Selected Glaucoma Cases
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Financial Disclosure
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Case 1: Meet Ed ...

Hair Today...
- Ed is your average 63 year old
- Enjoys fishing and spending time with his grandchildren
- Ed feels great with one exception: over the last six months he has lost all his HAIR!

Case Background:
- For the past six months the patient lost all of his facial, scalp, axial, pectoral and pubic hair (called alopecia)
- He stated, “that he looked to be about 90 years of age”, instead of his actual 63! So based on his physical appearance he became depressed
- His PCP sent him for blood, thyroid and liver tests to determine the etiology of the alopecia...
So he comes to see us...

Case Findings

- VA 20/20 OD
- 20/70 OS (ref. amblyopia)
- Trace APD OS
- Anterior Segment findings: madarosis or loss of lashes- Alopecia
- Full body: Alopecia universalis

Based on this presentation would you?

A. Refer back to PCP for more testing and Rogaine RX
B. Prescribe a prostaglandin to stimulate lash growth
C. Discontinue the timolol maleate
D. Tell him he looks good and see him for IOP check in 3 months

We chose to...

A. Refer back to PCP for more testing and Rogaine RX
B. Prescribe a prostaglandin to stimulate lash growth
C. Discontinue the timolol maleate

AND.............

6 months later...full regrowth of hair in all regions

Clinical Pearl

- Systemic and local side effects of topical glaucoma medications can not be taken for granted
- Beta Blockers: alopecia, decreased heart rate, pulmonary constriction
- Azopt (brinzolamide 1%): alopecia
- Lumigan, Travatan, Xalatan: Hypertrichosis, Poliosis, Trichiasis, Hyperemia, increase iris pigmentation

After his improvement from the previous medication...

Hair growth

Hair growth occurs in cyclic phases:
1. Anagen-growth phase
2. Catagen-intermediate
3. Telogen-resting phase

Alterations, stimulation or arrest can effect this delicate cycle and result in:
1. Alopecia- loss
2. Poliosis- whitening
3. Hypertrichosis- increased growth
4. Trichiasis-misdirect
Update

1. Ed had SLT and has been managed successfully without topical medications.

2. Ed was happy and did not want to be re-challenged with the Timolol again!

Case 2

Will missing my glaucoma drops once a week cause me to lose vision?

Case 2

61 yo WM on glaucoma treatment for 5 years. Pt has NTG with the highest recorded IOP of 21 after multiple visits at different times of day prior to initiating treatment.

- Average IOP over 5 year period after starting treatment was 15
- Average IOP over 2 month period was 20 with no evidence of progression

Case 2: What changed?

Refill pattern of meds confirm compliance. No apparent progression in glaucoma.

Pt taken off oral beta blocker (HT) with a concurrent IOP elevation of 5-7 mmHg.

IOP effects of oral beta blockers

50 mg of oral Atenolol causes a clinically significant IOP drop with the following parameters:
- detectable 2 hours after dose
- maximum decrease of 40% achieved in 2-5 hours
- decrease in effect after 7 hours
Atenolol and IOP

Dose dependant IOP response with comparison of 25mg, 50mg and 100 mg daily

Sustained IOP decrease at 24 hours after dosing if meds taken for 7 days

Mild loss of effect after 1 month


Oral beta blockers and pulse rate

Resting pulse rates 205 patients
(101 pts on beta blocker):
Mean pulse untreated: 76 bpm
Topical use (68 pts): 70.3 bpm
Oral only (18 pts): 64.7 bpm
Both topical and oral (15 pts): 58 bpm


Oral beta blockers and pulse rate

Case 2: Is this really NTG?

Patient was diagnosed while already taking oral beta blockers

<table>
<thead>
<tr>
<th>Tx</th>
<th>IOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travatan Z</td>
<td>15</td>
</tr>
<tr>
<td>Travatan Z</td>
<td>20 (off B-blocker)</td>
</tr>
<tr>
<td>Betagan added</td>
<td>16</td>
</tr>
</tbody>
</table>

Untreated IOP of 21 and we assume a 40% decrease from the oral then the real untreated high IOP is over 30.

If we assume a 20% decrease then the untreated IOP range is 26 range.

