity
- Persistent Primary Hyperplastic Vitreous
- Myelinated Nerve Fibers
- Coloboma, pits, hypoplasia of optic nerve
- Coats Disease: Young male with unilateral exudative vascular retinopathy

ACQUIRED Monoc DZ causing VA Loss

- Ocular Toxocara
- CMV
- Toxoplasmosis chorioretinitis
- Histoplasmosis maculopathy

3.NEOPLASIA, Eye - Retinoblastoma

- Malignant tumor of embryonic retinal cells
- Incidence: 1 in 20,000 births
- Onset: birth – 12 months
- Average age of Dx: 17 mos
- Most are Dxd by age 3 years
- Inherited: younger and bilateral

Retinoblastoma Clinical Presentation

- Leukocoria – pearly iridescent 56%
- Strabismus 20%
- Red, painful eye with elevated IOP/Glaucoma 7%
- Poor vision 5%
- Other 12%

DZ causing monoc VA loss, child

✓Birth defects, eye
✓Acquired
✓Neoplasia, eye
• Optic nerve disease
1. optic neuritis
2. optic nerve glioma
3. craniopharyngioma

Pediatric Monocular Optic Nerve DZ

- Optic neuritis: papillitis or retrobulbar
  - meningoencephalitis (bilateral)
  - systemic / dental / sinus infection
  - vaccination sequelae
  - can present as unilateral strabismus
- Optic nerve glioma
- Craniopharyngioma

DS, age 6;4

- Failed vision screening at pre-school (age 5)
- Pediatric OMD diagnosed anisometropic amblyopia LEFT eye
- Treatment: SRx full time and part time direct occlusion of OD..... Minimal improvement
- Cc: "Will VT help?"
- compliant with SRx / occlusion: impossible
- Exam
  poor BCVA OS confirmed (20/60)
  3.50D anisometropia confirmed

DS, age 6;4 Exam (cont.)

Unaided VA	D	N (40cm)
OD	20/20	RS20
OS	20/100	RS60

Subj

+1.75	-.25	180	20/20
-1.75	-.25	180	20/60

DS, age 6;4 Amblyopia Left Eye

Sensory Fusion: Suppress OS
No random dot stereo + Gross Stereo (fly)

Cover Test: No strab

Pupils		normal
Color	OD	normal
Vision	OS	normal (slow)
Visual	OD	normal
Fields	OS	abnormal

DS, post optic neuritis optic atrophy

- RNFL defect
- Superior arcuate and central scotoma
- Abnormal color v OS
- Optic nerve disease, blurred input early in life caused axial elongation myopia OS which caused anisometropia
- Poor cooperation with occlusion explained

DG, age 7. 20/60 BCVA OS. Prior Records

Cyclo +2.50 -1.25 180 20/20
Refraction +2.50 -1.25 180 20/60

SRx +2.00 -1.00 180 Plan:
+2.00 -1.00 180
Cover Test: "small constant left XT"
Sensory fusion: "suppress OS"
Color vision: (n.t.) Confrontation VFs: normal
SRx FT & occlude OD

Follow-up: No improvement. Suspect malingering, refer for VT eval

VT Work-Up 20/60 OS confirmed

- No strabismus with repeated cover test.
- No aniso...
- No amblyopia
- + Color vision loss OS
- + APD OS
- OS: Pale disc secondary to anterior optic nerve glioma

Anterior Optic Nerve Glioma

- Retrobulbar astrocytic fibrous tumor
- Swollen nerve → time → pallor
- Clinical signs: ↓ VA, R/G color, VF defects, + APD
- NON-metastatic. Usually no treatment
- "Posterior" glioma: Located in chiasm.
- neurofibromatosis

Craniopharyngioma

- Anterior pituitary tumor, childhood (2 : 100,000)
- Congenital: manifests infant – age 14
- Non-malignant
- Invasive/compressive
  - Optic chiasm. V Problems
  - 3rd ventricle. Elevated ICP with papilledema
- Compromised growth

