Successful Treatment of Severe Floppy Eyelid Syndrome

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My Background
- Fellow, American Society of Ophthalmic Plastic & Reconstructive Surgeons
- Board certified by the ABMS in Ophthalmology
- Board certified by the ABCS in Facial Cosmetic Surgery
Purpose
- Discuss the history and features of floppy eyelid syndrome
- Present the strong relationship with sleep apnea
- Touch upon other ocular manifestations of sleep apnea
- Share what I’ve learned and how my treatment approach has evolved
- Demonstrate a management approach and surgical technique that is very effective for floppy eyelid syndrome

Is There Anyone Who Has Not Ever Seen Floppy Eyelid Syndrome?

It Comes In All Shapes And Sizes...But Basically...
Floppy Eyelid Syndrome

- First described in 1981 by Culbertson and Oltler
- Reported 11 overweight men with symptoms of ocular discomfort
- Elastic lids that could easily be distorted and everted
- Marked papillary conjunctivitis

The Classic Patient

- Middle age
- Overweight
- White men
- Ocular irritation/tearing
But...In My Practice

- Women
- Children
- African-American and Hispanic
African-American Man

White Woman Not Especially Overweight

Is It Common?
Floppy Eyelid Syndrome Is Fairly Common
- At least it's common in my practice.
- I see about 25 patients with FES per year.

What Is Floppy Eyelid Syndrome?

Upper Eyelid Anatomy
Lower Eyelid Anatomy

A Broken Windshield Wiper

Isn't That Better?!
Recognizing Floppy Eyelid Syndrome
- Patient generally has irritation and tearing
- Usually symptoms are worse in the morning
- Crepe-like eyelid skin or lash ptosis
- Can have pain and photophobia
- Rarely have corneal abrasion or external ulcers

The symptoms and findings are almost always on the dominant sleep side
- Or, if the patient has a bilateral condition, you often find they sleep on their stomach
- Patients, if questioned, usually have a history suggestive of sleep apnea

Histopathology
- Decreased number of elastin fibers in the tarsal plate and orbicularis fibers
- Also observed that uvular tissue demonstrates a loss of elastin
- Matrix metalloproteinases (MMPs) that degrade elastic fibers were found to be very immunoreactive in the conjunctiva
Histopathology

There Is A Clear Correlation Between Floppy Eyelid Syndrome And Sleep Apnea

So Naturally...
Evidence Suggests
- OSA is common in FES
- But FES is uncommon in the general OSA population
- The incidence of FES in OSA has been shown to be anywhere from 2% to 32%
- One study showed 26 out of 27 pts with FES had OSA but in a random cohort of 20 patients with OSA, only 1 had FES

Mechanism
- Mechanical Theory
- Ischemia-Reperfusion Theory
- Genetic Theory

Mechanical Theory
- Supported by symptoms present on sleep side
- Symptoms of discomfort upon awakening
- FES has been reported in patients with eye rubbing disorders
Ischemia-Reperfusion Theory

- Supported by the fact there exists low nocturnal systemic PaO2
- Sudden reperfusion causes free radical release that damages surrounding tissue

Genetic Theory

- A genetic factor affecting collagen or elastin may be responsible so that some patients get FES while others do not, even though the same forces are at play.
- I think there is probably something to this. It could explain why other areas of the body are affected—heart valves, esophageal sphincter, and so on.

What Other Ocular Manifestations Have Been Observed in OSA?
Keratoconus

Microbial Keratitis

Filamentary Keratitis
Scarring of the Cornea With Neovascularization

Corneal Perforation

Blepharitis
Meibomianitis or Chalazia

Thinning Of The Nasal Retinal Nerve Fiber Layer

NAION—Nonarteritic Ischemic Optic Neuropathy
Primary Open Angle Glaucoma

Normal Tension Glaucoma

Is There An ICD-10 Code For Floppy Eyelid Syndrome?
How Do I Treat Floppy Eyelid Syndrome

- Ointments, artificial tears
- Alternating sleep sides
- If patients are not already compliant on CPAP, I order a sleep evaluation
- I think eyelid taping and shielding is not very helpful for most patients.

