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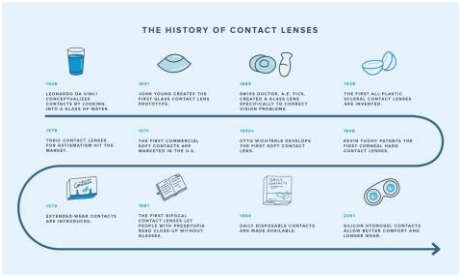
- Ocular Disease: Mistakes Not to Make (2hr)
- Ocular Disease: Conditions Every OD Should be Treating (2hr)
- An Optometrist's Guide to Prescribing Opioids and Managing Pain (1hr)

Dr. Gupta is not a member of any speakers bureau nor does he get paid by any company mentioned in the lecture

CL Now vs Then



Now

At what age did we fit patients with a CL 30 years ago?

- Average age was 16

Now

- Your competition is the OMD who is giving away CL services.
- Your competition is a website or app
- Or it is a vision plan

Back Then: You didn't cater your practice to these

Back Then: No Need

Now you must decide…

Are you better off getting paid ZERO dollars for writing the Rx for CL than matching prices?

Now:

What happens when you do this….

- Your accounts receivable goes down
- Patients have no reason to shop around since you sold them a year supply
- Patients can take advantage of rebates which decreases their cost without changing your profit

Lost revenue

- Average OD sees 700 CL patients a year
- Average CL patient worth $200 a year
- Capture rate is 75%
- Annual supply rate is only 50%

What's the minimum age at which a patient can get glaucoma?

What's the minimum age you should check for glaucoma?

At 10 years old, what is the normal IOP range?

8-19

IOP in kids

- Under 12 between 6 to 9 months
- Then increase 1 mm/year
- Reaches "normal range" around age 12

IOP in children

- Age 12 10 to 21
- Age 11 9 to 20
- Age 10 8 to 19
- Age 9 7 to 18

What about C/D ratio in children?

What is normal?

What is normal C/D ratio?

- .30
- C/D ratio in kids roughly the same in adults

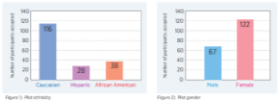
What about central corneal thickness in children?

When does the 540-550 normal apply?

Central corneal thickness

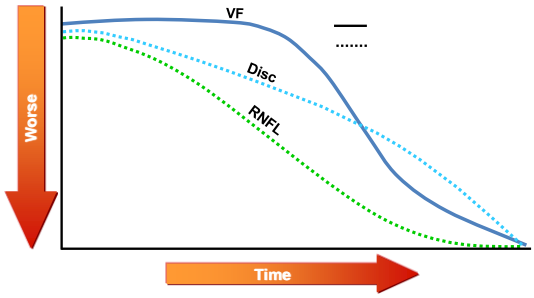
- Very few studies
- One small study of 150 infants found CCT of 600 at birth. Comes to down to 550 within a week. Why the rapid change?

What is normative database for OCT for a patient this old?



Area		Disc	Macula
Scan Pattern		3D (mm)	3D (mm)
N		107	164
Age	Under 20	2	2
	20 - 29	31	39
	30 - 39	29	33
	40 - 49	25	33
	50 - 59	25	25
	60 - 69	16	25
	Over 70	6	7
	AVG	42.84	42.35
	SD	15.86	15.59
	Min	19	19
	Max	84	84
Gender	Female	52	92
	Male	54	61

Structural Damage vs Functional Vision Loss



Ocular Hypertension

- OHTN: Elevated IOP and everything else is normal

Physiological Cupping

- First: rule out glaucoma before you jump to the conclusion of physiological cupping
- Second: physio cupping is only confirmed after years and years of a stable ONH
- There is no ICD code for Physiological Cupping
- Lastly: In terms of liability, there is no such thing as physiological cupping!

Glaucoma Suspect

- Glaucoma Suspect – patient is at higher risk for developing glaucoma than the average person based on a variety of factors

Patient presents with red, painful eye x 1 day after being hit with a couple of paper clips thrown by a friend. Eye hurts "a lot"

OH: CL wearer
MH: DM – controlled with oral meds
Entrance exams all normal

Definitions

- Pain
  - An unpleasant sensory and emotional experience
  - Usually associated with actual or potential tissue damage

Types of pain

- Acute
- Chronic
- Nociceptive
- Neuropathic

Acute

- Elicited by injury to body tissues
- Typically seen with trauma, acute illness, surgery, burns, or other conditions of limited duration; generally relieved when healing takes place.