DA, age 13. "VT" symptoms despite SRx

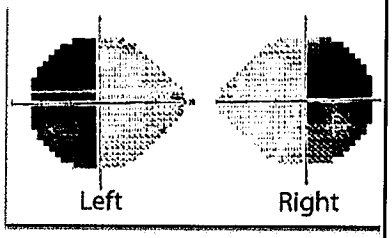
- -0.50- .25 180 20/20 +
  -1.50- .75 180 20/20+
- Mild HAs & variable near blur "getting better"
- PMH: overweight, no meds
- No strab. Versions & pupils normal
- VFs & Color V normal
- Accommodative work-up: Normal
- Vergence work-up: Normal
- False alarm: buried drusen of optic nerve heads

Craniopharyngioma

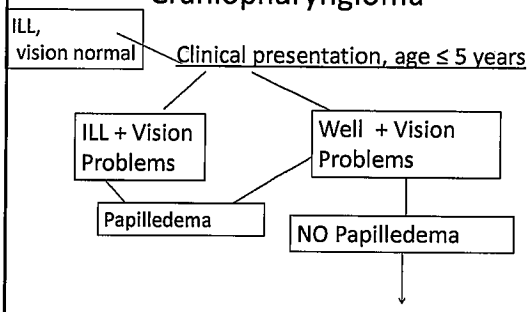
- Anterior pituitary tumor, childhood
- Congenital: manifests infant – age 14
- Non-malignant
- Invasive/compressive
  - Optic chiasm. V Problems
  - 3rd ventricle. Elevated ICP with papilledema
- Growth retardation
- Prompt treatment prevents/minimizes permanent neurological damage

Craniopharyngioma, V Problems

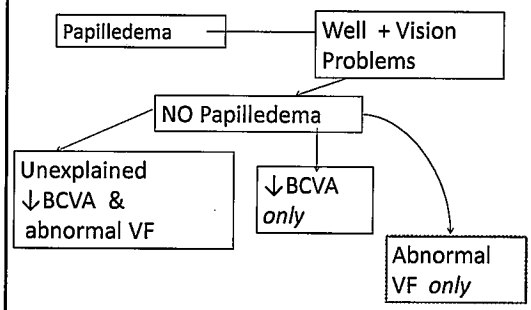
- Unexplained ↓ BCVA, monoc or OU
- Bitemporal VF Loss
- Diplopia



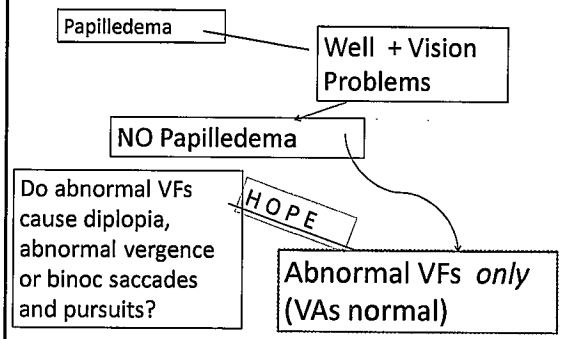
Craniopharyngioma



Craniopharyngioma, clinical presentation

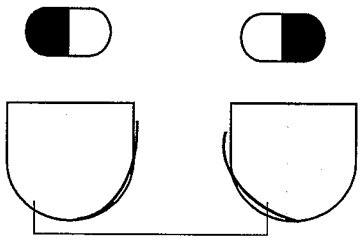


Craniopharyngioma, clinical presentation



Bitemporal VFs and Eye Movements

Each of the 2 normal hemifields is paired with desensitized hemifield. Sensory fusion impaired



JM, 6 y.o. "Poor Tracking"

- Playful, active, short attention span, small stature, repeating K
- My exam UA VA OD 20/40 BCVAs
  Broken Wheel Test OS 20/50

- +.50DS OU, dry and wet, VAs same
- No strabismus (primary gaze)

JM exam age 6 years (cont.)