Case 2: Oral B-blocker use

Oral beta blocker on board:
Treated glaucoma or OHT with rapid drop in IOP
Suspected NTG
Untreated glaucoma suspect or OHT with suspicious disc

Oral beta blocker removed:
Elevating IOP or loss of control

Considerations for beta blockers

Case 2: Oral B-blocker use

Patient was on oral B-blocker at the time of diagnosis
POAG more likely the accurate label
Topical B-blocker appropriate tx.
Converse consideration for steroids

**Oral steroid on board:**
- Treated glaucoma or OHT with increase in IOP despite good compliance
- Suspicious disc and elevated IOP and no evidence of glaucoma

**Oral steroid removed:**
- Decrease or control of IOP
- Question validity of previous OAG label

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**Case 3: Hey Doc- between you and me...**

Marijuana and Glaucoma

- Cannabis sativa
- Small study of 11 patients, IOP was reduced 30% in 82% of the patients
- Duration 3-4 hours
  - (one drop of Xalatan up to 84 hours)
- Local and systemic side effects associated with marijuana use. These include conjunctival hyperemia, diminished tear production (leading to dry eye), pupillary mydriasis, alteration of blood pressure and cardiac arrhythmias

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**Marijuana and Glaucoma**

- The Bottom Line
  - What can we tell patients who ask about marijuana use as a glaucoma treatment? Perhaps the most precise answer is this:
  - Organizations such as the American Academy of Ophthalmology and the National Eye Institute have determined that marijuana is not better or safer than other medical and surgical options available to manage glaucoma today.
  - No studies have been published regarding the long-term ocular and systemic effects of marijuana use by glaucoma patients.
  - The duration of action of smoked marijuana necessitates frequent use (four to six times daily), which is impractical.
  - The psychogenic effects of regular marijuana use have been shown to hinder daily activity. = Reasons to Not Use Marijuana as a Glaucoma Treatment

- Just Say NO!

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**Case 4**

Can using pimple cream cause vision loss?
Case 4

SF is a 72 yo WM presenting for an emergent evaluation due to sudden vision loss of the OD. He states he noticed it when covering his left eye when tying his shoe last week.

PMH: HT x 8 yrs on meds
Osteoarthritis on meds
Pt has been using pimple cream on his face for 10 yrs

VA: OD: HM
OS: 20/30
Pupils: + APD OD
CON: OD: no facial detail or CF
OS: full

BVA: OD: CF @ 3 ft
OS: 20/25

SLE:
LIDS: OD: excoriated area extending from inner canthus to ¾ of lid margin temporally. Lash loss on lower lid
OS: seborrhea
CORN: inferior SPK OD> OS
CONJ: intrapalpebral bulbar injection
AC: IV
TA: 64 OD
19 OS

CASE 4: Unilateral glaucoma

Unilateral Glaucoma Causes

Angle recession: no recession on gonio
Exfoliation: no exfoliation
Pigment dispersion: no clinical findings
So what is causing the unilateral glaucoma?

The use of OTC Hydrocortisone (this is not pimple cream)

And ........

Basal cell carcinoma is not a pimple!

Relative strength of steroids

<table>
<thead>
<tr>
<th>Strength</th>
<th>Example Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Prednisolone, Dexamethasone, Hydrocortisone</td>
</tr>
<tr>
<td>Medium</td>
<td>Methylprednisolone, Hydrocortisone, Triamcinolone</td>
</tr>
<tr>
<td>Low</td>
<td>Prednisolone, Dexamethasone, Hydrocortisone</td>
</tr>
</tbody>
</table>

Steroids and elevation IOP

Diagnosis and Treatment

Suddenly noticed vision loss OD secondary to steroid induced unilateral glaucoma. Pt treated with Travatan OD only.

Pt to stop using hydrocortisone cream on his cheek

Pt referred to Dermatology for biopsy and surgical repair. Invasive BCC with MOHS technique removal and reconstructive facial surgery occurred over 6 mos following initial evaluation.

Longterm Treatment Case 4

Unilateral glaucoma treated for 3 mos then travatan stopped after washout of steroid use.
CASE 3: Steroid aspects of case

1/3 population are IOP responders
Topical and Oral steroid preparations
Dermatologic preparations
Short term/long term use

CASE 4: Outcome 7 mos later

Elevated IOP bilaterally with greater severity monocularly OD
IOP lowering meds in short term but IOP 14 and 11 off steroid cream
Grafting of face and lid through 5/2011 with no recurrence at most recent exam of 8/2013

Look critically at OTC meds for patients with unusual ocular presentations.
Case 3 Question: Can using pimple cream cause vision loss?