Chronic

- Elicited by tissue injury
- May be perpetuated by factors remote from the original cause and extend beyond the expected healing time
- Generally lasts longer than 3 months

Nociceptive

- Elicited by noxious stimuli that damages tissues or has the potential to do so if the stimuli are prolonged.
- Two basic types:
  - Somatic pain
  - Visceral pain

Somatic pain

- Arises from skin, muscle, joint, connective tissue, or bone; generally well localized and described as aching or throbbing.

Visceral pain

- Visceral pain: arises from internal organs such as the bladder or intestine; poorly localized and described as cramping.

euplink, Wikimedia Commons

Neuropathic

- Caused by damage to peripheral or central nerve cells
  - Peripheral:
    - Arises from injury to either single or multiple peripheral nerves
    - Felt along nerve distributions
    - Burning, shooting, stabbing or like an electric shock
  - Central:
    - Associated with autonomic nervous system dysregulation
    - Phantom limb pain (peripheral) or complex regional pain syndromes (central)

What categories of pain do most optometrists see?

Acute nocioreceptive pain

Pain is a very…

– Personal and subjective experience

- Can ONLY be described by person experiencing pain
- Exists whenever the person says it does

How do we assess pain?

– Subjective data collection

– Objective data collection

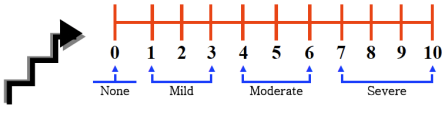
Subjective data

1. HPI (history of present illness/injury) or Chief Complaint
   - History of pain (PQRST)
     - Pain
     - Quality
     - Region/Radiation
     - Severity
     - Timing
   - Efforts to relieve symptoms

Objective data

1. General appearance
   a) Psychological
   b) Observations of behavior and vital signs should not be used solely in place of self-report
   c) Positioning and movement
   d) Physiologic
   e) Level of distress/discomfort

Numeric Rating Scale



Primary Goal in Pain Management

- Find and treat the underlying cause
- Then, manage the associated pain

Back to our patient

- What can we do to help this patient, and also help with the pain?
  - Topical anesthetic
  - Cycloplegic agent
  - Topical NSAID
  - Bandage Contact Lens
  - Pain Medications

Topical anesthetic

- Do this when you start examining patient so you have the time to do a thorough evaluation
- Do this before asking the patient about pain

Cycloplegic agents

- Often ocular pain is associated with an inflammatory component
  - Often, there is a "perfect storm": corneal + inflammation
- Blocks acetylcholine thus giving mydriasis and paralyzing the CB
- Function:
  - Comfort- relieve pain by paralyzing the ciliary spasm
  - Reduce leakage- by stabilizing the blood aqueous barrier, prevent further protein leakage, which reduces anterior chamber inflammation.
  - Prevent posterior synechiae which can lead to iris bombe & elevated IOPs- keeps the pupil moving

Topical NSAID

- Many options
- Dosing
- What to worry about?

Bandage Contact Lens

Most commonly used in central abrasions

Used in place of pressure patching

Can do typically with eyedrops but not ointment

Pain Medications

OTC

Rx

Narcotics

Oral Analgesics

• OTC's	Dosage
–Acetylsalicylic acid (ASA - aspirin)	325-500 mg
–Acetyl-para-aminophenol (APAP-Tylenol)	325-500 mg
–Ibuprofen (Advil, Nuprin)	200 mg
–Naproxen (Aleve)	220 mg

Acetaminophen

- Brand name: Tylenol
- Antipyretic and analgesic effect
- Almost no anti-inflammatory effect
- Peak action in 30 to 60 minutes

Acetaminophen

- Use with extreme caution in patients with liver or kidney disease
- Caution in heavy alcohol drinkers

Acetaminophen

- Used to be 4g per day (2 x 500 mg every 6 hours)
- 3g per day (2 x 325mg every 6 hours)

Ibuprofen Risks

- Increased risk of bleeding due to inhibition of thromboxane production
- Decreases stomach mucous production leading to increased risk of gastric ulcers and intestinal perforation

Ibuprofen Risks

- Black Box warning:
- Increased risk of serious cardiovascular thrombotic events including myocardial infarction and stroke

Ibuprofen Risks

- Be careful in recommending to patients with Hypertension
- Can cause increased sodium retention with subsequent increase in BP

What if OTC not enough?