- NPC normal
- prism bar vergence ranges: unreliable
- Markedly abnormal and erratic saccades and pursuits
- A Seg, pupils, monocular color vision normal
- Confrontations & FDT VFs: unreliable
- Post Seg: "nl to extent seen. Compromised views because of poor cooperation"

JM age 6 Years. A & P

A:

- Reduced BCVAs (attention / effort?)
- Erratic, nystagmus like saccades and pursuits. Unlike those seen in poor effort/attention or OMD
- Short stature

P: Refer to pediatric neurologist

Outcome: Cranial tumor requiring surgery

Disease Masquerading as Visual Dysfunction Requiring VT

Diplomate Preparatory Course

Nov 8 2016

AAO Anaheim CA

Thank You

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John D. Tassinari, O.D., FAAO, FCOVD, Dip (BVPPO) AAO
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Education

Institution	Degree	Year	Concentration
So. California College of Optometry	---	1996	Ocular Disease
State University of NY, College of Optometry	---	1988	Vision Therapy Residency
So. California College of Optometry	O.D.	1987	Optometry
So. California College of Optometry	B.S.	1985	Visual Science
California State Univ. - Northridge	---	1983	Occupational Health

Licensure

California - August, 1987 no. 8873,
New York - February, 1988 no. T004878
California - January, 1997 no. 8873T - Expanded scope of license to treat ocular disease.
California - July 2001 Expanded scope of license to treat glaucoma.
California - May 2012 Glaucoma Certified

Academic Honors And Professional Recognition

Professional Career

Merit Promotion to Associate Professor So. Calif. College Optometry, 06/2013, This promotion is noteworthy because part time faculty rarely achieve the status of Associate Professor
Diplomate, Binocular Vision Pediatric & Perception Section, American Academy of Optometry 12/2006
Fellow, American Academy of Optometry 1991
Fellow, College of Optometrists in Vision Development 1993
Merit Promotion to Assistant Professor, SCCO, 07/1993
Honorable Mention, Best Technical Article. Awarded by Optometric Editors Association. 06/26/1998.
Best Article J Optom Vis Develop 2007
Best Article J Optom Vis Develop 2008
Hillsides Special Recognition Award 2011

Optometry College

Doctor of Optometry with Distinction,05/1987.
Homer Hendrickson Vision Training Award, 04/1987.
Second Place Award for Research, 1987 SCCO Senior Research Symposium.
Auxiliary to the COA Scholarship Award, 04/1986.
Summa Cum Laude Bachelor of Science Degree, 05/1985.
Arab Educational Foundation Scholarship Award, 10/1984 and 10/1985.
Student Membership in Beta Sigma Kappa Honors Fraternity, 08/1984 – 05/1987.

Undergraduate
Dean's List each semester (Fall and Spring) 1979-1983, Cal State Northridge.

Leadership

Vice Diplomate Chair Binocular Vision Pediatric Perception Section of American Academy of Optometry. 12/2010 – 12/ 2012
Diplomate Chair, BVPPO Section AAO. 12/2012 – 12/2014
Section Vice Chair, BVPPO Section AAO 12/2014 - ongoing
California Optometric Association Education and Professional Practices Committee. Member 02/2008 – 01/2011. Chair,02/2011 – 01/2014
Member, Reference Committee for COA 02/2008 House of Delegates
State Coordinator (CA) Infant SEE Program. 12/2004 – present.
Chair, International Examination and Certification Board for the College of Vision Development, 10/2000 to 10/2003.
Student Research Committee, So. California College of Optometry, 08/1994 – 05/2000
President, San Gabriel Valley Optometric Society, 01/1997 to 12/1998.
President - Elect, San Gabriel Valley Optometric Society, 01/1995 to 12/1996.
Political Activities Coordinator, San Gabriel Valley Optometric Society, 02/1990 to 02/1994.
Delegate for San Gabriel Valley Optometric Society at COA House of Delgates, almost yearly 1989-2014
Trustee and Student Liaison Chairperson, Walter O. Studt Foundation, 03/1991 to 12/1998
Co-Chairman, SCCO Alumni Reunion Weekend 08/1992
Secretary, Beta Sigma Kappa Honors Fraternity, 1985-1986
Vice-President, Omega Delta Optometric Fraternity, 1985-1986.
Director, Department of Community Health, SCCO student Association, 1985-1986.