Answer: No but using steroid cream can on the eyelids and periorbital area for 10 years can!

Case 4: Can you cure glaucoma?

- 73 year old Ukrainian male
- Trauma OS 1941 Russian Soldier in WWII
- VA 20/20 OD LP OS
- IOP was 20 mmHg OD and 30 OS with pain and Optometrist placed him on Timolol 0.5% OU
- IOP 16 mm Hg OD and 12 mm Hg OS;
- Anterior Segment findings...

OD with the following findings...
IOP 16

OS IOP 12 previous trauma...

IOP 16 mm Hg

Case Findings
- On Timolol 0.5% BID OU
- Gonio findings Appositionally closed in 2 quadrants and grade II in the other two
- LPI performed one week later
Returns to office 3 months later

Heidelberg Retina Tomograph II

Does the field match the disc? Would you treat the Pseudoexfoliation? Pachymetry 516 OD

I chose to do an...

1. Do SLT
2. Repeat visual field
3. MRI
4. Use Timolol 0.5% and add Xalatan

Based on the findings would you...

1. Do SLT
2. Repeat visual field
3. MRI
4. Use Timolol 0.5% and add Xalatan

MRI Results

- There is a 14 x 16 x 18 mm lobulated, uniformly enhancing planum sphenoidale mass extending into the suprachiasmatic cistern encroaching on the optic chiasm, nerves and tract. No intra or extracranial masses noted.
- Impression: Planum meningioma encroaching on the suprachiasmatic optic neural structures.
- Patient underwent surgical resection of the mass and...
Glaucoma cured!

- Pre visual field
- Post surgical visual

Pseudoexfoliation Pearls

- Glassblowers cataracts: true exfoliation from thermal exposure
- About 15% develop glaucoma within 5 to 10 years
- Usually bilateral, but asymmetric

Pseudoexfoliation Glaucoma

Q. Is Pseudoexfoliation Syndrome cured after cataract surgery?
A. No, the deposits continue and the risk of glaucoma still present.

Q2. Does Pseudoexfoliation impact cataract surgery?
A. Yes, higher risk of weakened zonules, capsular rupture. Tension rings are sometimes necessary.

How do you treat Pseudoexfoliation?

- ICEST 12 year results: International Collaborative Exfoliation Syndrome Treatment
- Latanoprost and Pilocarpine is better than Timolol or Timolol/dorzolamide because of
  1. Lower IOP (obviously good)
  2. Improved outflow facility (opposed to aqueous suppression)
  3. Decreased TM pigmentation
- Key is less pupil movement with Pilo

Pseudoexfoliation and Starbucks?

Large Study Finds Coffee Associated With Risk of Exfoliation Glaucoma

The consumption of caffeinated coffee is associated with the risk of developing exfoliation glaucoma, according to the results of a large prospective study published in Investigative Ophthalmology and Visual Science.

The study included 23,000 women from the Nurses' Health Study and 11,000 men from the Health Professionals Follow-up Study who were at least 40 years of age, did not have glaucoma, and reported undergoing eye examinations from 1980 to 2008. Information on the consumption of caffeinated beverages and potential confounders was repeatedly ascertained in validated follow-up questionnaires. A review of the participants' medical records revealed 360 incident cases of EG/EGS. Multivariate rate ratios (RRs) for EG/EGS were calculated in each cohort and then pooled using meta-analytic techniques.

According to the study, compared with participants whose cumulative updated total consumption of caffeine was less than 125 mg/day, participants who consumed 500 mg/day or more had a trend toward an increased risk of EG/EGS that was not statistically significant (RR = 1.43; 95% confidence interval [CI], 0.98-2.08; P trend = .06). Compared to abstainers, those who drank 3 or more cups of caffeinated coffee daily had an increased risk of EG/EGS (RR = 1.64; 95% CI, 1.09-2.54; P trend = .02). These results were not materially altered after an adjustment for total fluid intake. Associations were stronger among women with a family history of glaucoma (RR = 2.34; P trend = .07) than among women without a family history of glaucoma (RR = 1.24; P trend = .42). When the analysis was limited to coffee consumption, the associations between coffee consumption and the risk of EG/EGS were not statistically significant (RR = 1.25; 95% CI, 0.81-1.94; P trend = .42). The investigators did not find associations between the risk of EG/EGS and the consumption of decaffeinated coffee, tea, and chocolate.
Thank you!