Controlled Substances

– Schedule I: High abuse potential (heroin, marijuana, LSD)

– Schedule II: High abuse potential with severe dependence liability (narcotics, amphetamines

Controlled Substances

– Schedule III: Moderate dependence liability (certain narcotics, nonbarbiturate sedatives, etc)

– Schedule IV: Less abuse potential than S3; limited dependence lability (nonnarcotic analgesics, antianxiety agents, etc)

– Schedule V: Limited abuse potential (small amounts of narcotics in antitussives or antidiarrheals)

A NATIONAL EPIDEMIC

On the average, how many people die each day from opioid addiction?

150

Fentanyl

- Fentanyl is a synthetic opioid that is up to 50 times stronger than heroin and 100 times stronger than morphine
- It is often added to other drugs because of its extreme potency, which makes drugs cheaper, more powerful, more addictive, and more dangerous.

Opioids

- Opioid are sedative narcotics
- Opioids are a type of drugs in both legal (prescription medications such as oxycodone, hydrocodone, morphine, fentanyl) and illegal(heroin) forms.
- Opioids are natural or synthetic substances that act on the brain

Morphine Products

- Morphine
  - Standard for comparison of other agents
- Used for severe pain

Issues with Opioids

Tolerance

- Greatest level of discomfort a person is prepared to endure
- Person requires increased amount of substance to achieve desired effect

64

Dependence

- Reliance on a substance
- Abrupt discontinuance would cause impairment of function

65

Addiction

- Behavioral pattern characterized by compulsively obtaining and using a substance
- Results in physical, social, and psychological harm to user
- The hallmark of addiction is when the person loses the ability for self-control

66

Abuse

- Many problems with abuse of narcotics involves legitimately prescribed products

Most common reason of death from overdose?

- Respiratory depression

If an Opioid Overdose is Suspected

Step 1: Assess victim's signs & symptoms
- Call for EMS **support**

Step 2: Stimulate the person - sternal rub
- If no pulse, start **CPR**

Step 3: Rescue breathing

Suspected Opioid Overdose,

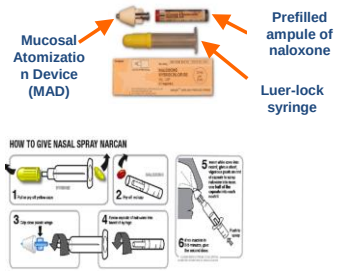
continued

Step 4: Administer Naloxone

Step 5: Monitor and Support
-If no pulse, start CPR
-If breathing remains absent or slow (< 8 per minute), continue rescue breathing + administer 2nd dose

-If breathing restored, then recovery position

Rescue Kit Components



The Recovery Position

Perdue Pharma

- $10 Billion settlement still in limbo
- Company dissolved
- Will now focus on helping patients with Opioid addiction

DG Rules for Painkillers

Prescribe conservatively

- **Patient's perception of pain is always worse at the time of the incident. Stabilize the patient before discussing pain management**
- **Use the weakest agent for the shortest amount of time**

BACK THEN: Things we did confirm the diagnosis

Influential Factors of Dry Eye

Visual Tasking
(e.g. PC use)

Hobbies
(Outdoor Sports)

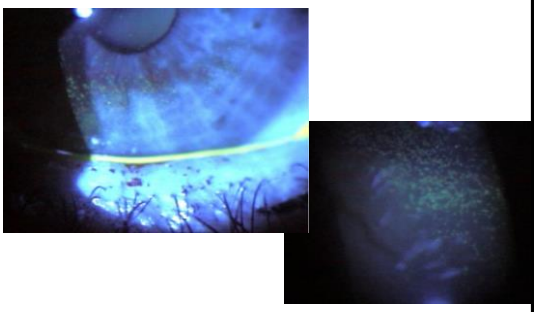
Air
Conditioning,
Fans, Heating

Schirmer Testing

Phenol Red Testing

Lissamine Green

Fluorescein Staining



Other tests

How do we diagnose dry eyes?

BACK THEN:

- 1st line of management – send the patient to the pharmacy or grocery store for artificial tears

Don't Let Your Patient Get Lost

If you leave them to figure it out themselves…

- **33% of dry eye patients diagnosed by a doctor purchase either a store brand or a redness reliever like Visine*.[1]**
- **50% of dry eye sufferers choose redness relievers or allergy drops – the wrong type of drop for dry eye relief.[1]**

NOW

- Gives specific recommendations

  AND

- Schedule follow up

When a patient needs more than OTC lubrication….