Professional Experience – Practice and Educator

Owner of a private group practice in Pasadena, CA. Full scope optometry with specialty in vision therapy, 07/1989 to 12/2015.
Faculty Member, Southern Calif. College of Optometry 08/1988 – 11/2015. Final assignment was Coordinator of Vision Therapy Services at the Optometric Center of Los Angeles. Duties included clinical supervision of senior optometry students, conducting topical seminars, overseeing the day to day operations of the OCLA vision therapy services, and supervising senior research projects. Rank: Associate Professor.
Assoc Prof, Chief of Pediatrics Western Univ College of Optom. 10/ 2015 - present
Supervisor, SCCO Clinical Externship, 12/1999 to 2005
Clinical Instructor, Extern Site for Western College of Optometry. 4th year students from Western College of Optometry provide direct patient care in my office under my supervision. August 2012-Oct 2015. I also supervised 1st and 2nd years in clerkship program.
Assoc Prof, Chief of Pediatrics Western Univ College of Optom. 10/ 2015 - present

Professional Experience- Profession of Optometry

Expert Examiner, International Examination and Certification Board for the College of Optometrists in Vision Development. This is an appointed position. I evaluated Optometrists who are seeking fellowship in this organization. 10/1998 to 10/2000.

Expert Examiner, National Board of Examiners in Optometry. As an expert examiner for the NBEO, I examine Doctors of Optometry who are seeking State Licensure. 10/1996 to 10/2004.

Journal Referee – Journal of Optometric Vision Development. 10/2004 to 10/2012. This Journal transformed to become *Optometry & Visual Performance* in10/2012. I was asked to join this the review board for OVP and accepted. Concluded 06/2015

Journal Referee – California Optometry. 10/2007 to present

Journal Referee (guest reviewer) *Optometry, J Amer Optom Assoc.* 06/2008 and 01/2011.

Journal Referee Austin Journal of Clinical Ophthalmology. 12/2013 – 2014.

Vision and Learning Consultant – So. Pasadena Unified School District, 04/1999-2015 .

Vision and Learning Consultant – Rosemead Unified School District, 04/2001 to 2015.

Vision and Learning Consultant - Glendale Unified School District, 02/1998 to 2015. I am a vendor, contracted to provide vision testing, vision skill testing, and vision therapy.

Consultant, RC Instruments (VT Equipment), 01/1994 to 04/ 1994.

Visual Consultant - Villa Esparanza Home for Adults with Special Needs, 01/1992 to present.

Visual Consultant - 5 Acres Boy's and Girl's Aid's Society of Los Angeles, 09/1990 to present.

Associate Optometrist, practice of Robert Q. Eastland, O.D. 01/1989 to 06/1989. Full scope optometry including vision therapy.

Research Consultant, Centinela Valley Juvenile Diversion Project Vision Care Pilot Program. 12/1990 to 01/1996.

Staff Optometrist, Loma Linda Ophthalmology Medical Group, Colton Calif. 07/1988 to 01/1989. Duties include infant and child eye examinations, strabismus/amblyopia evaluations, pre and post operative exams.

Vision Therapy Residency, SUNY/College of Optometry, 06/1987 to 06/1988. This was a one year post-graduate program comprised of direct patient care, graduate-level didactic courses, research, and teaching in the area of vision therapy. I performed 37 strabismus/ amblyopia evaluations, 17 visual efficiency evaluations, and 28 perceptual-motor evaluations for learning disability. I administered 91 strabismus/amblyopia therapy sessions, 22 visual efficiency therapy sessions, and 139 perceptual-motor therapy sessions.

Post-Graduate Clinical Supervision of Third Year Students at the Optometric Center of Fullerton Primary Care and Vision Therapy Clinics, 05/1987 to 06/1987.

Teaching Assistant, Third Year Vision Therapy Clinic, Optometric Center of Fullerton (SCCO), 05/1986 to 09/1986.

Teaching Assistant for `Ophthalmic Optics and Lens Design'; Chester Katz O.D. Instructor, SCCO Fall Quarter 1985 and Winter Quarter 1986.

Teaching Assistant for `Binocular Vision and Space Perception'; David Kirschen, O.D.,

Ph.D. Instructor, SCCO Spring Quarter 1986

Lab Technician and Optometric Assistant, Office of Chester Katz O.D. Reseda, Calif. 07/1985 to 09/1985 and 01/1987 – 05/1987.

Lab Technician and Optometric Assistant, Office of Michel Kawaji O.D. Los Angeles Calif., 06/1986 to 12/1986.