If the patient is compliant on CPAP...
- I'll correct moderate floppy eyelids recalcitrant to nonsurgical means and severe floppy eyelid syndrome surgically
- I'll correct floppy eyelid syndrome before performing ptosis surgery
How Do I Correct Floppy Eyelid Syndrome?

Lateral Tarsal Strip with an Ipsilateral Full Thickness Wedge Resection

How Did This Become My, “Go-To” Procedure

- Initially, I did not always appreciate that floppy eyelid syndrome meant — floppy upper and lower eyelids
- Sometimes, when I was correcting what I thought was severe ectropion only, I would find a lax upper eyelid would then imbricate over the tighter lower eyelid
- This led me to recognize a floppy upper eyelid frequently in the presence of ectropion.
How Did This Become My, “Go-To” Procedure?

- Also, new patients were presenting who had had failed ptosis repairs—either the ptosis only was better for a few months or never really better
- I recognized if I corrected the floppy eyelid syndrome first, they would have successful ptosis surgeries

Next, I began performing a “lateral tarsal strip” on the upper eyelid at that same time that I performed one on the lower eyelid, 2009-2013
- Altering the lateral levator and its attachments did not restore a really “natural dynamic.” Although this was effective at times—it was not always predictable or aesthetically pleasing

Lateral Tarsal Strip with an Ipsilateral Full Thickness Wedge Resection
Why Did This Become My, “Go-To” Procedure?
- This approach has the advantage of effectively treating the lower and upper eyelid laxities simultaneously with proven procedures.
- The integrity of the lateral levator attachments to the lateral canthal tendon are not disrupted. Somehow this is helpful and important.
- And... it works!

Lateral Tarsal Strip with an Ipsilateral Full Thickness Wedge Resection
Before and After

Questions To Answer

• What is it about the FES patients with OSA, that they have FES vs a large majority of OSA that do not have FES?

• Why do some patients have mostly upper eyelid laxity and others have upper and lower eyelid laxity?
Questions To Answer

- What is it about the FES patients with OSA, that they have FES vs a large majority of OSA that do not have FES?
- Why do some patients have mostly upper eyelid laxity and others have upper and lower eyelid laxity?
- What is the mechanism for loss of elastin in the tarsus and other systemic tissues in patients with FES and OSA? What about heart valves or the lower esophageal sphincter?

Can severe FES be prevented in pts with no FES or mild-moderate FES, who begin CPAP therapy?

No Surgery—Just 5 Years of CPAP
No Surgery—Just 5 Years of CPAP

Questions To Answer

- Can CPAP put patients at increased risk who either have glaucoma or have risk factors for glaucoma? Or can CPAP decrease periods of apnea increasing blood flow to the optic nerve and thereby decreasing risks of glaucomatous or ischemic optic neuropathy?

- How often does FES correlate with other co-morbidities of OSA? Such as atrial fibrillation? GERD?
Questions To Answer
- Can CPAP put patients at increased risk who either have glaucoma or have risk factors for glaucoma? Or can CPAP decrease periods of apnea increasing blood flow to the optic nerve and thereby decreasing risks of glaucomatous or ischemic optic neuropathy?
- How often does FES correlate with other co-morbidities of OSA? Such as atrial fibrillation? GERD?
- When should sleep specialists refer their patients to an ophthalmologist?

Summary
- Lateral tarsal strip with an ipsilateral full thickness wedge resection is an effective way to treat floppy eyelid syndrome
- I've performed the surgery on over 23 patients with excellent subjective and objective results
- I'm summarizing my findings in a retrospective study that I hope to have completed and accepted to present at next year's ASOPRS fall meeting

Bibliography
Bibliography


Thank You!