What can we do?

- Punctal plugs
- Lotemax
- Warm compresses
- Biologics
- Humidfiers
- Lacrisert

Types of plugs

- Temporary (5 to 7 days)
- Semi-permanent
- Permanent

The way I do plugs

- If I am worried about cytokines already present, I Rx Alrex or Lotemax prior to doing plugs
- I rarely do collagen plugs as diagnostic any more
- I like punctal so you can see if they have fallen out

How to bill

- CPT Code 68761 (E2 and E4)
- Document: Patient is not getting sufficient relief with prior treatments
- Reimbursement – roughly $268 for one eye. If you do both you get $402 ($268 + ½ $268)

Downside to doing plugs

- Patient will get relief very fast
- Your practice will make more money

More Options

- **Omega 3's**
- **Humidifiers**
- **Warm Compresses**

Now

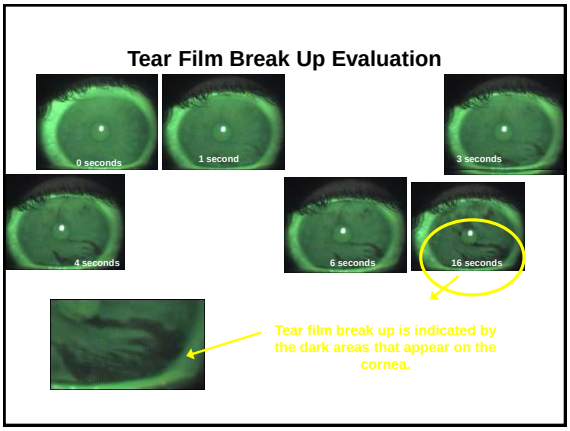
- We don't do many of those things anymore
- We send a prescription for agents such as Restasis, Xidra, Cequa

Lotemax (Loteprednol) and Dry Eyes

- **Short-term pulse therapy**

Miebo

- Indicated for evaporative Dry Eye Disease
- Rx product: QID
- Key: Confirm that your patient has evaporative dry eye



Restasis(Cyclosporin)

Mechanism of Action

- **Activated T cells produce cytokines that result in**
- **Increased cytokine production**
- **Neural signal to lacrimal gland that disrupts production of natural tears**

Xiidra (Lifitegrast)

- BID dosing
- Approved for 17 years and older
- Comes in single use plastic vials

Xiidra (Lifitegrast)

- Works by interfering with T-cells so decreases their impact on the lacrimal gland trying to restore their normal function
- Patients demonstrate improvement as early as 4-6 weeks

Also… Cequa

- Basically another version of Restasis
- = .09% cyclosporine A
- BID dosing
- By Sun pharmaceuticals

Most common reason for failure for Restasis

15% to 20% Clinical Efficacy

CL and Dry Eyes

- Remains the #1 reason why patients drop out of contact lenses

What's the most important question to ask your patients when considering Dry Eyes

Daily average wear time

What % of patients drop out of CL?

16 %

When doing SLE on a patient with a corneal FB, what is the most important thing to do?

Rule Out Ocular Penetration

What percentage of FB are penetrating?

10 to 12 %

How to rule out ocular penetration

- History
- Slit lamp exam – document negative Seidel's sign
- Dilation

What if you can't rule out penetration?

Once you do that…

Now you are left with a corneal abrasion

Management

- Topical Antibiotics at least QID until resolution
- Consider an antibiotic ointment at bedtime
- Cycloplegic agent
- Consider bandage CL

When does patient come back?

- 5-7 days for small abrasions
- 1-3 days for larger or central abrasions

- Why the need for follow up?
  - Want to confirm the cure
  - If not better, need to decide on management plan

Rust ring secondary to metallic Corneal Foreign Body

How much do you remove?

- None
- All
- Somewhere in between

Do you need to get it all?

- Depends on who you ask?
- My general rule: Get roughly 80% or as much as I can in 2 separate visits
- Use Alger brush if possible

Billing

- CPT 65222 – removal of corneal FB under a slit lamp
- CPT 65220 – removal of corneal FB without a slit lamp
- Average reimbursement -- $140 to $150

Recurrent Corneal Erosion

- What are risk factors for RCE?
  - Trauma – especially with organic material
  - Corneal dystrophy
  - Dry eyes
  - Diabetes
  - Corneal surgery

Management

- ST: Treat corneal abrasion again
- LT: What are your options?