Publications

Comer G, Tassinari J, Sherlock L, (1988) A Clinical Comparison of the Threshold Related and Single Intensity Strategies of the Humphrey Field Analyzer. J AOA vol.59 no.8

Tassinari J, Binasal Occlusion in Esotropia. Presented at the 1988 Skeffington Symposium on Vision, Jan. 1988.

Tassinari J, Methyldopa Related Convergence Insufficiency. J of the Amer Optom Assoc. 1989; 60 (4): 311-314.

Tassinari J, Binasal Occlusion. Journal of Behavioral Optometry 1990; 1 (1): 16-21.

Tassinari J, Excessively Close Working Distance. Journal of Behavioral Optometry 1995; 6 (4): 87-89.

Tassinari J, Computerized Instruments: Their use in vision therapy. Optometry Today April 1995.

Tassinari J, Nearpoint Visual Stress. Lecture presented as part of the Walter O. Studt Foundation Vision Therapy Practica. September 1996.

Tassinari J, Eastland R., Vision Therapy for Deficient Visual-Motor Integration. J Optom Vision Development 1997; 28: 214-26.

Tassinari J, Monocular Estimate Method Retinoscopy: Central Tendency Measures and Relationship to Refractive Status and Heterophoria. Optom Vis Sci 2002; 79(11): 708-14.

Tassinari J, Deland P, Developmental Eye Movement Test; Reliability and Symptomatology. Optom, J Amer Optom Assoc 2005; 76(7): 387-99.

Tassinari J, Change in accommodative response and posture induced by nearpoint plus lenses per monocular estimate method retinoscopy. J Beh Optom 2005; 16(4): 87-93.

Tassinari J, Untreated Oculomotor Dysfunction. Optom Vis Dev 2007: 38(3): 121-24.

Tassinari J, Assessing the assessment: Learning Related Vision Problems Test Scores Revisited. Optom Vis Dev 2008 39 (3): 128 – 139.

Tassinari J, Vision therapy for sensory fusion disruption syndrome: 2 case reports. Optom Vis Dev 2010 41 (4): 215-21.

Tassinari J, Rating the Test Scores from a Visual Information Processing Battery. This document is a chapter in; Pacific University College of Optometry Visual Perceptual Test Manual. 2010

Tassinari J, Case Report: Occlusion Therapy for Amblyopia. California Optometry Magazine May 2014

Tassinari J, Reliability and validity of a computerized tachistoscope test. Vision Development & Rehabilitation 2016 2 (4): 242-48.

Continuing Education Lectures / Conference Presentations

Visual Field Screening. A Comparison of the Threshold Related and Single Intensity Strategies on the Humphrey Field Analyzer. Presented at the SCCO 1987 Senior Research Symposium with L. Sherlock. 2nd place

The Role of Language in Learning Disability. Presented at the SUNY/Optometry Residents Seminar, Nov. 1987.

A Clinical Comparison of the Threshold Related and Single Intensity Strategies on the Humphrey Central 40 Point Test. 1987 Annual Meeting of the American Academy of Optometry (paper session)

Vision Therapy for the Family Practitioner. Presented to the Rio Hondo Optometric Society, Jan. 1991.

Total Vision and the Hearing Impaired Child. Presented at the annual meeting of the Alexander Graham Bell Association for the Deaf, Jan. 1991

The Flow of Vision Therapy Patients Through My Office. Presented within Dr. Eric Borsting's course on Vision and Learning at So. Calif. College of Optometry 1992-1996

Testing of Vision Function and Vision Therapy Part 1. Presented to the Taiwan Optometric Association during a 4 day seminar November 1994.

Testing of Vision Function and Vision Therapy Part 2. Presented to the Taiwan Optometric Association during a 4 day seminar May 1995.

Building a VT Specialty within a Primary Care Optometry Practice. SCCO Block Lectures, presented annually to Senior Class 1992 - 1999

Vision and Learning. A lecture presented to the Learning Disabilities Association of California 10-25-97. This 3 hour lecture was also taped for audio cassette.

Cycloplegic Agents. A lecture presented to the L.A. County Optometric Society 10-28-97.

What's new in Children's Vision and VT. A lecture presented at So. Calif College of Optometry 6-6-04.

Infant Vision Care for Babies. A lecture presented to San Gabriel Valley Optometric Society 3-16-05.

Infant Primary Eye and Vision Care. A lecture presented at So. Calif College of Optometry 7-10-05.

Infant Vision Care for Babies. CE lecture for San Gabriel Valley Optometric Society 3-16-05

Optometric VT. A Refresher Course for Primary Care ODs. CE lecture at SCCO 12-3-06

Symptomatic Binocular or Accommodative Dysfunction. Plus Lenses? Prism? Both? Neither? CE Lecture at SCCO 2-18-07

Infant Vision Care for Babies. CE lecture for Rio Hondo Optometric Society 9-23-08

Infant Vision Care for Babies. CE lecture for San Fernando Valley Optometric Society 12-6-08

Vision Therapy. A Refresher Course for Primary Care Optometrists. CE lecture 1-hour at the 2008 AAO meeting.

Nearpoint Plus Lens Prescribing for Symptomatic Accommodative or Binocular Dysfunction. CE lecture for Rio Hondo Optometric Society 2-12-10
Primary Eye & Vision Care for Babies and Young Children. A 2-hour lecture to the San Joaquin Valley Optometric Society 3-15-10
Useful but Sometimes Overlooked Pediatric Pharmaceuticals. CE Lecture at SCCO 3 – 04 - 12
Eye on Reading. 2-hour lecture at the 2012 AAO Meeting
Pediatric Merry Go Rounds. 2-hour CE Lecture at SCCO on 7-21-13
Eye on Reading. 2-hour lecture 2013 AAO Meeting.
Disease Masquerading as Binocular Vision Disorder. 1-hour CE. SCCO Ocular Disease Symposium. March 2014
Useful but Sometimes Overlooked Pediatric Medications. 2-hour CE at Optometry's Meeting June 2014
The Struggling Student; 4 Case Types. 2-hour lecture November 2014 AAO Meeting
Disease Masquerading as Binocular Vision Disorder. 2-hour CE. IEOS Jan 2015
The Struggling Student, 3 Case Types. 2-hour lecture October 2015 AAO Meeting
Panel Member, Calif Head Start Association Health Institute, Annual Conference 2015. Topic: Vision Screening of infants through age 3;0.
Tales from the Crib. 7 Infant Case Reports. 2-hours Optometry's Meeting June 2016
The Struggling Student; 4 Case Types. 2-hour lecture Optometry's Meeting June 2016

Anterior Segment Disease in Infants and Young Children. 5 Case Reports. 1-hour WUCO Webinar July 2016
Disease Masquerading as Visual Dysfunction Requiring VT. Congress of Optometry Academic Functional Monterrey, Mexico. September 2016
Disease Masquerading as Visual Dysfunction Requiring VT. 2-hours. AAO November 2016 Diplomate Preparatory Course
Do Babies Ever Need Glasses? When? Why?. 1-hour webinar with TQ exam 1-4-2017
Importance of Comprehensive Eye Exams Early in Life + Panel Discussion. LACOS 1-22-2017
Asian Amer Optom Society May 2017 – pending
Pediatric A Seg DZ AAO 2017 - pending

Membership in Community Organizations

Immaculate Conception Catholic Church Children's Liturgy Program 1995 - ongoing
Immaculate Conception Parochial School Parent Teacher Organization 1996-2006
Immaculate Conception Youth Group Adult Leader 2005 – ongoing
Stubenville Youth Conference Adult Chaperone, 2009 - ongoing
Young and Healthy Provider Network (donated vision care).
LA County USC Maternal Child Care Clinic (donated vision care for children with HIV).
Knights of Columbus Fraternal Organization- volunteer service to poor and needy as well as fundraising.

Special Olympics Opening Eyes Vision Health Program, Volunteer Optometrist.
Union Station (donated vision care for indigent/homeless individuals).
Chair, Annual Fundraising Drive, Columbian Foundation for People with Mental Retardation 2002-2014.
Head Coach - Monrovia Youth Baseball League (MYBL) Pony Dodgers, 2004 and 2005.
Volunteer Speaker and Job Shadow Host, Blair High School Health Career Academy
Health Advisory Committee, Center for Community & Family Services / Head Start, Pasadena. Jan 2011 - ongoing
City of Saints Youth Conference, Planning Committee and supervisor of Transportation, Aug 2015 - ongoing