Muro 128

Bandage CL

PTK

Anterior Stromal Puncture

Doxycycline

- 50 to 100 mg BID
- What do you need to educate patients on?
  - Sunlight exposure
  - GI issues
  - Women: Interfere with BCP

Superficial keratectomy

- Use anesthetic and eye spear to smooth out edges of abrasion

Amniotic membrane

Amniotic membrane is an avascular fetal membrane that lies deep to the chorion and is harvested in a sterile environment from placental tissue obtained during elective cesarean sections.

Donors are screened for transmissible diseases, and the AM is further treated with broad-spectrum antibiotics immediately after collection.

Beneficial Properties of AM

- Acts as a physical barrier to protect conjunctival and corneal epithelium as it heals, and it reduces pain caused by friction of the eyelids over the surface.
- The AM basement membrane promotes epithelial growth through cell migration, adhesion, and differentiation, while also inhibiting cell death.
- The stroma of AM, which contains fetal hyaluronic acid, inhibits fibroblast growth and reduces inflammation through decreased expression of cytokines.

Types of AM on the market

- **Cryopreserved AM.**
- Involves slow freezing at –80°C using DMEM/glycerol preservation media to allow for slow-rate freezing without ice formation. The tissue is stored in a –80°C freezer and brought to room temperature when needed for use.
- ProKera (BioTissue) is a cryopreserved form of AM in which the membrane is secured around a polycarbonate ring or an elastomeric band. This form of AM has been cleared by the FDA as a class II medical device, and product claims approved by the FDA include protective, wound healing, and antiinflammatory effects.

Types of AM on the market

- **Dehydrated AM.** Dehydrated AM is preserved using vacuum with low temperature heat to retain devitalized cellular components. FDA-approved claims for this type of AM are limited to wound coverage. Unlike cryopreserved tissue, dehydrated AM is kept at room temperature, but it must be rehydrated for clinical use.
- AmbioDisk (IOP Ophthalmics) is a dehydrated AM commercially available for in-office use; it is applied directly to the ocular surface and covered with an overlying bandage contact lens.

After insertion

- Usually follow up in 4-6 days for removal
- Can still Rx antibiotics and/or topical steroids if needed

Dehydrated AM

Dehydrated AM

- Problem: They decenter sometimes
- Solution: Apply an EW SCL over it
- Advantage of dehydrated AM: Cheaper

Amniotic Membranes

- Clinical Uses
  - ?Severe dry eye disease
  - RCE
  - Chemical burns
  - Non healing corneal ulcers or abrasions

Billing:
Amniotic membrane

- CPT 65778 (Placement of amniotic membrane on ocular surface without sutures)
- Cost: $400 to $800
- Reimbursement: $1000 to $1500

Working in healthcare means making a commitment to “first do no harm”

The key to practicing good patient care

- 1. Take a careful history
- 2. Gather the appropriate information
- 3. Put all the facts together
- 4. Keep your fingers crossed that you were right

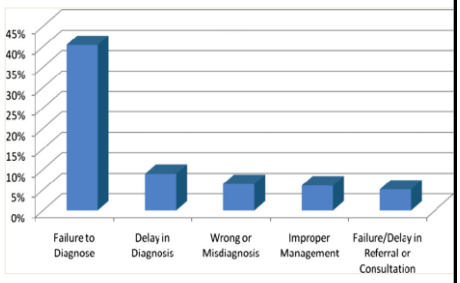
Diagnosing Disease

- Work up those with a higher risk than average not those who you think have the disease
- Just because you don’t have the instruments for it doesn’t mean that it doesn’t need to be done

Explain R & B

- You should discuss and document the risks and benefits of nearly every assessment/plan you have for your patient

What is the most common reason optometrists get sued?



Excuses

- Vision plan won't cover it
- Employer doesn't want me to
- Don't have the equipment

Lifetime Risk for Getting Sued

6%

Medical Optomery

- Medical reimbursements are higher than vision plans
- You can see patients for follow ups as often as needed
- This should be in addition to glasses, contacts, and the "yearly" eye exam

Last Thing

Fill your schedule with all of the low paying vision plans

-Spectera and Davis -- $39

-EyeMed -- $49

-VSP -- $59

The same exam billed to medical reimburses around $120.

It's a $3 million difference

- Private practice ODs make $250,000 a year x 30 years = $7.5 million
- Retail/Salaried ODs make $150,000 a year x 30 years = $4.5 million